NEW OR NOTEWORTHY PHILIPPINE PLANTS, XI

By E. D. Merrill

(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

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NEW OR NOTEWORTHY PHILIPPINE PLANTS, XI

By E. D. Merrill

(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

The eleventh paper of this series is essentially like its predecessors. It consists of the descriptions of 90 new species of Philippine plants in the families Chloranthaceae, Aristolochiaceae, Saxifragaceae, Cunoniaceae, Leguminosae, Simarubaceae, Burseraceae, Anacardiaceae, Sabiaceae, Rhamnaceae, Elaeocarpaceae, Begoniaceae, Ericaceae, Sapotaceae, Apocynaceae, Verbenaceae, and Gesneriaceae. About 12 previously described species are for the first time credited to the Archipelago, making the total number of additions to the Philippine flora, recorded in this paper, approximately 100. Genera recorded from the Archipelago for the first time are Aqualaria, Koompassia, Melilotus, Neptunia, Cymodocea, Diplanthera, Hanguana, Urceola, Vallaris, and Protium. A few reductions are made and a few changes in nomenclature are recorded as such changes have been indicated by the rules of the international code of botanical nomenclature.

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HYDROCHARITACEAE

THALASSIA Solander

THALASSIA HEMPRICHII (Ehrenb.) Aschers. in Engl. & Prantl Nat. Pflanzenfam. 2 (1889) 254.


CAVILLI ISLAND, Sulu Sea, Merrill 7180, September, 1910, on coral sand, submerged at low tide; sterile specimens, det. C. H. Ostenfeld. LUZON, Manila Bay, Merrill, August, 1911, washed up on Pasay beach.

Not previously recorded from the Philippines; widely distributed along the tropical shores of the Indian and Pacific Oceans.

HALOPHILA Thouars


BANCORAN ISLAND, Sulu Sea, Merrill 7155, September, 1910, sterile specimens growing on coral sand in shallow water, 0.4 to 1.3 m deep at low tide, det. C. H. Ostenfeld.

This species has previously been recorded from the Philippines by Naves, but the record has not before been verified. It is to be noted that Halophila ovalis Hook. f. is quite distinct from H. ovata Gaudich. For a consideration of the latter see Ostenfeld's paper.

Wide distribution along tropical shores of the Indian and Pacific Oceans.

HALOPHILA SPINULOSA (R. Br.) Aschers. in Neumayer Anleit. Wissensch. Beob. 368, ed. 3 (1905) 396; Benth. Fl. Austral. 7 (1878) 183.


LUZON, Province of Camarines, For. Bur. 13375 Curran, June, 1908, sterile specimens thrown up by the waves, det. C. H. Ostenfeld.

This species has previously been reported from Mindanao by Ascherson, l. c. ed. 3, as indicated to my by Dr. Ostenfeld.

Eastern and northern coasts of Australia, the Philippines, and Java.

POTAMOGETONACEAE

CYMODOCEA Koenig

CYMODOCEA ROTUNDATA (Ehrb. & Hempr.) Asch. & Schweinf. in Sitzber. Ges. Freunde Berlin (1870) 84; Graebner in Engl. Pflanzenreich 31 (1907) 147.


CAVILLI ISLAND, Sulu Sea, Merrill 7180A, September, 1910, sterile specimens mixed with Thalassia hemprichii Aschers., det. C. H. Ostenfeld.

This species has already been reported from Mindanao by Graebner, l. c. It extends from the shores of the Red Sea southward to Madagascar and eastward to Mindanao, Timor, and Australia.

¹ Novis. App. (1880) 298.
DIPLANTHERA Thouars

DIPLANTHERA UNINERVIS (Forst.) Aschers. in Engl. & Prantl Nat. Pflanzenfam. 2 (1897) 37; Graebner in Engl. Pflzenreich 31 (1907) 152.

Zostera univervis Forsk. Fl. Aeg.-Arab. (1775) 159.

Cavilli Island, Sulu Sea, Merrill 7179, September, 1910, on coral sand in shallow water, usually exposed at low tide; sterile specimens det. C. H. Ostenfeld. Luzon, Manila Bay, on the Bataan coast, Shaw.

Not previously reported from the Philippines; tropical shores from the Red Sea and the east coast of Africa to Malaya, Australia, and Polynesia.

FLAGELLARIACEAE

HANGUANA Blume (Susum Blume)

HANGUANA MALAYANA (Jack) comb. nov.


Hanguana kassintu Blume Enum. Pl. Jav. (1827) 15, ed. 2 (1830) 15; Miq. Fl. Ind. Bat. 3 (1857) 248.


Veratonia malayana Miq. Fl. Ind. Bat. 3 (1857) 553.

Palawan, Malampaya Bay, Merrill 7221, September, 1910. Mindanao, Province of Surigao, Hinatuan, Piper 529, May, 1911.

There seems to be very little doubt as to the identity of Veratrum malayanum Jack and Hanguana kassintu Blume, and as Blume's generic name Hanguana has three years priority over his generic name Susum, it is here adopted. The case is not covered by the lists of nomina conservanda adopted by the Vienna or the Brussels botanical congress.

The genus has previously not been reported from the Philippines. Malay Peninsula and Archipelago.

CHLORANTHACEAE

CHLORANTHUS Linnaeus

CHLORANTHUS VERTICILLATUS sp. nov.

Herba erecta, ramulis subtus foliisque ad nervos plus minusve furfuraceo-pubescentibus; foliis membranaceis, breviter petiolatis, verticillatis, ovatis ad elliptico-ovatis vel elliptico-obovatis, acuminatis, usque ad 10 cm longis, utrinque angustatis, margine distincite acute apiculato-serrulatis; spicis 1 vel 2, 2 ad 3 cm longis, pedunculo elongato; squamis antheriferis 3-partitis, lobis inaequalibus, intermedia 4 mm longa.

An erect, apparently branched herb, the younger branchlets, the lower surfaces of the leaves on the veins and reticulations, and to a lesser degree the inflorescence more or less furfuraceous-pubescent. Leaves verticillate at the apices of the branchlets, in whorls of 4, membraneaceous, ovate to elliptic-ovate or elliptic-
obovate, about equally narrowed to the slenderly acuminate apex and to the acute base, 8 to 10 cm long, 3.5 to 5 cm wide, the margins prominently and acutely apiculate-serrate except in the lower 1 cm and the margins of the acumen which are entire; nerves 7 or 8 on each side of the midrib, distinct, anastomosing, the reticulations lax; petioles furfuraceous-pubescent, about 2 mm long. Inflorescence terminal, slightly pubescent, solitary, including the peduncle up to 13 cm in length, each bearing one or two, rather many flowered, 2 to 3 cm long spikes. Flowers white, the bract orbicular-ovate, irregularly toothed, 1.7 to 2 mm long, rounded. Pistillate flower: Ovary narrowly ovoid, somewhat narrowed at both ends, about 2 mm long, glabrous. Staminate flowers: Antheriferous scale 3-partite, the lobes ob-long, rounded, the central one about 4 mm long, 1.2 mm wide, bearing an oblong, 1.2 mm long, 2-celled anther, the lateral lobes about as wide, one-half as long, each bearing a 1-celled anther.


Probably as closely allied to Chloranthus henryi Hemsl. as to any other species. It is distinguished, however, by its pubescent branchlets and lower surfaces of its smaller leaves, its inflorescence reduced to 1 or 2 spikes, and its smaller flowers. From its closest Philippine ally, C. philippinensis Merr., it differs in its much smaller, pubescent, shortly petioled leaves, and its larger flowers.

ARISTOLOCHIACEAE

ARISTOLOCHIA LEYTENSIS sp. nov.

Species A. tagala et A. mindanaensis similis et affinis, differt floribus tumulto majoribus, usque ad 8.5 cm longis.

A slender vine, nearly glabrous, the branches brownish when dry, glabrous, deeply sulcate. Leaves ovate, membranaceous, glabrous, of about the same color on both surfaces, somewhat shining, 14 to 17 cm long, 8 to 10 cm wide, entire, the apex acuminate, the base deeply and prominently cordate, the sinus about 2 cm deep, 1.5 to 2 cm wide, often obovate, the basal lobes rounded; basal nerves 3, the lateral pair soon forked, and its lower branches soon forked again, the lateral nerves above the base about 3 on each side of the midrib, prominent, the reticulations very lax; petioles 4 to 7 cm long, glabrous. Racemes axillary, solitary, the rachis slender, slightly pubescent, about 3 cm long, each raceme bearing about 6 flowers, not all developing at one time, each flower subtended by an ovate-lanceolate, acuminate, slightly pubescent bract, the pedicels minutely
pubescent, 7 to 10 mm long. Ovary somewhat clavate, about 8 mm long, the tube constricted for 4 mm above the ovary, then inflated, the larger portion of the tube about 3 cm long, swollen at the base, then constricted, and again enlarged and somewhat funnel-shaped, the lip narrowly lanceolate, glabrous, gradually narrowed upward to the slenderly acuminate apex, 5 to 6 cm long, about 5 mm wide.

LEYTE, near Dagami, Bur. Sci. 15201 Ramos, August, 1912, in thickets along streams.

A species with much the same vegetative characters as Aristolochia tagala Cham., and A. mindanaensis Warb., the leaves being very similar in all three species. Aristolochia leytensis is, however, entirely distinct from both the above in its much larger flowers.

**SAXIFRAGACEAE**

**CURRANIODENDRON** Merrill

**CURRANIODENDRON APOENSE** (Elm.) comb. nov.


This characteristic species was approximately simultaneously described by Mr. Elmer and by myself, but Mr. Elmer's publication of the species under *Dedea* antedates my own publication of the new genus and species *Curraniodendron dedeaeoides* by about ten days. I have reëxamined the material and am still of the opinion that the plant is worthy of being considered the type of a distinct genus, although as previously indicated, very similar to, and manifestly closely allied to the New Caledonian genus *Dedea* Baill. The question for the future monographer to decide is whether or not the resinous, not lepidote vegetative parts, the difference in number in floral parts, and the very decided difference in the number of ovules constitute sufficiently valid generic differences.

The species is represented by the following material: NEGROS, Mount Marapara, For. Bur. 13634 Curran & Foxworthy. LEXTE, Dagami, Bur. Sci. 15283 Ramos. MINDANAO, Mount Apo, Elmer 11524, 10627.

**POLYOSMA** Blume

**POLYOSMA LAGUNENSIS** sp. nov.

Species *P. philippinensis* affinis, differt foliis subtus ad nervos adpressae hirsutis, nervis magis numerosis, floribus minoribus.

A small tree 5 to 8 m high, the older branches terete, light-gray or pale-brownish, the younger branchlets and inflorescences rather densely pubescent with pale-fulvous, short, appressed hairs. Leaves opposite, mostly oblong to obovate-oblong, chartaceous, 8 to 14 cm long, 3 to 6 cm wide, narrowed above to the abruptly, slenderly, and sharply acuminate apex, the acumen somewhat apiculate, and below to the cuneate base, entire or
with minute, scattered teeth opposite the ends of some of the nerves, the upper surface, when dry, dark brownish-olivaceous, slightly shining; smooth, glabrous, the lower surface paler, appressed hirsute with fulvous hairs on the midrib and lateral nerves; lateral nerves 12 to 15 on each side of the midrib, prominent on the lower surface, anastomosing, the reticulations lax; petioles fulvous-pubescent, 2 to 2.5 cm long, in age becoming nearly glabrous. Racemes terminal, many flowered, solitary, 10 to 14 cm long, densely hirsute with short, fulvous hairs. Flowers white, somewhat crowded, their pedicels 3 mm long, the bracteoles usually 3, lanceolate, acuminate, 2 to 2.3 mm long. Calyx hirsute, 2 to 2.5 mm long, the lobes lanceolate-ovate, acuminate, 0.8 mm long. Petals 4, linear-lanceolate, 8 to 9 mm long, about 2 mm wide at the base, narrowed upward to the acute apex, prominently 5-nerved, the nerves dark-colored, outside hirsute. Filaments flattened, hirsute inside, about 4 mm long; anthers linear, narrower than the filaments, 3 mm long. Style glabrous, 8 mm long. Fruit subglobose, not rugose, sparingly pubescent, 7 to 8 mm in diameter.


A species manifestly closely allied to Polysosma philippinensis Merr., from which it differs in its smaller flowers, and its more numerous nerves on the midrib and nerves on the lower surface, not glabrous. Another close ally appears to be the recently described Polysosma gitingensis Elm., which, however, has glabrous leaves, even smaller flowers, and much larger bracteoles.

Polysosma Linearibractea sp. nov.

Arbor, omnibus partibus plus minusve pubescentibus vel hirsutis; foliis crasse coriaceis, oppositis, oblongis, usque ad 17 cm longis, utrinque acutis, apice mucronatis, margine grosse distanter serratis; nervis utrinque circiter 12, subtus valde prominentibus; racemis terminalibus, solitariis, circiter 15 cm longis; fioribus circiter 2.4 cm longis, bracteolis linearis, elongatis, 8 ad 12 mm longis.

A tree said by the collector to be 20 m high, the branches terete, dark-brown, glabrous, the younger branchlets, the leaves, and the inflorescence more or less densely hirsute with grayish-brown hairs. Leaves thickly coriaceous, oblong, 12 to 17 cm long, 4 to 5 cm wide, narrowed about equally to the acute base and apex, the apex also mucronate, the upper surface, when young, appressed-hirsute, in age becoming glabrous, shining, greenish-olivaceous, the lower surface paler, rather prominently hirsute
on the midrib and nerves, becoming nearly glabrous, the margins rather coarsely and distantly apiculate or glandular-serrate, the teeth corresponding to the lateral nerves; lateral nerves about 12 on each side of the midrib, curved, anastomosing, very prominent on the lower surface, the reticulations lax, prominent; petioles 2 to 3 cm long, hirsute, becoming nearly glabrous. Racemes terminal, solitary, about 15 cm long, densely hirsute, the rachis rather stout. Flowers pale-lavender, about 30 in each raceme, their densely hirsute pedicels about 4 mm long, the bracteoles 3 at the apices of the pedicels, linear, hirsute, the two lateral ones 8 to 9 mm long, 0.5 mm wide or less, the middle one up to 12 mm long and a little wider than the lateral ones. Calyx somewhat hirsute, including the lanceolate, acuminate calyx-teeth about 6 mm long. Petals 4, about 2.5 cm long, 2.2 mm wide, scarcely narrowed upward, with about 4, dark-colored nerves, hirsute, the apex thickened. Filaments slender, scarcely flattened, 8 to 9 mm long, sparingly pubescent; anthers linear, about as wide as the filament, obtuse, 6 to 7 mm long. Style about 1.7 cm long, slender.


A most striking species, at once distinguished from all known Philippine forms by its large flowers and very prominent, linear, elongated bracteoles.

CUNONIACEAE

WEINMANNIA LUCIDA sp. nov. § Leiospermum.

Arbor circiter 10 m alta inflorescentiis exceptis glabra; foliis 3- vel 5-foliolatis, usque ad 15 cm longis, folioliis subcoriaceis, lanceolati̇s vel oblongo-lanceolatis, in siccitate brunneis, utrinque valde nitidis, longe acuminatis, basi acutis, margine distantior crenato-serratis, reticulis laxis, haud prominentibus; racemis multifloris, folia subaequantibus, pubescentibus; floribus 4-meris, sepalis caducis.

A tree about 10 m high, glabrous except the inflorescence. Branches grayish, terete, the younger parts brownish. Leaves opposite, 9 to 15 cm long, the rachis and petiole quite glabrous; leaflets 3 or 5, lanceolate or oblong-lanceolate, subcoriaceous, strongly shining, brownish and of the same color on both surfaces when dry, 5 to 10 cm long, 1.5 to 4 cm wide, the apex slenderly acuminate, the acumen blunt, the base acute, the margins slightly and distantly crenate-serrate; lateral nerves about 10 on each side of the midrib, slender, not prominent,
the reticulations lax, slender, rather obscure; petiolules of the lateral leaflets 2 to 3 mm long, that of the terminal one much longer. Inflorescence in the upper axils and subterminal, uniformly pubescent with short, rather closely arranged hairs, the common peduncles thick, flattened, about 5 mm long, each bearing at its apex 4 elongated racemes arranged in one plane; racemes up to 10 cm long, many-flowered. Flowers 4-merous, their pedicels slender, pubescent, 2.5 to 3 mm long, solitary or somewhat fascicled along the rachis. Sepals oblong, obtuse or subacute, 0.8 mm long, deciduous, leaving in fruit a disk-like base nearly 1 mm in diameter and bearing 8 marginal glands. Petals elliptic, rounded, about 1.2 mm long. Stamens 8; filaments 1 to 1.2 mm long; anthers heart-shaped, 0.3 mm long. Capsules oblong, narrowed at both ends, the base acute, apex acuminate, 4 to 5 mm long including the two styles, 1 to 2 mm in diameter, uniformly pubescent with scattered, short hairs, the styles 1 to 1.5 mm long.

Luzon, Province of Laguna, Dahican, in forests along the river, Phil. Pl. 1109 Ramos, September 17, 1912.

A species manifestly allied to Weinmannia luzoniensis Vid., from which it differs in its entirely glabrous leaves, but more especially in its much narrower, differently shaped leaflets which are only slightly toothed, strongly shining on both surfaces, and with slender, laxly arranged veins and reticulations. Several of the Philippine representatives of this genus find their closest allies (§ Leiospermum) in Polynesia, not in the Malayan region.

LEGUMINOSAE

ALBIZZIA Durazzini

ALBIZZIA MYRIANTHA sp. nov.

Arbor circiter 20 m alta, inflorescentiis exceptis glabra; foliis bipinnatis, circiter 35 cm longis, petiolo basi supra 1-guanduloso, rhachibus glandulis 2 vel 3 instructis; pinnis circiter 10 utrinque, 10 ad 14 cm longis; foliolis circiter 30 utrinque, oblongis, equilateralibus, basi obtusis, apice rotundatis, circiter 1.5 cm longis, costa centralis; inflorescentiis axillaribus folia aequantibus, racemoso-paniculatis; floribus numerosis, albido-viridis, pedicellatis, ad apices ramulorum racemoso-capitatis.

A tree about 20 m high, glabrous except the inflorescence. Branches subterete, very dark-colored when dry, slightly lentiscellate. Leaves bipinnate, about 35 cm long, the petiole with a large gland near the base, the rachis with 2 or 3 smaller glands in the upper part; pinnae about 10 on each side of the rachis, opposite, the secondary rachises with glands in the upper one-half, 10 to 14 cm long; leaflets opposite, about 30 pairs on
each pinna, oblong, chartaceous, 1.4 to 1.8 cm long, 5 to 7 mm wide, equilateral, the midrib central, apex rounded, base obtuse or rounded the lateral nerves about 6 on each side of the midrib, indistinct, the upper surface olivaceous, shining when dry, the lower paler. Panicles in the upper axils, usually one in each axil, as long as the leaves, narrow, the whole forming a terminal leafy inflorescence, sparingly fulvous-pubescent; primary branches confined to the upper 10 cm, spreading, solitary or fascicled, scattered below, rather crowded toward the apices, 5 cm long or less, each branch bearing near its apex numerous, racemose-capitate, greenish-white flowers, the heads, including the anthers, about 3 cm in diameter. Pedicels about 2 mm long, appressed-pubescent with short fulvous hairs. Calyx narrowly funnel-shaped, about 4 mm long, sharply 5-toothed, densely appressed fulvous pubescent. Corolla narrowly funnel-shaped, twice as long as the calyx, 5-lobed, the lobes 2 mm long or less, oblong, acute; stamens long-exserted.

PALAWAN, Taytay, Merrill 9259, May 15, 1913, in forests near the sea and slightly above sea level.

A very characteristic species apparently most closely allied to Albizia pedicellata Baker, of the Malay Peninsula.

PARKIA R. Brown

PARKIA SHERFESEEI sp. nov.

Arbor alta, plus minusve ferrugineo-pubescentibus; foliis circiter 50 cm longis; pinnis 8- ad 12-jugatis, inferioribus brevioribus; foliolis 11- ad 16-jugatis, oblongis, coriaceis, usque ad 2.5 cm longis, 1 cm latis, sessilibus, basi subtruncatis, apice rotundatis vel leviter inaequilateraltiter retusis; pedunculis usque ad 30 cm longis, inflorescentiis junioribus obovoideis, dense ferrugineo-pubescentibus.

A tree reaching a height of 27 meters, the trunk 1.2 m in diameter, the young branchlets, rachis, secondary rachises, peduncles and inflorescence rather prominently ferruginous-pubescent with short hairs. Leaves up to 50 cm long, the pinnae 8 to 12 pairs, the lower ones about 10 cm long, the intermediate and upper ones up to 16 cm long; leaflets coriaceous, rather pale when dry, oblong, up to 2.5 cm long, and 1 cm wide, sessile, base rounded-truncate, inequilateral, apex rounded or somewhat inequilaterally retuse, the lateral nerves slender, anastomosing, indistinct. Peduncles up to 30 cm long, the inflorescence (in bud) obovoid or pyriform, rather abruptly contracted below the middle, 4 to 5 cm long, about 2.5 cm in diameter, the bracteoles densely imbricate, spatulate, about 7 mm long, glabrous
except the upper exposed portion which is densely ferruginous-pubescent. Calyx about 7 mm long, the tube glabrous, the lobes densely pubescent.


A very characteristic species, recognizable at once by its ferruginous indumentum, its very dense inflorescences, and its unusually large leaflets.

PITHECOLOBIUM Martius

PITHECOLOBIUM CAULOSTACHYUM sp. nov.

Arbor 5 ad 10 m alta, subglabra; foliis bijugatis, circiter 20 cm longis, pinnis 6-foliolatis, foliolis chartaceis, lanceolatis vel oblongo-lanceolatis, usque ad 11 cm longis, acuminatis, basi acutis, nervis utrinque circiter 9; paniculis parce breviter hirsutis, paucifloris, usque ad 5 cm longis, plurumque fasciculatis, caulinis et in ramis vetustioribus, corolla circiter 5 mm longa.

A tree 5 to 10 m high, the panicles mostly fascicled on the trunk and larger branches. Branchlets slender, grayish-brown, glabrous, the younger ones somewhat puberulent. Leaves 1-jugate, about 20 cm long, the rachis 2 to 3 cm long, slightly puberulent, usually with two prominent glands, one between the pinnae, and one at the upper two-thirds; pinnae with 6-leaflets opposite, the lower subalternate, rachis puberulent, with one gland between each of the two upper pairs of petiolules and usually one gland below the lowermost leaflet. Leaflets chartaceous, lanceolate or oblong-lanceolate, 7 to 11 cm long, 2 to 3 cm wide, dark-brownish when dry, shining, glabrous, the apex rather slenderly and sharply acuminate, base acute; lateral nerves about 9 on each side of the midrib, slender, anastomosing; petiolules 2 mm long or less, puberulent, becoming glabrous. Panicles fascicled, mostly on the trunk and larger branches, occasionally a few on the ultimate branchlets, 5 cm long or less, few-flowered, sparingly hirsute with short hairs. Flowers white, two or three subcapitately disposed at the tip of each ultimate branchlet, the subtending bracteoles narrow, about 1 mm long. Calyx cup-shaped, about 1.5 mm long, glabrous or nearly so, the teeth short, acute. Corolla campanulate, about 5 mm long, the tube 2.5 mm long, the lobes as long as the tube, recurved, oblong, obtuse or subacute. Stamens about 25, the free portions of the filaments about 1 cm long, the lower 2 to 3 mm united into a tube. Ovary glabrous, oblong-cylindric, 2 mm long; style slender, about 13 mm long.
SAMAR, Mount Cauayan, Phil. Pl. 1637 Ramos, April, 1914, on forested slopes.

The most striking character of this species is its cauline inflorescence. It is manifestly allied to Pithecolobium pauciflorum Benth., but differs not only in the disposition of its inflorescences, but in its very differently shaped, more numerous leaflets. In vegetative characters it closely resembles Pithecolobium bigeminum Benth. as represented by Thwaites C. P. 644.

PITHECOLOBIUM MULTIFLORUM sp. nov.

Arbor 6 or 8 m alta partibus junioribus inflorescentiisque plus minusve ferrugineo-pubescentibus; foliis circiter 40 cm longis, bijugatis, pinnis inferioribus 4-foliolatis, superioribus 8-foliolatis, foliolis subcoriaceis, oblongis vel oblongo-lanceolatis, breviter obtuse acuminatis, basi acutis ad subrotundatis, usque ad 14 cm longis, nervis utrinque circiter 9, subtus prominentibus; paniculis terminalibus, quam folia longioribus, e basi ramosis, multifloris; floribus subcapitatis, capitulis 4- vel 5-floris, in ramulis plus minusve confertis, petalis fere liberis.

A tree 6 to 8 m high, closely allied to Pithecolobium ellipticum Hassk., the branches dark-colored when dry, glabrous or nearly so, the branchlets sparingly brown-pubescent with short hairs, the primary and secondary rachises of the leaves and the inflorescence with similar hairs, the younger parts of the inflorescence densely ferruginous-pubescent. Leaves about 40 cm long, evenly 2-jugate, the rachis about 10 cm long, with a single very large and prominent gland about 1.5 cm above the base, none between the pinnae; lower pinnae 2-jugate, the rachis about 3.5 cm long, with a gland between the petioles of the distal leaflets; upper pinnae 4-jugate, about 30 cm long, with a large gland between the upper two pairs of petiolules, the lower two leaflets alternate, the others opposite. Leaflets subcoriaceous, oblong to rather broadly oblong-lanceolate, entirely glabrous, shining, brownish-olivaceous, the lateral ones somewhat falcate or inequilateral, shortly and bluntly acuminate, base acute to somewhat rounded, or at least rounded on one side of the petiolule, the lower ones smaller than the upper, 8 to 14 cm long, 3.5 to 5 cm wide; lateral nerves about 9 on each side of the midrib, prominent; petiolules about 5 mm long. Panicles terminal, ample, many-flowered, branched from or near the base, as long as or longer than the leaves, the lower branches up to 40 cm in length, the secondary branches in the upper two-thirds. Flowers in small heads on the ultimate branchlets, the heads 4- or 5-flowered, often crowded, the subtending bracteoles ovate, about 1 mm long. Calyx brown, about 3 mm long, rather
densely appressed-pubescent with short, shining, tawny hairs, the teeth broad, subacute, 0.5 mm long. Corolla and stamens straw-colored, the petals free quite to the base or merely slightly connate below, about 6 mm long, 2 mm wide, acute or obtuse, pubescent externally. Stamens indefinite, the filaments at least 1 cm long, the lower 2 mm united into a tube. Pods unknown.

Luzon, Benguet Subprovince, railroad grade west of Baguio, Phil. Pl. 1779 Merrill May, 1914, in ravines along small streams, altitude about 1,300 meters.

A species manifestly closely allied to Pithecolobium ellipticum Hasek., from which its differs in its very differently shaped, smaller, more numerous nerved leaflets, its petals free or nearly so, and other characters; the duplicates were erroneously distributed as Pithecolobium platycarpum Merr., to which species the present form is not closely allied.

NEPTUNIA Loureiro

NEPTUNIA OLERACEA Lour. Fl. Cochinch. (1790) 654.


Widely distributed in the tropics of both hemispheres.

This species was credited to the Philippines by F.-Villar, but was excluded by me as at the time I revised the Philippine Leguminosae as F.-Villar’s record was based on Cuming 2352, which was from Malacca, not from the Philippines. Taylor’s specimen is the first collection of the species in the Philippines.

KOOMPASSIA Maingay


Abauria excelsa Becc. Malesia 1 (1877) 169; Nelle Foreste di Borneo (1902) 172, f. 34.

Palawan, Alphonso III, For. Bur. 21580 Danao, May 10, 1914, in forests, altitude about 20 meters, flowers fragrant, light-yellow, locally known by the Tagbanuas as manggis.

Beccari proposed the genus Abauria for this plant, but Taubert has reduced it to Koompassia, although the fruits are not definitely known. The Palawan specimen is manifestly identical with the Bornean species, agreeing in all essentials with Beccari’s description and figure, and with a Sarawak specimen, Foxworthy 334, collected under the native name tapang, the same native name cited by Beccari. Dr. Foxworthy’s specimen is sterile, but with it is a detached fruit, picked up from the ground, which may or may not belong to the species; this fruit is the characteristic winged one of Koompassia, strongly resembling that of Koompassia beccariana Taubert. A very interesting addition to the few known species confined to the Philippines and Borneo, most of which are not found in the Philippines proper but in Palawan and in the Sulu Archipelago.

3 Novis. App. (1880) 73.
CYNOMETRA Linnaeus

CYNOMETRA COPELANDII (Elm.) comb. nov.


SIBUYAN, Elmer 12234, April, 1910 (type number).

The species is in all essential characters a member of the Cynometraceae-Caesalpinioideae, not of the Eucaesalpineae. It is anomalous in Cynometra in that the ovules are solitary. The species is an exceedingly characteristic one, notably in its leaf-characters.

BAUHINIA Linnaeus

BAUHINIA PAUCIFLORA sp. nov. § Phanera.

Frutex scandens inflorescentiis exceptis glaber vel subtus foliis ad nervos parce pubescentibus; foliis oblongo-ovatis, usque ad 10 cm longis, 9-vel 11-nerviis, basi cordatis, 2-lobatis, lobis vix ad medium coailitis, oblongis, obtusiis, racemis terminalibus, pauci-floris, floribus magnis, calycis tubo elongatis, angustis, 2 ad 2.5 cm longis, petalis oblongo-obovatis, 4 ad 4.5 cm longis.

A scandent shrub, nearly glabrous except the brown-pubescent inflorescence, the branches terete, brownish, glabrous. Leaves alternate, oblong-ovate, 8 to 10 cm long, 4.5 to 6 cm wide, chartaceous, the upper surface olivaceous, shining, the lower a little paler, shining, often with few short hairs on the nerves, the base distinctly cordate, 2-lobed, the lobes oblong, obtuse, extending about two-thirds to the base, the midrib of the leaf excurrent as a slender, acicular, 4 mm long awn; nerves 9 to 11, prominent; petioles slender, 3 to 4 cm long. Racemes terminal, few flowered, pubescent with short brown hairs, the rachis and peduncle 10 cm long or less. Flowers on the type two or three in each raceme, their pedicels pubescent, 2 cm long, the subtending bracteoles ovate, pubescent, about 5 mm long. Calyx-tube cylindric, 2 to 2.5 cm long, 3 mm in diameter, brown-pubescent, the lobes lanceolate, acuminate, pubescent externally, 2.5 to 3 cm long, 0.5 cm wide, the limb, in bud, ovoid-oblong, about 2 cm in length. Petals oblong-obovate, obtuse, glabrous, white or somewhat yellowish, narrowed to the short claws. Fertile stamens 3, the anthers oblong, 1 cm in length. Ovary pubescent with appressed, brown, deciduous hairs; style glabrous.

LUZON, Province of Tayabas, Dap-Dap Point, Bur. Sci. 18118 Foxworthy & Ramos, March, 1911, in forests.

A well marked species manifestly allied to Bauhinia warburgii Perk., but with very differently shaped leaves, the lobes much narrower.

CANAVALIA DeCandolle

CANAVALIA MACROBOTRYS sp. nov.

Scandens, racemis obscure pubescentibus exceptis glabra; foliolis chartaceis, ovatis, prominente acute acuminatis, basi
rotundatis, usque ad 14 cm longis, nervis utrinque 4 vel 5, subtus prominentibus; racemis axillaribus, circiter 70 cm longis; floribus roseis, 3 cm longis, breviter pedicellatis.

A scandent apparently herbaceous plant, glabrous except the slightly pubescent inflorescence, the branches slender, terete, greenish-straw-colored when dry. Petioles about 7 cm long, the rachis extended 3 to 4 cm above the insertion of the lateral leaflets. Leaflets ovate, chartaceous, 12 to 14 cm long, about 7.5 cm wide, olivaceous and shining when dry, apex rather slenderly and prominently acuminate, the acumen apiculate, base rounded, the central leaflet equilateral, the lateral ones somewhat inequilateral; lateral nerves 4 or 5 on each side of the midrib, prominent on the lower surface; petiolules about 7 mm long. Racemes axillary, solitary, about 70 cm long, the lower 25 to 30 cm without flowers, the rest with prominent alternate nodes, flowering in sequence from the base upward, the flowers below falling, persisting only in the apical part. Flowers pink, about 3 cm long, short-pedicelled, the calyx about 1.5 cm long, the upper lip cleft, very much larger than the lower lip. Standard about 2.5 cm wide, retuse.


A species strongly characterized by its rather slenderly acuminate, prominently nerved leaflets and especially by its greatly elongated racemes which reach a length of at least 70 cm.

KUNSTLERIA Prain

KUNSTLERIA ATRO-VIOlacea (Elm.) comb. nov.


The type is Elmer 13105, from Palawan, in flower, April, 1911. Although the fruits are unknown I do not hesitate to transfer the species to Kunstleria.

DALBERGIA Linnaeus f.

DALBERGIA SUBalTERNIFOLIA (Elm.) comb. nov.


The type is Elmer 12965 from Palawan, in flower, April, 1911, and is in all respects a Dalbergia, not a Derris. It seems to be allied to Dalbergia densa Benth. which extends from Amboina and New Guinea to Australia, and may not prove to be distinct from Bentham's species. Elmer's specimen has 3-foliolate leaflets which are distinctly coriaceous; Merrill 9545, from Palawan, which is probably referable to the same species, however, has much thinner leaflets varying in number from 2 to 5.

DALBERGIA RETICULATA sp. nov. § Sissoa, Podiopetalum.

Frutex scandens, subglaber; foliis circiter 10 cm longis, 5- ad 7-foliolatis, folioliis chartaceis, late elliptico-ovatis, vel late ellip-
ticis, rotundatis vel leviter retuis, usque ad 4.5 cm longis; inflorescentiis axillaribus, racemosis, brevibus, paucifloris; staminibus monadelphis; leguminibus angustae oblongis, membranaceis, samaroideis, circiter 7 cm longis, 1.3 ad 2 cm latis, omnibus partibus valde reticulatis; seminibus 1 vel 2.

A scendent shrub, glabrous except the somewhat pubescent inflorescence and the leaflets which are very sparingly pubescent on the lower surface. Branches brownish, wrinkled when dry, lenticellate. Leaves alternate, about 10 cm long, each with from 5 to 7 leaflets, the leaflets opposite or alternate, membranaceous or chartaceous, broadly elliptic-ovate to broadly elliptic, somewhat brownish when dry, lower surface a little paler than the upper, rounded at both ends or the apex slightly retuse, the lower surface with few, scattered, brownish, very short hairs, the upper surface glabrous; lateral nerves about 8 on each side of the midrib, slender, not prominent; petiolules 2 to 3 mm long. Inflorescence racemose, axillary, solitary, few-flowered, the racemes sparingly pubescent, 2.5 to 4 cm long. Calyx sparingly pubescent, about 3.5 mm long. Wings about 6 mm long, the lamina about 3 mm long, 1.6 mm wide, obtuse or rounded, base acute on one side, rounded on the other, the claw very slender, as long as the lamina; standard and keel not seen. Stamens all united into a sheath split down one side to the base. Pods narrowly oblong, membranaceous, about 7 cm long, 1.3 to 2 cm wide, apex rounded and minutely apiculate, base somewhat decurrent and with a slender stalk about 8 mm long, all parts of the valves prominently and rather laxly reticulate; seeds one or two, central, immature.

LUZON, Province of Laguna, Mount Maquiling, For. Bur. 21406 Villamil, April 28, 1914, in forests along the Molauin trail beyond the hot springs, altitude about 600 meters.

A very characteristic species, anomalous in the genus in its racemose inflorescence, and further characterized by its very thin, prominently reticulate pods. The specimen is with immature fruits, but portions of the flower were found on one raceme, leaving very little doubt as to the correctness of the genus and section.

MELILOTUS Tournefort

MELILOTUS INDICA (Linn.) All. Fl. Ped. 1 (1785) 308.


LUZON, Benguet Subprovince, Baguio, Merrill 9700, May, 1914, disturbed soil along the railroad grade, also as a weed in the Forestry nursery.

A plant of wide distribution, recently introduced into the Philippines.
STRONGYLODON Vogel

STRONGYLODON PAUCINERVIS sp. nov.

Frutex scandens glaber; foliis 3-foliolatis, foliolis chartaceis, ovatis, obscure latissime obtuse acuminatis, usque ad 12 cm longis, nervis utrinque circiter 5; racemis ut videtur caulinis, fasciculatis, circiter 20 cm longis, multifloris, floribus azureo-violaceis ad nodos leviter elongatis subracemose dispositis, curvatis, circiter 3 cm longis.

A scandent glabrous vine of large size, the branchlets terete, brownish, 3 to 4 mm in diameter. Leaves 3-foliolate, their petioles 6 to 9 cm long, the stipules oblong, obtuse, strongly nerved, about 4 mm long, deciduous, the stipels linear, about 3 mm long; leaflets chartaceous, the terminal one equilateral, the lateral ones strongly inequilateral, ovate, 10 to 12 cm long, 5 to 6 cm wide, obscurely, very broadly, and bluntly acuminate, base rounded, shining, subolivaceous; lateral nerves about 5 on each side of the midrib, prominent; petiolules about 8 mm long. Racemes apparently from the trunk, at least three in a fascicle, about 20 cm long, many flowered, the peduncles 4 to 6 cm long. Flowers bluish-violet, about 3 cm long, corolla upcurved at nearly right angles at about the middle, in bud nearly straight or only slightly falcate, the nodes produced as short, about 5 mm long, branchlets, the flowers racemously arranged on the produced nodes. Pedicels 1 cm long or less. Calyx cup-shaped, about 6 mm long, margins wavy. Standard about 3 cm long, when spread nearly 2 cm wide, curved upward at about the middle, rostrate-acuminate. Wings slightly falcate, the claw about 8 mm long, the lamina oblong, rounded, 1.5 cm long, 6 mm wide. Keel strongly curved upward, 4 cm long, when spread 2 cm wide, rostrate-acuminate. Ovary long stipitate, the ovules about 5.

BILIRAN, Bur. Sci. 18858 McGregor, June 22, 1914, a very large vine in forests, altitude about 300 meters.

Among the Philippine species with short racemes well characterized by its fascicled racemes, its produced nodes, its numerous flowers, and its few-nerved leaflets.

STRONGYLODON MEGAPHYLLUS sp. nov.

Scandens, ramulis junioribus exceptis glaber; foliolis oblongo-ovatis, coriaceis, in siccitate brunneis, usque ad 28 cm longis, basi subacutis, apice obtusis vel retusis, nervis utrinque circiter 8, subtus prominentibus; inflorescentiis angustissime paniculatis, 30 ad 40 cm longis, ut videtur multifloris; floribus azureo-violaceis, 5 vel 6 cm longis.

A scandent plant, apparently of large size, quite glabrous
except the young branchlets which are more or less appressed-pubescent, the branches brown, terete, 4 to 5 mm in diameter. Leaves 3-foliolate, the leaflets oblong-ovate, coriaceous, brown and shining when dry, glabrous, 20 to 28 cm long, 9 to 16 cm wide, subequally narrowed to the acute or subacute base and to the blunt or somewhat retuse apex, equilateral, the lateral nerves about 8 on each side of the midrib, prominent on the lower surface, the petioles about 1 cm long. Racemes 30 to 40 cm long, apparently many-flowered, narrowly paniculate, flower bearing in the upper two-thirds, the branchlets from the nodes 1 to 1.5 cm long, each bearing several flowers, judging from the scars of fallen pedicels. Pedicels 1.5 to 2 cm long. Calyx about 1 cm long, nearly 1 cm in diameter, truncate, the upper side somewhat gibbous. Corolla blue-violet in color, very strongly recurved. Standard about 5 cm long, 2.5 cm wide, very sharply bent upward and backward from the mouth of the calyx, acuminate, pubescent inside in the median portion below, auriculate at the sharp curve inside; wings strongly falcate-curved, their claws 1.5 cm long, the lamina 2.5 cm long, 1 cm wide, obtuse, one side auriculate at the base. Keel very strongly recurved, when straightened out about 7 cm long, long-acuminate, rostate. Fruit apparently fleshy, when dry falcate-ovoid, about 5 cm long, 2.5 cm in diameter, not compressed, beaked at the apex, contracted at the base into a short stipe.

LUZON, Province of Rizal, Montalban, Loher 5935, April 16, 1906.

The most strongly marked species known from the Philippines, at once recognizable by its unusually large leaflets, its large flowers, and the nodes of the racemes produced as slender branchlets up to 1.5 cm in length, making the inflorescence a narrow panicle rather than a true raceme.

LUZONIA Elmer


This genus and species were described from flowering specimens. The fruits are fleshy, oblong to oblong-ovoid in outline, when fresh somewhat fleshy, cylindric, not at all compressed, about 12 cm long, 5.5 cm thick, smooth, shining, purple, short-apiculate at the apex, the valves very thick, apparently tardily dehiscent, firm, fleshy, greenish-white in color, 1 to 1.5 cm thick; sutures not prominent. Seeds usually 4 in each pod, ellipsoid, about 3 cm long and 2 cm thick.

LUZON, Benguet Subprovince, Pacdal, Merrill 9685, May, 1914.

MILLETTIA Wight & Arnott

MILLETTIA BRACHYCARPA sp. nov.

Arbor circiter 7 m alta, inflorescentiis exceptis glabra; foliis circiter 20 cm longis, imparipinnatis, foliolis circiter 7, oblongo-ovatis, subcoriaceis, breviter acuminati, usque ad 13 cm longis;
floribus ignotis, racemis axillaribus, solitariis, usque ad 10 cm longis; leguminibus 1-spermis, oblongo-ellipticis, 6 cm longis, 3 cm latis, 1 cm crassis, utrinque angustatis, basi acutis, apice rostrato-acuminatis, valvis lignosis.

A tree about 7 m high, glabrous except the inflorescence. Branches terete, lenticellate, grayish or reddish-brown. Leaves alternate, odd-pinnate, the petiole and rachis 10 to 12 cm long; leaflets usually 7, subcoriaceous, ovate to oblong-ovate, up to 13 cm long and 4.5 cm wide, the apex shortly and obtusely acuminate, the base usually rounded, equilateral or somewhat inequilateral, the upper surface brownish-olivaceous when dry, shining, the lower paler; lateral nerves about 9 on each side of the midrib, prominent; petiolules 5 to 8 mm long. Flowers not known, the persistent rachises of the racemes axillary, solitary, thickened, somewhat pubescent, with numerous thickened protuberances. Pods brown when dry, oblong-elliptic, 1-seeded, woody, about 6 cm long, 3 cm wide, and at least 1 cm thick, narrowed below to the acute base and above to the rostrate-acuminate apex, glabrous, the corners rounded, not angled, the valves woody, shining, smooth. Seed solitary, subelliptic, somewhat narrowed to the rounded ends, about 3.5 cm long, 2.3 cm wide, and nearly 1 cm thick.

PALAWAN, Silanga, in deserted clearings on slopes, Merrill 3578, May 24, 1913.

A species well characterized by its very thick, woody, 1-seeded pods.

**CROTALARIA** Linnaeus


For the identification of the above specimen I am indebted to Sir D. Prain, director of the Royal Gardens, Kew, England, to whom a specimen was sent. The species is of wide distribution in British India (Western Peninsula), in Abyssinia, and is reported from tropical Africa. It is undoubtedly a recent introduction in the Philippines.

**SIMARUBACEAE**

**BRUCEA** J. S. Miller

**BRUCEA AMARISSIMA** (Lour.) comb. nov.


This widely distributed Indo-Malayan species is apparently quite common in the southern Philippines, and is represented in our collections by specimens from Negros, Leyte, Camiguin, Cebu, Palawan, Basilan, and Min-
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danao, but is not reported from Luzon unless Cuming 987 from the Province of Pangasinan is correctly referred here. In our extra-Philippine material it is represented by specimens from Cochin China, southern China, Malay Peninsula, Singapore, and Queensland. Loureiro’s specific name, being much the older, is here adopted.

BRUCEA MACROBOTRYS sp. nov.

Frutex 1 ad 2 m altus partibus junioribus inflorescentissisque minute adpresse pubescentibus; foliis usque ad 60 cm longis, 9-foliolatis, foliolis ovatis ad oblongo-ovatis, membranaceous, basi late acutis ad rotundatis, apice tenuiter acuminatis, margine integris vel leviter undulatis, distanter glandulosus, subtus par-cissime pubescentibus, nervis utrinque 7 vel 8; paniculis angustis, quam folia longioribus, cymis distantibus, circiter 1.5 cm longis; floribus circiter 2 mm diametro.

An erect shrub 1 to 2 m high, the branches terete, pale-brownish, lenticellate, glabrous, the younger ones somewhat pubescent with short pale hairs as are the inflorescences and parts of the leaves. Leaves up to 60 cm long, the rachis greenish when dry, slightly pubescent; leaflets 9, ovate to oblong-ovate, membranaceous, 12 to 17 cm long, 5 to 6 cm wide, olivaceous and shining when dry, base broadly acute to rounded, apex rather slenderly and sharply acuminate, margins entire or slightly undulate, the incipient teeth indicated by distant marginal glands; lateral nerves 7 or 8 on each side of the midrib; petiolules puberulent, about 6 mm long. Panicles axillary, up to 80 cm long, very narrow, many flowered, the flowers in distant, pubescent, rather many-flowered cymes about 1.5 cm in length, few flowers opening at one time, their pedicels pubescent, slender, 4 to 5 mm long, the staminate ones about 2.2 mm in diameter. Sepals 3, pubescent, oblong, acute, 1 mm long. Petals slightly longer than the sepals, oblong-ovate, obtuse, very slightly pubescent. Stamens about as long as the petals. Fruit ovoid, black when dry, about 12 mm long, distinctly reticulate-rugose.

SAMAR, Cauayan Valley, Phil. Pl. 1626 Ramos, April, 1914, in forests along small streams.

A species manifestly allied to Brucea mollis Wall. and B. luzoniensis Vid., closely approaching some forms of the latter. It differs in its larger leaflets, longer leaves, much longer inflorescences, and larger fruits, but in spite of these different characters may be only a variety of Wallich’s species unusually large in size.

CANARIUM Linnaeus

CANARIUM HETEROPHYLLUM sp. nov. § Choriandra.

Arbor circiter 9 m alta, floribus exceptis glabra; ramulitis tenuibus, teretibus; foliis alternis, 1- ad 3-foliolatis, foliolis
subcoriaceis, 7 ad 16 cm longis, integris, utrinque subequaliter angustatis, basi acutis, apice acuminatis, nervis utrinque 8 ad 10, subtus prominentibus; infructescentibus axillaribus, soli-
tariis, circiter 10 cm longis, racemosis; fructibus oblongis, cir-
citer 1.5 cm longis, obscure 3-angulatis, apiculatis, breviter pedi-
cellatis, pedicellis calycibusque breviter cinereo-pubescentibus.

A tree about 9 m high, glabrous except the flowers. Branches
slender, terete, grayish, the very slender branchlets reddish-
brown as are the petioles and rachises. Leaves alternate, the
rachis and petiole 2 to 6 cm long, slender; leaflets 1 to 3,
subcoriaceous, elliptic-oblong, olivaceous, somewhat shining
when dry, entire, of about the same color on both surfaces, 6
to 17 cm long, 3 to 7 cm wide, subequally narrowed to the
acute base and to the rather prominently acuminate apex;
lateral nerves 8 to 10 on each side of the midrib, prominent
on the lower surface, anastomosing, the reticulations promi-
nent; petioli of the lateral leaflets, when present, about 8
mm long, the petioles of the simple leaves up to 3 cm long.
Infructescence simple, racemose, axillary, slender, up to 10 cm
long, apparently flower bearing only in the upper part.
Flowers not seen. Calyx, in fruit, cinereo-pubescent with
short hairs, the lobes 3, ovate, acute or obtuse, about 2.5 mm
long, the pedicels stout, pubescent, 1.3 mm long. Mature fruits
oblong, about 1.5 cm long, about 7 mm in diameter, apiculate,
indistinctly, or the upper part distinctly 3-angled, the pericarp
1 mm thick or less, brownish, somewhat wrinkled when dry.

_Luzon_, Province of Cagayan (or Subprovince of Apayao), Tamoc, Bur.
Sci. 13878 Ramos, January, 1908.

A species well characterized by its 1- and 3-foliolate leaves, both types
occurring on the same branches. In this character it differs from all
known species of the genus. On account of its fruit characters and its
general aspect I have placed it in the same section with_Canarium villosum_
F.-Vill. (C. cumingii Engl.).

_Canarium Dolichophyllum_ sp. nov.

Arbor circiter 18 m alta plus minusve pubescentibus; ramulis
incrassatis circiter 1 cm diametro; foliis circiter 70 cm longis,
foliolis 13, lanceolatis vel oblongo-lanceolatis, coriaceis, in sici-
citate pallidis, nitidis, integris, usque ad 25 cm longis et 5 cm
latis, apice tenuiter caudato-acuminatis, basi subrotundatis,
supra glabris, subtus pubescentibus; nervis utrinque 18 ad 20,
subtus valde prominentibus, reticulis primariis subparallelis,
prominentibus; infructescentibus axillaribus, racemosis, circiter
20 cm longis, ferrugineo-pubescentibus; fructibus ovoideis ad
subellipsoideis, obtusis, glabris vel leviter hirsutis, pallidis,
obscurissime 3-angulatis, circiter 2 cm longis, in siccitate valde rugosis.

A tree about 18 m high. Branchlets thickened, about 1 cm in diameter, brown when dry, pubescent with short, reddish-brown hairs. Leaves up to 70 cm in length, the rachis and petioles glabrous, pale-brown when dry. Leaflets lanceolate to oblong-lanceolate, coriaceous, entire, 20 to 25 cm long, 4 to 5 cm wide, the upper surface pale, shining, the lower ferruginous-pubescent with short hairs on the midrib, nerves, and very prominent reticulations, the base rounded to subacute, nearly equilateral, the apex slenderly caudate-acuminate, the acumen up to 2 cm long, blunt; lateral nerves 18 to 20 on each side of the midrib, very prominent on the lower surface, curved-anastomosing, the reticulations very prominent; petiolules glabrous or slightly pubescent, rugose, 3 to 8 mm long. Infructescence racemose, axillary, solitary, rather stout, about 20 cm long, rather densely ferruginous-pubescent with short hairs, the rachis 4 to 5 mm in diameter. Fruits numerous, on stout peduncles 8 mm long or less, the lower peduncles rarely branched, the persistent calyx-lobes 3, coriaceous, ovate, obtuse, about 4 mm long, the fruits rather pale when dry, glabrous, or with few scattered hairs, ovoid to ellipsoid, about 2 cm long, 1.3 cm in diameter, obtuse, obscurely 3-angled, the pericarp very prominently wrinkled when dry.

MINDANAO, Butuan Subprovince, near Amparo, Agusan Valley, For. Bur. 20749 Rafael & Ponce, October 10, 1913, in forests slightly above sea level.

A species well characterized by its long leaves, and especially by its elongated, relatively narrow, caudate-acuminate leaflets which are very prominently reticulate beneath.

CANARIUM LAGUNENSE sp. nov. § Choriandra ?

Arbor 12 ad 20 m alta plus minusve breviter brunneo-pubescentibus vel floribus ferrugineo-pilosis; foliis 15 ad 25 cm longis, foliolis 5 vel 6, coriaceis, ellipticis ad oblongo-ellipticis, in siccitate brunneis, nitidis, integris, acuminatis, usque ad 12 cm longis, supra glabris, subtus ad costa nervisque breviter brunneo-puberulis, nervis utrinque circiter 12, subtus valde prominentibus; inflorescentiis axillaribus, folia aequantibus vel paullo longioribus, floribus 6 numerosis, sessilibus, fasciculatis, 6 ad 7 mm longis, 2 angustissime paniculatis; fructibus ovoideis, circiter 12 mm longis, apiculatis, extus in siccitate rugosis, glabris, endocarpio osseo, circiter 2 mm crasso.

A tree 12 to 20 m high, branchlets, petioles, inflorescences and leaflets on the nerves and reticulations of the lower surface
more or less covered with very short dark-brown hairs. Branches terete, brownish or grayish, glabrous, lenticellate, 5 to 7 mm in diameter. Leaves 15 to 25 cm long, alternate, the leaflets 5 or 6, coriaceous, brown and shining when dry, entire, 5 to 12 cm long, 4 to 6 cm wide, the apex acuminate, the acumen usually abrupt, short, blunt, the base acute to rounded, mostly nearly equilateral; lateral nerves about 12 on each side of the midrib, very prominent on the lower surface, anastomosing, the reticulations prominent, the nerves, midrib, and reticulations with very short, stout, short, glandlike hairs, the upper surface entirely glabrous; petiolules 5 to 10 mm long; stipules linear-lanceolate, thick, stiff, straight or curved, brown-pubescent, about 5 mm long. Inflorescences axillary, solitary, numerous, equalling or a little longer than the leaves, brown-pubescent, or the flower clusters ferruginous-pubescent. Male flowers numerous, fascicled, the fascicles widely separated, each with numerous ovate, hirsute, 1.2 to 1.8 mm long bracteoles, the flowers sessile. Calyx cylindric, 4 mm long, hirsute, the lobes 3, broadly ovate, obtuse, about 2 mm long. Petals 3, oblong, 6 mm long, 2 mm wide, obtuse, the upper two-thirds externally pubescent. Filaments six, 3 to 3.5 mm long, flattened below and slightly united for the lower 0.5 mm forming an obscure disk; anthers oblong, 1.8 mm long. Rudimentary ovary ovoid, glabrous, 1.5 mm in diameter, more or less evidently 3-cleft and readily separating into three parts. Female or perfect flowers apparently similar to the male, the infructescence narrowly paniculate, the lower branches up to 3 cm in length, each branch with from 1 to 3 fruits, the pedicels stout, 5 to 10 mm long. Mature fruits ovoid, not at all 3-angled, apiculate, about 1.2 cm long, 7 to 8 mm in diameter, the pericarp thin, wrinkled when dry, glabrous, the endocarp 1-celled, bony, about 2 mm thick.

LUZON, Province of Laguna, San Antonio, Bur. Sci. 14945 (type), 20468, 20579 Ramos; Mount Banajao, For. Bur. 19722 Barber, in flower in February, in fruit in April and May, growing in forests up to an altitude of 500 meters.

A species in many characters closely resembling Canarium villosum F.-Vill. (C. cumingii Engl.), and probably as closely allied to that species as any other. It is distinguished by its very short, dark-brown indumentum which appears on the younger parts of the inflorescence, and on the lower surface of the leaflets. The male flowers are disposed in sessile, dense, distant fascicles and are ferruginous-pubescent.

CANARIUM BARNESII sp. nov. § Choriandra.

Arbor circiter 20 m alta a C. lagunense differt foliis longioribus, foliolis magis numerosis, 6 vel 7, inflorescentiis multo
brevioribus, 5 ad 10 cm longis, floribus ♀ solitariis, haud fasciculatis.

A tree about 20 m high, most parts except the upper surfaces of the leaflets more or less covered with very short brown hairs. Leaves about 35 cm long, the leaflets 6 or 7, coriaceous, oblong-elliptic to oblong-obovate, 7 to 12 cm long, 3.5 to 6 cm wide, rather dark-brown when dry, the upper surface glabrous, shining, base acute to rounded, apex prominently and abruptly acuminate, the acumen blunt, 1 cm long or less; lateral nerves 12 to 14 on each side of the midrib, prominent on the lower surface, anastomosing, the reticulations rather close, prominent; petiolules 1 to 1.5 cm long; stipules stout, stiff, pubescent, curved, about 5 mm long. Spikes 5 to 10 cm long, simple, the flowers scattered below, solitary, above rather close, sessile. Calyx oblong-ovate, about 4 mm long, pubescent, the teeth 3, broadly ovate, obtuse, 1 mm long. Petals 3, narrowly oblong, acute to obtuse, about 5 mm long, 1.5 mm wide, pubescent externally in the upper part. Disk annular, glabrous, rather thick, more or less lobed, 1 mm high or less; filaments 6, slender, 1.5 mm long, attached to the outer upper part of the disk; anthers 1 mm long. Ovary globose-ovoid, pubescent, 1.5 mm in diameter; style stout, pubescent, about 1 mm long, cylindric; stigma capitate, obscurely sulcate.

MASBATE, Marintoc River, collected by P. T. Barnes, May, 1903, distributed as Merrill 2617. In forests, locally known as mili-pili.

A species in facies much resembling Canarium lagunense Merr., but with longer leaves, more numerous leaflets, very much shorter inflorescences, the flowers not at all fascicled, and the flowers in structure quite different from those of C. lagunense. The indumentum on the younger parts, inflorescence, and lower surfaces of the leaflets is quite the same in both forms.

CANARIUM OLIGANTHUM sp. nov. § Crassipyrena.

Arbor, ut videtur alta, partibus junioribus plus minusve puberulis; foliis circum flex. 70 cm longis, foliolis circiter 9, amplis, integris, chartaceis vel subcoriaceis, in siccatitae brunneis, usque ad 25 cm longis, et 11 cm latis, acuminatis, nervis utrinque 15 ad 17, prominentibus; inflorescentiis axillaribus, solitariis, circiter 15 cm longis, anguste paniculatis, paucifloris; floribus longe pedicellatis, ebracteolatis, circiter 8 mm longis.

A tree, apparently tall, the trunk about 50 cm in diameter, the branchlets, petioles, midribs on the lower surface of the leaflets, and inflorescence more or less puberulent with pale-brownish hairs. Branches terete, lenticellate, stout, striate, the ultimate branchlets about 1 cm in diameter, pale-brownish.
Leaves ample, up to 70 cm long, the petiole long, about 5 mm in diameter, and with the rachis and petiolules puberulent; leaflets ovate to oblong, 15 to 25 cm long, 8 to 11 cm wide, chartaceous to subcoriaceous, brown and shining when dry, the lower surface a little paler than the upper, entire, apex acuminate, base rounded, subtruncate, or slightly cordate, broad, equilateral, the upper surface quite glabrous, the lower pubescent on the midrib; petiolules 1 to 2 cm long; stipules not seen, apparently early deciduous. Panicles axillary, solitary, 15 cm long or less, narrowly pyramidal, branched at or above the middle, the branches few, scattered, the lower ones 2.5 cm long or less, each branch with one or two long-pedicelled, ebracteolate flowers, or if the bracteoles are present then small and early deciduous; pedicels 1 cm long or less. Flowers 3-merous, about 8 mm long, the calyx cylindric, 6 to 7 mm long, puberulent, the teeth three, broadly triangular-ovate, acute, 2 mm long. Petals 3, oblong, obtuse, 6 to 7 mm long, 3 mm wide, the upper one-third spreading. Stamens 6; filaments 2 mm long, nearly free, flattened and slightly enlarged below, apparently connate into a short obscure disk. Ovary ellipsoid, glabrous, about 4 mm long, narrowed upward into the short, cylindric, stout, 1 mm long style; stigma capitate.

MASBATE, Marintoc River, P. T. Barnes, May, 1903, distributed as Merrill 2618. In forests along the river, altitude about 16 m, locally known as pili and yielding a white resin.

A species manifestly allied to Canarium luzonicum A. Gray, but well characterized by its large leaves, ample leaflets, and especially by its narrowly pyramidal, few-flowered panicles, the flowers ebracteolate, their pedicels about 1 cm long.

CANARUM NITENS sp. nov.

Arbor circiter 15 m alta, inflorescentiis puberulis exceptis glabra; foliis usque ad 35 cm longis, 7- vel 9-foliolatis, foliolis crasse coriaceis, utrinque nitidis, integris, oblongis, acuminatis, 8 ad 13 cm longis, nervis utrinque circiter 10, subtus prominentibus; paniculis obscure brunneo-puberulis, terminalibus, quam folia breviarioribus; fructibus anguste ovoideis.

A tree about 15 m high, glabrous except the inflorescence. Branches brown, terete, glabrous, wrinkled when dry. Leaves alternate, up to 35 cm in length. Leaflets oblong, thickly coriaceous, prominently shining on both surfaces, the lower a little paler then the upper, 7 or 9 to each leaf, 8 to 13 cm long, 2.5 to 3.5 cm wide, entire, rather prominently acuminate, base acute, often somewhat inequilateral and sometimes rounded on one side and acute on the other; lateral nerves about 10, very
prominent on the lower surface, strongly curved, obscurely anastomosing near the margins, the reticulations not at all prominent; petiolules of the lateral leaflets 0.6 to 1.5 cm long, of the terminal one up to 4 cm in length. Panicles terminal, 13 cm long in fruit, brown-puberulent, branched from the base. Persistent calyces about 3 mm in diameter, puberulent. Immature fruits narrowly ovoid, somewhat inequilateral or somewhat gibbous, about 2 cm long, glabrous, not at all angled, the pericarp wrinkled when dry.

MINDANAO, District of Zamboanga, Taglibao River, For. Bur. 13772 Foxworthy, DeMesa, & Villamil, June 17, 1912, growing at sea level immediately back of the mangrove swamp, known to the Moros as baūi.

The species is apparently a rather characteristic one, and is perhaps as closely allied to Canarium calophyllum Perk., as to any other. It differs from Canarium calophyllum, however, in its fewer nerved leaves and in its much smaller persistent calyces.

**CANARIUM STENOXYLLUM** sp. nov. § Eucanarium, Monadelpha.

Arbor alta partibus junioribus exceptis glabra; foliis circiter 20 cm longis, foliolis 13 ad 15, lanceolatis, integris, usque ad 11 cm longis, inaequilateralibus, leviter falcatis vel subrectis, basi acutis, apice longe acuminatis; racemis 8 axillaribus, solitariis, 8 ad 10 cm longis; floribus circiter 1.3 cm longis, cylindraceis, filamentis deorsum connatis, disco libero.

A tree reaching a height of 40 meters, glabrous except the younger parts and the inflorescence. Branches terete, glabrous, lenticellate, grayish-brown, about 5 mm in diameter, the branchlets more or less appressed-villous or hirsute, especially the growing parts. Leaves alternate, about 20 cm long. Leaflets 13 to 15, lanceolate, inequilateral, straight or somewhat falcate, chartaceous, entire, 1 to 2.4 cm wide, 6 to 11 cm long, narrowed below to the acute or obtuse base, gradually narrowed upward to the long and rather slenderly acuminate apex, when dry olivaceous or subolivaceous, shining; lateral nerves about 9 on each side of the midrib, slender, curved, anastomosing; petiolules about 2 mm long; stipules not seen, if present very early deciduous. Male racemes axillary, solitary, 8 to 10 cm long, slightly pubescent, the flowers somewhat crowded in the upper one-half, white, their pedicels about 2 mm long. Calyx about 4 mm long, the lobes 3, broadly ovate, 2 mm long. Petals 3, oblong, imbricate, glabrous, about 13 mm long, 5 mm wide. Stamens 6, the filaments united below into a 2 mm high disk, the free parts 6 to 7 mm long; anthers oblong, 3 mm long. Disk free, oblong-cylindric, hirsute, somewhat fluted, about 4 mm long, 2.5 mm in diameter.
Luzon, Province of Camarines, Mount Isarog, Phil. Pl. 1550 Ramos, November 20, 1913, in forests.

This species is probably as closely allied to Canarium perkinsiae Merr. as to any other, differing in its much smaller, lanceolate leaves and in its short pedicels. It is well characterized by its narrowly lanceolate leaflets.

**Canarium Ellipsoideum** sp. nov. § *Eucanarium*.

Arbor alta, glabra (floribus ignotis); ramis incrassatis, glabris, circiter 2 cm diametro, brunneis, nitidis; folii alternis, usque ad 55 cm longis, foliolis circiter 9-jugis, coriaceis, nitidis, ovatus ad oblongis, usque ad 16 cm longis, basi cordatis, apice distincte acuminatis; inflorescentiis ut videtur paniculatis, axillaribus, solitariis, infructescentibus 10 ad 30 cm longis; fructibus ellipsoideis, circiter 3 cm longis, utrinque rotundatis, laevis vel obscure rugosis, in siccitate castaneis, endocarpio longitudo-dinaliter 6-carinato.

A tall tree, nearly glabrous, the ultimate branches much thickened, about 2 cm in diameter, dark-brown, shining, more or less striate or wrinkled when dry, marked with scattered large scars of fallen petioles, the very tip, above the ultimate leaves, densely ferruginous-pubescent. Leaves more or less crowded toward the ends of the branchlets, up to 55 cm long, each with about 19 leaflets, odd-pinnate, the rachis and petiole rather stout, shining, striate; stipules none or very early deciduous. Leaflets opposite, the lower ones ovate, 8 to 10 cm long, the intermediate and upper ones oblong, up to 16 cm long; 4 to 6 cm wide, shining on both surfaces, glabrous, rather pale when dry, the base prominently and broadly cordate, apex acuminate, the acumen blunt, rather stout; lateral nerves of the median leaflets about 16 on each side of the midrib, of the lower leaves about 10, distinct, anastomosing; petiolules stout, about 5 mm long. Flowers not seen. Infructescence axillary, solitary, 10 to 30 cm long, dark-brown, glabrous, shining, somewhat paniculate. Persistent calyx 3-lobed, very coriaceous, about 8 mm in diameter, slightly pubescent externally, inside densely appressed cinerous-pubescent, the lobes broadly ovate; pedicels stout, very short. Fruit ellipsoid, about 3 cm long, rounded at both ends, not at all 3-angled, the pericarp apparently fleshy, when dry castaneous, slightly wrinkled, glabrous, or the younger fruits with few, scattered, appressed, stiff, ferruginous hairs, the endocarp bony, 3-celled, only a single cell developing a seed, rounded at both ends, not at all 3-angled, but with three very prominent primary longitudinal keels or ridges that unite with each other at the base, and three intermediate keels or ridges,
nearly as prominent as the primary ones, which unite at the apex but are evanescent near the base.


A striking species on account of its thickened stems, its long leaves, and the almost entire absence of indumentum of any kind. The strictly ellipsoid, very dark-brown, shining, nearly smooth fruits are exceedingly characteristic, as is also the longitudinally 6-ridged endocarp, the fruit not being at all triangular.

CANARIIUM SANCHEII sp. nov. § Monadelpha.

Arbor, omnibus partibus, alabastris exceptis, glabra; foliis trifoliolatis, vix 20 cm longis, foliolis elliptico-ovatis, subcoriaceis, apice abrupte subcaudato-acuminatis; inflorescentiis axillaribus, spicatis, quam petioli brevioribus; floribus 3-meris, filamentis basi breviter connatis.

A tree, quite glabrous except the buds. Branches terete, light-gray, rather slender. Leaves 3-foliolate, 14 to 18 cm long, the petioles 2 to 3.5 cm long; leaflets elliptic-ovate, or the terminal one somewhat obovate-elliptic, subcoriaceous, somewhat shining, brown beneath when dry, the terminal ones up to 11 cm long and 5.5 cm wide, the lateral ones somewhat smaller, the base acute, the apex rather abruptly and slenderly subcaudate-acuminate, the acumen 1 cm long or less. Spikes axillary, solitary, 2.5 cm long or less, the bracteoles small, oblong-ovate, acute, 1 mm long or less. Calyx 2.5 mm long, 3-lobed, the lobes ovate, obtuse or subacute, about 1.5 mm long, pubescent externally. Petals 3, oblong, obtuse, glabrous, about 4 mm long, 2 mm wide. Stamens 6; filaments somewhat dilated below, united for the lower 0.5 mm, free from the disk; anthers about 1 mm long. Fruit unknown.

Mindanao, Butuan Subprovince, Butuan, J. F. Quadras 172, from the herbarium of the Ateneo de Manila, locally known as sauangan.

Named in honor of Father F. Sanchez, for many years connected with the Museum of the Ateneo de Manila. A species well characterized by its trifoliolate leaves and short spikes.

GARUGA Roxb.

GARUGA LITTORALIS sp. nov.

Arbor 15 ad 20 m alta, inflorescentiis plus minusve dense cinereo-puberulis excepta glabra vel subglabra; foliis 30 ad 45 cm longis, 9- vel 10-jugatis; foliolis oblongis, ovato-oblongis vel lanceolato-oblongis, acuminatis, basi late rotundatis, leviter cordatis, valde inaequilateralibus, integris, rariter distantier irregulariter leviter crenulatis; paniculis terminalibus, in anthesis
circiter 8 cm longis, dense cinereo-puberulis; pedicellis quam alabastra ovoidea brevioribus; petalis quam laciniae calyciniae duplo longioribus.

A tree 15 to 20 m high, nearly or quite glabrous except the rather densely cinereo-puberulent inflorescence. Branches reddish-brown, glabrous, lenticellate, much thickened, 1 to 1.5 cm in diameter. Leaves alternate, crowded at the apices of the branchlets, 30 to 45 cm long, deciduous before anthesis, the rachis often somewhat puberulent, becoming glabrous. Leaflets straight or somewhat falcate, 9 or 10 on each side of the rachis, opposite or nearly so, chartaceous or thinly coriaceous, oblong, ovate-oblong, or lanceolate-oblong, glabrous and somewhat shining when dry, of the same color on both surfaces, the lower ones usually smaller than the median ones, 5 to 12 cm long, 2 to 4.5 cm wide, the margins entire or rarely distantly and irregularly crenulate, the apex rather prominently acuminate, the base usually broad, rounded or sometimes subtruncate, usually somewhat cordate, strongly inequilateral, never with an additional pinnule at the base as in Garuga floribunda Dcne. Panicles appearing before the new leaves, terminal, usually many from the apices of the branchlets, about 8 cm long, all parts densely cinereo-puberulent. Flowers yellow, rather congested on the ultimate branchlets of the inflorescence, puberulent, their pedicels 1 to 1.5 mm long, shorter than the ovoid buds. Calyx 3 mm long, the lobes oblong-ovate, acute, 1.5 mm long. Petals puberulent, oblong-oblanceolate or narrowly oblong, usually acute, reflexed, about twice as long as the calyx-lobes. Filaments 2.5 mm long, pubescent, much thickened below; anthers 1 mm long. Ovary ovoid, sessile, pubescent, 2 mm long, 4-celled, each cell 2-ovuled, style stout, puberulent, 2.5 mm long; stigma obscurely 4-lobed. Fruit black when ripe, obovoid, much wrinkled when dry, glabrous, 8 to 10 mm in diameter, each containing one or two subglobose, prominently rugose seeds about 5 mm in diameter.


A tree, usually growing near the seashore, apparently rather widely distributed in the Philippines. It is manifestly allied to Garuga floribunda Dcne., of Timor and northern Australia, but appears to be distinguished from that species by its entire, much larger, leaflets, absence of the supplementary reduced pinnules at the base of the leaflets, and its short-pedicelled flowers. The inflorescence is not strictly terminal, but the peduncles are in the crowded axils of the fallen leaves at the apices.
of the branchlets. The leaves appear after the flowers, and with the
growth of the branchlet the panicles in fruiting stage become lateral,
being situated in the axils of fallen leaves below the terminal crown of
leaves.

The species is known in Tayabas as *libas* (Tagalog); in Masbate and
Cebu as *bogo* (Visayan), and in Mindoro as *abilo* (Tagalog), the last
name more usually applied to *Garuga abilo* (Blanco) Merr.

Var. **PAUCIJUGA** var. nov.

A *typ* differt foliis 5- vel 6-jugatis.

**CAGAYAN DE SULU**, Merrill 5301, October 15, 1906.

The specimen is in fruit, but in all essential characteris it appears to
be like the species, differing only in its fewer leaflets. A specimen from
Balabac Island, with flowers only, no leaves, may be referable here, *Bur.
Sci.* 298 *Mangubat*, March, 1906, locally known as *baro*.

**GARUGA CLARKII** sp. nov.

Arbor circiter 30 m alta, subglabra; foliis alternis, usque ad
40 cm longis, imparipinnatis, 11- vel 12-jugatis, rhachibus plus
minusve puberulis; foliolis inaequilateralibus, oblongo-lanceo-
latis, usque ad 10 cm longis, 3 cm latis distincte acuminatis,
basi oblique rotundatis, margine distincte regulariterque crenato-
dentatis; floribus ignotis; paniculis sub fructu axillaribus, pedunculatis, leviter puberulis, circiter 16 cm longis; fructibus
obovoideis, nigris, circiter 1 cm diametro.

A tree about 30 m high, subglabrous, or somewhat gray-puber-
ulent. Branches reddish-brown, glabrous, about 5 mm in dia-
meter. Leaves crowded at the apices of the branchlets, 35 to
40 cm long, the rachis usually black when dry, somewhat puber-
ulent. Leaflets opposite or subopposite, lanceolate or oblong-
lanceolate, chartaceous, straight or slightly falcate, the median
ones 8 to 10 cm long, 2.5 to 3 cm wide, the upper and lower ones
somewhat smaller, the base strongly inequilateral, rounded on
one side of the midrib, acute on the other, the apex prominently
acuminate, the acumen about 1 cm long, blunt, the margins
distinctly and regularly crenate-dentate, the upper surface quite
glabrous, shining, the lower very slightly paler, glabrous or
with few soft hairs; nerves about 13 on each side of the midrib,
distinct; petiolules about 2 mm long, usually puberulent.
Flowers unknown. Fruiting panicles axillary, peduncled, about
16 cm long, gray-puberulent. Fruits black and wrinkled when
dry, obovoid, glabrous, 1 cm in diameter or less, each containing
one or two rugose, subglobose seeds.

**MASBATE, For. Bur. 1700 Clark**, July 23, 1904, in forests at an altitude
of about 150 m, on moderate slopes, locally known as *bogo* (Visayan), and
said to yield a valuable timber.
This species is manifestly allied to the preceding one, but differs in its longer leaves and more numerous leaflets which are regularly crenate-dentate and although rounded, are never cordate at the base.

PROTIUM Burman

PROTIUM CONNARIFOLIUM (Perk.) comb. nov.


This species, of which Dr. Perkins had no fruiting material, and of which she described only the male flowers is shown to be a representative of the genus Protium by additional material. It is not closely allied to Protium javanicum Burm., from which it differs in vegetative characters and its very short inflorescence. The fruits are apparently subglobose, when mature about 1.5 cm in diameter, ultimately 2- or 3-valved, and with 1 to 3 pyrenes, the pyrenes hard, about 8 mm long. It is further distinguished from Canarium by its 4-merous flowers. The species is represented by the following material, all from Palawan: Merrill 787 (cotype), Bur. Sci. 758, 754, 737, 866 Foxworthy, For. Bur. 21604 Agama, from Iwahig, Alphonso XIII, and Mount Victoria, flowering February to May.

The genus is new to the Philippines.

SANTIRIA Blume

SANTIRIA CAUDATA sp. nov. § Eusantiria.

Arbor glaberrima circiter 15 m alta; foliis 25 ad 35 cm longis, foliolis 7, chartaceis vel subcoriaceis, in siccitate pallidis, nitidis, oblongo-ellipticis ad oblongo-lanceolatis, usque ad 18 cm longis, apice tenuiter caudato-acuminatis, basi acutis, nervis utrinque 12 ad 14, subtus prominentibus; paniculis axillaribus, 10 ad 15 cm longis, e basi ramosis; floribus 3 mm diametro.

A tree about 15 m high, entirely glabrous. Branches terete, light-gray, somewhat striate when dry. Leaves 25 to 35 cm long, the leaflets 7, oblong-elliptic to oblong-lanceolate, 12 to 18 cm long, 3.5 to 6 cm wide, chartaceous or subcoriaceous, pale and shining when dry, entire, the apex slenderly caudate-acuminate, acumen blunt, 1.5 to 2.5 cm long, the base acute, equilateral or nearly so; lateral nerves 12 to 14 on each side of the midrib, prominent, anastomosing, the reticulations lax, rather distinct; petiolules 1 to 2 cm long. Panicles axillary, pyramidal, up to 15 cm long, branched at or from near the base, the branches few, spreading, the lower ones 5 to 7 cm long. Flowers about 3 mm in diameter, greenish-yellow, their pedicels 2 to 3 mm long. Calyx shallow, 2.5 mm in diameter; the lobes rounded, about 1 mm long, 2 to 2.5 mm wide. Petals 3, broadly ovate. 2.5 mm wide and about 2.2 mm long, acute or obtuse, glabrous. Disk annular, thick, glabrous, obscurely undulate; stamens 6. the filaments broadened below, 0.5 mm long, attached to the outer part of the disk; anthers 0.5 mm long. Ovary ovoid, glabrous,
1.5 mm in diameter; style very short, stout; stigma depressed-globose or subdisciform.

**LUZON**, Province of Camarines, Tamban River, *For. Bur. 21211* (type), 21217 Alvarez, April 1, 1914, forested slopes along streams, altitude 20 to 100 meters.

A species apparently belonging in the group with *Santiria beccarii* Engl., but well characterized by being entirely glabrous. It is probably most closely allied to the Philippine *S. glabra* Merr., from which it is readily distinguished by its larger, more numerousy nerved, caudate-acuminate leaves and its longer panicles.

**SANTIRIA LAGUNENSIS** sp. nov. § *Eusantiria* ?

Arbor alta partibus junioribus inflorescentiisque leviter furfuraceis exceptis glabra; foliis usque ad 20 cm longis, foliolis 5 vel 6, oblongo-ovatis, integris, in siccitate pallidis, nitidis, usque ad 11 cm longis, subcoriaceis, acuminatis, basi acutis ad rotundatis, nervis utrinque circiter 8; paniculis axillaribus, usque ad 7 cm longis, leviter ferrugineo-furfuraceis, e basi ramosis.

A tree, apparently tall, glabrous except the rather densely ferruginous-furfuraceous tips of the branchlets and the slightly furfuraceous inflorescence. Branches pale-gray, terete, somewhat striate, glabrous, the tips somewhat brownish. Leaves about 20 cm long, the leaflets usually 6, sometimes 5, oblong-ovate, subcoriaceous, pale and shining when dry, 8 to 11 cm long, 2.5 to 5 cm wide, entire, apex narrowed, rather prominently acuminate, base acute to rounded; lateral nerves about 8 on each side of the midrib, slender but distinct, anastomosing, the reticulations lax; petiolules 7 to 10 mm long. Panicles axillary, about 7 cm long, branched at or from near the base, the branches few, the lower ones up to 2 cm long, the younger parts distinctly but minutely ferruginous-furfuraceous. Flowers 3-merous, the young buds globose, rather numerous. Young fruits globose, black when dry, 8 mm in diameter, the stigma lateral.


Somewhat resembling *Santiria nitida* Merr., but the inflorescence entirely different. The species is characterized by its minutely furfuraceous, more or less ferruginous indumentum on the growing tips of the branchlets and on the inflorescence, otherwise quite glabrous.

**SANTIRIA SAMARENSIS** sp. nov. § *Eusantiria*.

Arbor 20 ad 30 m alta ramulis inflorescentiisque exceptis glabra; ramulis crassis, in siccitate brunneis, partibus junioribus plus minusve breviter ferrugineo-pubescentibus; foliis usque ad 80 cm longis, foliolis 9 vel 11, coriaceis, nitidis, oblongis ad oblongo-ellipticis, usque ad 20 cm longis, basi acutis ad subro-
tundatis, leviter inaequilateralibus, spice caudato-acuminatis, nervis utrinque 12 ad 15, subitus prominentibus; paniculis axillaris, 30 ad 40 cm longis, amplis, multifloris, ab infima tertia parte ramosis; floribus pubescentibus, circiter 6 mm longis.

A tree 20 to 30 m high, glabrous except the branchlets and inflorescence. Branchlets thickened, reddish-brown or brown when dry, about 1 cm in diameter, terete, lenticellate, the younger parts more or less ferruginous-pubescent with short hairs. Leaves alternate, up to 80 cm in length, the rachis and petioles reddish-brown when dry; leaflets 9 or 11, coriaceous, rather pale when dry, somewhat shining, oblong to oblong-elliptic, entire, 12 to 20 cm long, 5 to 9 cm wide, the base acute to subrounded, somewhat inequilateral, the apex slenderly and rather abruptly caudate-acuminate, the acumen up to 2.5 cm long, blunt; lateral nerves 12 to 15 on each side of the midrib, very prominent on the lower surface, curved-anastomosing, the reticulations distinct; petiolules 2 to 3 cm long, reddish-brown when dry. Panicles axillary, solitary, many on each branchlet, 30 to 40 cm long, the lower one-third without branches, the primary branches spreading or ascending, the lower ones up to 10 cm in length, sparingly pubescent, reddish-brown, the ultimate branchlets and pedicels rather densely pale-ferrugineous pubescent with short hairs. Flowers yellowish, about 6 mm long, the pedicels 3 to 4 mm long, the bracts lanceolate, acuminate, deciduous, about 3 mm long. Male flowers: Calyx somewhat cup-shaped, pubescent, about 3 mm long and wide, with 3 broadly triangular-ovate, acute teeth about 1 mm long. Petals 3, free, pubescent on both surfaces, coriaceous, broadly ovate, obtuse, 4 to 4.5 mm long. Disk prominent, thickened, annular, glabrous, about 3 mm in diameter. Stamens 6; filaments attached to the outer margin of the disk, flattened below, narrowed above, about 1.5 mm long; anthers oblong, dorsifixed, 1 to 1.2 mm long. Rudimentary ovary very small, glabrous. Female flowers in general similar to the males. Staminodes 1.5 mm long. Ovary ovoid, glabrous, 3-celled; stigma capitate, sessile, about 1 mm in diameter.


A species belonging in the same group with Santiria laevigata Bl. and S. maingayi Benn., characterized among the few Philippine forms by its large leaflets which are prominently caudate-acuminate, and by its elongated, many flowered panicles.
ANACARDIACEAE

**DRACONTOMELUM** Blume

**DRACONTOMELUM EDULE** sp. nov.

An tree reaching a height of 20 m, similar and closely allied to *Dracontomelum cumingianum* Baill., differing especially in its glabrous leaflets. Branches thickened, terete, about 1 cm in diameter, grayish-brown, marked with large petiolar scars, the tips densely ferruginous-puberulent. Leaves crowded at the apices of the branchlets, about 40 cm long, the petiole and rachis somewhat cinereous-puberulent, becoming glabrous; leaflets about 11, chartaceous, oblong, entire, rather sharply acuminate, base acute to rounded, somewhat inequilateral, mostly 12 to 17 cm long, 4 to 5.5 cm wide, shining on both surfaces, the lower slightly paler than the upper, quite glabrous except for the bearded glands in the axes on the lower surface; lateral nerves about 12 on each side of the midrib, prominent, curved upward, distant from the margin, anastomosing, the reticulations distinct; petiolules about 2 mm long. Panicles in the upper axils, puberulent, flowers not seen. Fruit globose, green, turning yellowish when ripe, about 2.5 cm in diameter, glabrous, smooth, the mesocarp fleshy, acid, edible; stone depressed, about 1.8 cm in diameter, 8 mm high, obscurely undulate-ridged.

PALAWAN, Taytay, Merrill 9391, May 14, 1913, in forests immediately back of the mangrove and on steep slopes, ascending to at least 40 meters altitude.

A species manifestly closely allied to *Dracontomelum cumingianum* Baill., from which it differs in its leaflets being quite glabrous except for the bearded axils. It might be considered merely as a variety or form of Baillon's species by some authors.

**BUCHANANIA** Sprengel

**BUCHANANIA PLATYPHYLLA** sp. nov. § *Sagittatae*.

Arbor 10 ad 20 m alta, ramulis junioribus inflorescentiisque parce adpresse ferrugineo-hirsutis; foliiis coriaceis, oblongis, nitidis, usque ad 35 cm longis, apice breviter, abrupte, obtuseque acuminatis, basi cuneatis vel leviter decurrento-acuminatis, nervis utrinque circiter 20; paniculis circiter 20 cm longis,
multifloris, floribus 5-meris; fructibus parcissime hirsutis vel vetustioribus glabris, apiculo centrico.

A tree 10 to 20 m high, the growing tips of the branchlets rather densely appressed ferruginous-hirsute. Branches terete, brown, glabrous. Leaves oblong, coriaceous, somewhat shining, 20 to 35 cm long, 8 to 12 cm wide, pale or brownish-olivaceous when dry, of about the same color on both surfaces, the apex shortly, abruptly, and obtusely acuminate, base narrowed in the lower one-fourth, cuneate or somewhat decurrent-acuminate; primary nerves 17 to 22 on each side of the midrib, prominent, the secondary nerves and reticulations netted, not parallel, distinct; petioles 1 to 2 cm long. Panicles numerous, in the upper axils, usually about 20 cm long, many-flowered, all parts with few, scattered, usually appressed, pale or ferruginous, hirsute hairs, in fruit sometimes becoming nearly or quite glabrous. Flowers 5-merous, white, the pedicels 1 mm long or less. Calyx-lobes oblong, obtuse, about 1 mm long. Petals oblong, obtuse, about 2.6 mm long, 1 mm wide, reflexed. Disk glabrous. Filaments about 1.3 mm long, much narrowed at the apex; anthers about 1 mm long, prominently sagittate. Carpels rather densely pubescent. Mature fruits red, orbicular to broadly obovoid, somewhat compressed, about 1 cm long, the apiculus central, when immature with few, scattered, pale or ferruginous hairs, in age glabrous or with very few hairs.

This species is widely distributed in the Philippines and is manifestly allied to the common Buchanania arborescens Blume, differing notably in its much larger, more numerous nervèd leaves. The type is For. Bur. 20274 Miranda, from the Province of Misamis, Mindanao, March, 1913, and I refer here also the following specimens:


BUCHANANIA ACUMINATISSIMA sp. nov. § Sagittatae.

Arbor glabra circiter 10 m alta; foliis coriaceis, nitidis, in siccitate brunneis, oblongo-oblanceolatis, tenuiter acuminatis, usque ad 17 cm longis, longe petiolatis, basi longe anguste decurrent-acuminatis, nervis utrinque 20 ad 25; paniculis folia subaequantibus, glabris; floribus 4-meris, longe pedicellatis, pedicellis articulatis; carpellis glabris; antheris sagittatis.

A glabrous tree about 10 m high, or the very tips of the
growing branchlets somewhat pubescent. Branches terete, dark reddish-brown. Leaves brown when dry, shining, coriaceous, oblong-oblancoelate 15 to 17 cm long, 3 to 4 cm wide, the apex slenderly subcaudate acuminate, the acumen up to 2 cm long, blunt, the base narrowed, long and slenderly decurrent-acuminate; lateral nerves 20 to 25 on each side of the midrib, slender, distinct on both surfaces, the secondary veins not parallel, reticulations distinct; petioles 3 to 3.5 cm long. Panicles quite glabrous, slender, rather few-flowered, about as long as the leaves, branched from the middle and above. Flowers white, 4-merous, their pedicels somewhat 4-angled, distinctly jointed, gradually thickened upward, 2 to 3 mm long. Calyx lobes 0.5 mm long or less. Petals oblong, obtuse, 2.5 mm long, about 1 mm wide. Filaments 1 mm long, the apical part very slender; anthers sagittate, about 1 mm long. Disk and carpels glabrous.


A species similar to Buchanania sessilifolia Blume (B. acuminata Turcz.), from which it differs in its much more numerous lateral nerves, and entirely glabrous leaves and panicles. The material was distributed as Buchanania arborescens Blume, but it is quite different from that species and not closely allied to it.


This is typical Mangifera altissima Blanco, and must be reduced to Blanco's species. The type is Elmer 12334 from the Island of Sibuyan.


This species was considered by Miquel as a true Prunus, but he manifestly saw no specimens. A cotype of the species, received from the Museum of Natural History, Paris, is in the Herbarium of the Bureau of Science. The specimen is with fruits, and is typical Buchanania arborescens Blume.

SWINTONIA Griffith

SWINTONIA ACUMINATA sp. nov.

Arbor glabra, 15 ad 20 m alta; foliis coriaceis vel subcoriaceis, usque ad 15 cm longis, oblongo-ellipticis, utrinque subaequaliter angustatis, apice acuminatis, basi leviter decurrentibus, subtus pallidis, nervis utrinque circiter 15; paniculis folia aequantibus vel longioribus, multifloris, pedicellis glabris vel minute pubescentibus, petalis intus puberulis, sub anthesin circiter 2.5 mm longis, obtusis, elliptico-ovatis.

A tree 15 to 20 m high, entirely glabrous except the short pedicels and slightly puberulent petals. Branches terete, dark reddish-brown when dry. Leaves alternate, coriaceous or sub-
coriaceous, oblong-elliptic, 8 to 15 cm long, 3 to 6 cm wide, pale and shining when dry, the lower surface somewhat glaucous, subequally narrowed to the acuminate apex and to the acute or acuminate and very slightly decurrent base, the acumen up to 1 cm in length, blunt; lateral nerves about 15 on each side of the midrib, mostly spreading, slightly curved, prominent, the reticulations distinct on both surfaces; petioles slender, semi-terete, not sulcate, reddish-brown when dry, 4 to 5 cm long. Panicles axillary, slender, numerous, many flowered, up to 20 cm in length, the lower branches up to 12 cm in length. Flowers cream-color or white, numerous, somewhat crowded on the ultimate short branchlets, the pedicels 2 mm long or less. Calyx campanulate, about 2 mm long, the lobes broad, rounded, imbricate. Petals in anthesis elliptic-ovate, obtuse, about 2.5 mm long, glabrous outside, somewhat puberulent inside. Stamens 5. Ovary ovoid, glabrous, inequilateral, about 1 mm long; style short; stigma capitate.


Apparently allied to the Bornean Swintonia glauca Engl., but the branchlets entirely glabrous, leaves not dark-colored on the upper surface, when dry, and with more prominent and more numerous lateral nerves, relatively shorter and glabrous panicles, and glabrous ovaries. It is quite different from the other known Philippine species.

SABIACEAE

MELIOSMA Blume

MELIOSMA ACUMINATISSIMA sp. nov.

Arbor cirriter 5 m alta, glabra vel subglabra; foliis pinnatis, usque ad 50 cm longis, foliolis subcoriaceis, usque ad 13, oblongo-ovatis ad lanceolatis, tenuiter acute acuminatis, basi acutis, margine integris, usque ad 11 cm longis, nitidis, nervis utrinque 6 vel 7; infructescetibus folia aequantibus, terminalibus, fructibus obovoideis, circiter 6 mm diametro, leviter compressis, obscure reticulatis.

A tree about 5 m high, glabrous or nearly so. Branches terete, pale brownish, the very tips ferruginous-hirsute, the plant (in fruit) otherwise glabrous. Leaves up to 50 cm long, pinnate, the leaflets about 13, oblong-ovate to lanceolate, entire, subcoriaceous, pale-olivaceous, shining, 7 to 11 cm long, 3 to 4 cm wide, apex rather slenderly and sharply acuminate, base acute, often a little inequilateral; lateral nerves about 6 on each side of the midrib, prominent, curved-ascending, prominently anas-
tomosing; petiolules about 4 mm long. Panicles (in fruit) terminal, glabrous, as long as the leaves, the fruits nearly black when dry, obovoid, about 6 mm in diameter, slightly compressed, obscurely reticulate.


A species well distinguished by being glabrous or nearly so, and by its entire leaflets. It is probably most closely allied to *Meliosma sylvatica* Elm., but that species is prominently pubescent and has denticulate leaflets.

**Meliosma Macgregorii** sp. nov.

Arbor erecta vel scandens (?) prominente ferrugineo-hirsutis; foliis pinnatis, usque ad 40 cm longis, foliolis 9, oblongis ad oblongo-oblanceolatis, coriaceis, usque ad 12 cm longis, acuminatis, basi acutis, nervis utrinque circiter 10, subtus valde prominentibus, margine integris ad leviter distantier denticulatis; paniculis terminalibus, amplis, multifloris, folia subaequantibus; floribus racemose dispositis, circiter 3 mm longis.

An erect tree of small size (or scandent ?), the branches, inflorescence, petioles and rachis, and the leaflets beneath and on the midrib and lateral nerves on the upper surface prominently ferruginous-hirsute. Leaves pinnate, up to 40 cm long, the leaflets 9, coriaceous, oblong to oblong-oblanceolate, 7 to 12 cm long, 2.5 to 4 cm wide, the apex sharply acuminate, base acute, margins entire to distantly and irregularly denticulate, the upper surface grayish to brownish when dry, somewhat shining, the midrib, nerves, and primary reticulations more or less impressed, the former two ferruginous-hirsute, the lower surface brown, paler than the upper surface, prominently hirsute on the midrib and lateral nerves, with few hairs on the reticulations; lateral nerves about 10 on each side of the midrib, very prominent, curved-anastomosing, the reticulations prominent; petiolules 6 to 10 mm long and with the rachis and petioles prominently ferruginous-hirsute. Panicles terminal, about as long as the leaves, prominently ferruginous-hirsute, the primary branches distant, spreading, up to 16 cm long, the lower secondary ones of each branch up to 7 cm long, many flowered, the flowers white, racemose, disposed on the ultimate branchlets, not crowded, their pedicels 1 mm long or less, the bracts and bracteoles oblong, pubescent, 1 to 2 mm long. Sepals ovate to elliptic-ovate, about 1.8 mm long, margins ciliate. Outer three petals orbicular-ovate, rounded, 2.5 to 3 mm long, the inner two reduced to a bifid membranaceous scale about 1 mm long, cleft into two oblong lobes. Stamens about 1.8 mm long, the
imperfect ones membranaceous, retuse, oblong, about 0.8 mm long. Ovary ovoid, glabrous. Fruit ovoid, slightly compressed, black, about 7 mm in diameter.


A species manifestly allied to *Meliosma pendula* Merr., from which it differs in its much narrower, very differently shaped leaflets.

**Meliosma loheri** sp. nov.

Arbor parva circiter 5 m alta partibus junioribus inflorescentiisque dense ferrugineo-pubescentibus; folis simplicibus, anguste oblongo-obovatis ad oblongo-oblaceolatis, coriaceis, usque ad 20 cm longis, acuminatis, basi angustatis, cuneatis, margine sursum irregulares et grosse serratis, nervis utrinque circiter 15, subitus valde prominentibus; inflorescentiis terminalibus, paniculatis, folia subaequantibus, multifloris; floribus plus minusve confertis, brevissime pedicellatis, circiter 2.5 mm longis.

A small tree, about 5 m high according to Vanoverbergh, the younger parts and inflorescence densely ferruginous-pubescent. Branches terete, dark-brown, pubescent, the younger parts very densely so. Leaves simple, coriaceous, narrowly oblong-obovate to oblong-oblaceolate, 10 to 20 cm long, 3 to 6 cm wide, apex prominently acuminate, acumen apiculate, base gradually narrowed, cuneate, margins in the lower part entire, in the upper one-half usually with few, irregular, rather coarse, sharp teeth, the upper surface olivaceous, glabrous, shining, the ultimate reticulations distinct, minute, subfoveolate, the lower surface more or less pubescent, somewhat paler than the upper, the nerves and reticulations very distinct; lateral nerves about 15 on each side of the midrib, prominent, anastomosing, the primary reticulations very prominent; petioles 2 to 3.5 cm long, pubescent. Panicles terminal, about as long as the leaves, ferruginous-pubescent, many-flowered, the flowers white, rather crowded on the ultimate branchlets, their pedicels very short, the bracts pubescent, oblong-lanceolate, acuminate, about 1.2 mm long. Sepals ovate, rather thin, obtuse, about 1.2 mm long, pubescent. Outer three petals orbicular-ovate, rounded, about 2.5 mm long, the inner two adnate to the filaments, 1 mm long or less, cleft nearly to the base into two linear-oblong lobes. Filaments about 1 mm long, the anthers 1 mm wide, one-half as long; imperfect stamens strongly incurved, channeled, retuse, broadly ovate. Ovary compressed, glabrous, ovoid, about 1 mm long.

**Luzon**, Bontoc Subprovince, Malamey, *Vanoverbergh 1181* (type), March 7, 1914, in forests, altitude about 1,600 meters; Ifugao Subprov-
ince, Mount Polis, Bur. Sci. 19630 McGregor, February, 1913. Here probably should be referred Loher 268 (herb. Kew.) from Atoc, Benguet Subprovince, a mere fragment of which is in the Herbarium of the Bureau of Science.

Closely allied to Meliosma monophylla Merr. of central Luzon, but at once distinguishable by its fewer nerved leaves, about 15 pairs in the present species, about 20 pairs in M. monophylla.

**MELIOSMA PAUCINERVIA** sp. nov.

Arbor, partibus junioribus inflorescentiisque plus minusve ferrugineo-hirsutis; foliis pinnatis, usque ad 35 cm longis, foliolis 7 vel 8, subcoriaceis, oblongis, acute acuminatis, basi acutis ad subrotundatis, usque ad 12 cm longis, nitidis, margine distanter apiculato-serratis, nervis utrinque 4 vel 5, prominentes anastomosantibus; paniculis terminalibus, laxis, circiter 25 cm longis; floribus circiter 3 mm longis; ovario hirsuto.

A tree, size not indicated, the younger parts and inflorescence more or less ferruginous-hirsute. Branches reddish-brown when dry, nearly glabrous, the younger ones sparingly hirsute. Leaves pinnate, up to 35 cm in length, the rachis reddish-brown, sparingly hirsute, leaflets 7 or 8, 8 to 12 cm long, 3 to 4.5 cm wide, subcoriaceous, oblong, sharply acuminate, base acute to somewhat rounded, margins of the larger leaflets with from 4 to 6, distant, small, apiculate, serrate teeth, the upper surface olivaceous when dry, shining, glabrous or the midrib sparingly hirsute, the lower surface paler, sparingly hirsute on the midrib and lateral nerves which are brown in contrast to the paler surface; lateral nerves 4 or 5 on each side of the midrib, very prominent, curved, prominently anastomosing, the reticulations lax; petiolules sparingly hirsute, 5 mm long or less. Panicles terminal, ample, lax, up to 25 cm in length, rather prominently ferruginous-hirsute, the branches distant, the lower ones up to 16 cm long, spreading or curved-ascending. Flowers white, racemose and laxly disposed on the ultimate branchlets, their pedicels hirsute, 1 to 2 mm long, the bracts oblong-lanceolate, acuminate, about 2 mm long. Sepals pubescent, oblong to ovate, about 2 mm long. Outer three petals orbicular-ovate, rounded, about 3 mm in diameter, with a short ligule-like appendage near the apex inside; two inner petals reduced to mere rudiments, each consisting of two, narrowly linear lobes about 1.2 mm long, adnate to the stamens. Fertile stamens 1.5 mm long, the imperfect ones broad, incurved, oblong-ovate, about 1.5 mm long (spread) and 1 mm wide. Ovary ovoid, hirsute.

**MINDANAO**, District of Zamboanga, Santa Maria, Bur. Sci. 16436 Reillo, October, 1912.
A species well characterized by its distantly and sharply toothed leaflets, few but prominent and prominently anastomosing lateral nerves, lax panicles with laxly arranged flowers, and hirsute ovaries.

**Rhamnaceae**

**Ventilago** Gaertner

**Ventilago lanceolata** sp. nov.

Frutex scandens, partibus junioribus exceptis glaber; ramulis tenuibus, teretibus; foliis lanceolatis, chartaceis, integris, usque ad 8 cm longis, brevissime petiolatis, sursum angustatis, obtusis, basi subacutis ad subrotundatis, nervis utrinque circiter 9, tenuibus; racemis axillaribus, tenuibus, sub fructu usque ad 6 cm longis, solitariis; fructibus 4 ad 5 cm longis.

A scandent shrub, glabrous except the younger parts. Branches slender, terete, the branchlets glabrous or slightly and obscurely pubescent. Leaves lanceolate, chartaceous, 5 to 8 cm long, 1 to 2.5 cm wide, rather pale when dry, shining on both surfaces, entire, gradually narrowed upward to the obtuse apex, the base subacute to subobtuse; lateral nerves about 9 on each side of the midrib, very slender, curved-ascending, obscurely anastomosing very close to the margins, the reticulations fine, close, evident on both surfaces; petioles glabrous, 2 mm long or less. Racemes axillary, solitary, slender, in fruit up to 6 cm long, slightly pubescent. Fruits, including the wing, 4 to 5 cm long, the basal part nearly 5 mm in diameter, quite glabrous, the wing 7.5 to 10 mm wide, reticulate, somewhat rounded at the apex, shortly apiculate.


A species characterized by its lanceolate, slenderly nerved leaves, and its inflorescence reduced to a simple axillary raceme.

**Zizyphus** Linnaeus

**Zizyphus otanesii** sp. nov.

Arbor circiter 5 m alta, ramulis pubescentibus, spinosis; foliis parvis, suboblique ellipticis vel elliptico-ovatis, chartaceis, usque ad 3 cm longis, obtusis, 3-nervis, subtus parce pubescentibus; fructibus globosis, glabris, 1.5 cm diametro.

A tree about 5 m high, the branches terete, reddish-brown, glabrous, the branchlets with very short sharp spines at the nodes 1 to 2 mm in length, the younger branchlets ferruginous-pubescent. Leaves small, somewhat inequilateral, chartaceous, 1.5 to 3 cm long, 1 to 2 cm wide, obtuse, base rounded or subacute on one side and rounded on the other, 3-nerved, the upper surface olivaceous, glabrous or slightly pubescent on the nerves,
the lower surface slightly paler, sparingly appressed-pubescent, the hairs on the nerves somewhat ferruginous; petioles ferruginous-pubescent, 2 to 3 mm long. Fruits globose, hard, glabrous, smooth, about 1.5 cm in diameter.

**Luzon,** Province of Pangasinan, Umingan, *Bur. Sci. 17964 Otanes,* April 16, 1914, in forests east of the town, known to the Ilocanos as *dilap.*

Manifestly allied to *Zizyphus trinervia* Poir., but at once distinguished by its much smaller, but slightly pubescent leaves.

**ELAEOCARPACEAE**

**ELAEOCARPUS** Linnaeus

**ELAEOCARPUS BATAANENSIS** sp. nov.  § *Dicera.*

A tree about 12 m high, quite glabrous except the slightly appressed-pilose younger branchlets and inflorescence. Branches slender, reddish-brown. Leaves oblong-elliptic, chartaceous, 6 to 9 cm long, 2 to 3.5 cm wide, subequally narrowed to the acute base and the somewhat acuminate apex, margins serrate-crenulate, somewhat olivaceous when dry, shining; lateral nerves slender, about 6 on each side of the midrib, anastomosing, the reticulations slender, axils of the leaves eglandular; petioles slender, 1 to 1.5 cm long. Racemes axillary, solitary, few, 3 to 4 cm long, few-flowered, the pedicels about 5 mm long. Flowers white, 5-merous. Sepals lanceolate, acuminate, about 5 mm long, 1.2 mm wide, externally very slightly puberulent. Petals 5.5 to 6 mm long, base cuneate, margins in the lower part densely villous with long hairs, the apical 2 mm cut into about 15, very slender, subequal divisions. Stamens about 25, 3 mm long, the anthers narrow, scabrid, cleft at the apex, one cell very slightly exceeding the other and ciliate-bearded at the tip. Ovary pubescent; style slender, lower part somewhat pubescent. Fruit ellipsoid or narrowly ellipsoid, about 2.5 cm long, 1.5 cm in diameter, rounded at both ends, the endocarp hard, bony, 1-celled.

**Luzon,** Province of Bataan, forests back of Limay, *For. Bur. 21908 Medina,* July 2, 1914, on forested slopes, altitude about 300 meters.
This species is characterized by its few flowers, equally and slenderly divided petals which are densely villous on the margins of the lower one-half, and its eglandular leaves. It is an ally of Elaeocarpus isotrichus F.-Vill., but has much smaller, quite different leaves.

ELAEOCARPUS OLIGANTHUS sp. nov. § Dicera.

Arbor parva, plus minusve pubescens; foliis oblongis, chartaceis, usque ad 8 cm longis, basi acutis, apice acuminatis, margine leviter crenatis, dentibus tenuiter aristatis, nervis utrinque 5 vel 6; racemis, axillaribus, solitariis, paucifloris; floribus 5-meris, 5 mm longis, petalis obovatis, \( \frac{1}{2} \) laciniatis, laciniis 12, tenuibus, intus dense hirsutis; staminibus 15; ovario 2-loculare, dense villosae; fructibus 2.5 cm longis, vix 1 cm diametro, utrinque angustatis, acutis.

A tree about 8 m high, the branchlets, petioles, lower surfaces of the leaves on the midribs, and inflorescence rather densely pubescent. Branches terete, reddish-brown, glabrous, smooth, very slightly lenticellate. Leaves oblongo to broadly oblong-lanceolate, 5 to 8 cm long, 1.8 to 3 cm wide, the base acute, the apex acuminate, the margins crenulate, each tooth tipped with a short, slender, awn or mucro, the upper surface shining, the lower a little paler, chartaceous; lateral nerves 5 or 6 on each side of the midrib, slender; petioles 3 to 4 mm long. Racemes axillary, solitary, few-flowered, pubescent, 4 to 5 cm long. Flowers 5-merous, their pedicels slender, about 8 mm long, pubescent. Sepals lanceolate, acute, 5 mm long, 1.5 mm wide, slightly pubescent externally, margins densely puberulent, inside glabrous. Petals obovate in outline, 4 mm long, cut one-half to the base into 12, slender, subequal, segments, the lower one-half inside densely hirsute, margins hirsute, back pubescent except near the base. Stamens 15, the anthers narrowly oblong, 2 mm long, minutely scabrid, one cell slightly longer than the other and shortly ciliate at the apex, both obtuse; filaments 0.5 mm long or less. Ovary densely villous, 2-celled, narrowed upward to the style, densely pale-villous; disk-glands prominent, pubescent. Fruit narrowly oblong, about equally narrowed and acute at both ends, smooth, about 2.5 mm long, 0.8 mm in diameter.

MINDANAO, District of Zamboanga, Siay River, For. Bur. 15398 Foxworthy, DeMesa, & Villamil, May 29, 1912, along the river, near sea level.

A species characterized by its pubescence, its rather small leaves, its few-flowered racemes, and its petal-characters. It somewhat resembles and probably is closely allied to Elaeocarpus villosiusculus Warb., from which, however, it differs in many characters.
ELAEOCARPUS RAMIFLORUS sp. nov. § Ganitrus.

Arbor alta partibus junioribus inflorescentiisique leviter puberulis vel pubescentibus, vetustioribus glabris; foliiis lanceolatis, membranaceis vel chartaceis, usque ad 12 cm longis, nitidis, leviter acuminatis, basi acutis, margine obscure crenulatis; racemis numerosis, eaxillis defoliatis, circiter 6 cm longis; floribus 5-meris, 6 mm longis, ovario 5-loculare.

A tall tree, nearly glabrous except the younger parts and the inflorescence. Branches terete, dark-colored when dry, glabrous, the growing parts slightly gray-puberulent. Leaves lanceolate, membranaceous or somewhat chartaceous, 9 to 12 cm long, 2 to 3.5 cm wide, subequally narrowed at both ends, the upper surface shining and olivaceous when dry, the lower a little paler and when young a little pubescent along the midrib, becoming quite glabrous, smooth, the apex acuminate, base acute, margins obscurely crenulate; lateral nerves about 12 on each side of the midrib, slender, rather distinct, usually with glands in the axils; petioles 1 to 1.5 cm long, somewhat appressed-pubescent. Racemes numerous, about 6 cm long, from the branches below the leaves in the axils of fallen leaves, one raceme from each axil, distinctly pubescent with appressed grayish hairs. Pedicels about 6 mm long, appressed-pubescent. Sepals lanceolate, somewhat acuminate, 4.5 to 5 mm long, externally sparingly appressed-pubescent with grayish hairs, internally slightly pubescent, the margins rather densely so. Petals 5 to 6 mm long, cut one-half way to the base into 9 to 11 slender segments, margins rather prominently pubescent in the lower one-half, the back slightly pubescent in the median part, otherwise glabrous. Stamens many; filaments very short, hispid; anthers linear-oblong, about 2 mm long, minutely hispid, one cell slightly longer than the other and with a tuft of few short cilia at the apex. Ovary globose, villous, 5-celled; style slightly pubescent, 2 mm long. Fruits not seen.


One of the very few species of the section at present known from the Philippines, characterized by its lanceolate shining leaves and its numerous racemes which are borne on the ultimate branches but entirely below the leaves.

ELAEOCARPUS CALOMALA (Blanco) comb. nov.

Vallea calomala Blanco Fl. Filip. (1837) 439.

Ageratum (Ageratum) calomala Blanco l. c. ed. 2 (1845) 306, ed. 3, 2: 204.

Elaeocarpus isothrix F.-Vill. l. c.; Aug. DC. l. c.
Elaeocarpus philippinensis Warb. in Perk. Frag. Philip. (1904) 100; Aug. DC. l. c. 636.

This much named endemic species is of wide distribution in Luzon and Mindoro, its oldest valid specific name being here adopted. Blanco's description is quite good and agrees perfectly with the material cited below. It is, moreover, the only form known to me from Luzon to which his description can be referred. His material was from the Province of Batangas, and his specific name is from its Tagalog name calomala.

Elaeocarpus isothrix (Turcz.) F.-Vill. has been considered by several authors as a species of doubtful status. It was based on Cuming 836 in Turczaninow's herbarium, but this number in other herbaria is Medinilla cumingii Naud. Through the kindness of the Director of the Botanical Institute of the University of Kharkoff I have been able to examine Turczaninow's type, and find it to be the common Luzon form, identical in all respects with the species recently described by Warburg as Elaeocarpus philippinensis; of the later I have examined the type in the Berlin Herbarium, an unnumbered specimen of Cuming's collection.

Elaeocarpus oblongus Gaertn. apparently does not occur in the Philippines, the numerous specimens so named having been determined as such through error. The exact status of Gaertner's species is doubtful, as it was based primarily on Ganitrum oblongum Rumph. Herb. Amb. 3: 161, t. 102, from which the specific name was taken. The only description given by Gaertner is that of the fruit, taken from a specimen in the Leiden Herbarium, its origin not indicated. Rumphius's figure represents a plant with entire leaves, a form entirely different from the Elaeocarpus oblongus of all modern authors except Gaertner and De Candolle.


THYMELAEACEAE

AQUILARIA Lamark


The identification was originally made from Gamble's description, Alvarez's specimens being in fruit, no flowers available. Through the kindness of Mr. I. H. Burkitt, director of the Botanic Garden, Singapore, I have
recently received a fruiting specimen of Lamark’s species from Malacca, and consider the Philippine plant to be specifically identical with the Malacca one. The genus is new to the Philippines.

**BEGONIACEAE**

**BEGONIA Linnaeus**

**BEGONIA ALBA** sp. nov. § Diploclinium.

Herba parce bruno-setosa praesertim partibus junioribus; foliis longe petiolatis, subreniformibus vel subrotundatis, integris vel leviter undulatis, basi profunde subaequaliter cordatis, palmatim 7- vel 9-nerviis; floris masculinis albis, albis, circiter 2.5 cm diametro, bracteis orbicularibus, deciduis; staminibus circiter 20.

A succulent herb, the rhizome creeping, rather slender, glabrous or nearly so, the stipules persistent only at the growing tip, sparingly brown-setose, ovate, acuminate, submembranaceous, about 1.5 cm long. Petioles up to 30 cm in length, glabrous, or when young with few, long, scattered, brown, setose hairs. Leaves chartaceous when dry, pale-brownish, orbicular or subreniform, up to 15 cm long and 17 cm wide, entire or the margins slightly undulate, very broadly rounded, subequilateral, the base deeply and subequally cordate, the sinus very narrow, up to 4 cm deep, the basal lobes very broadly rounded, the upper surface glabrous, the lower with long scattered, brown hairs when young, becoming glabrous or nearly so, the margins distinctly brown-setose; nerves 7 or 9, radiating from the base, prominent, forked, the lateral ones above the base 2, rarely 3 pairs; petioles up to 30 cm in length, brown-setose when young, becoming glabrous. Scape rather slender, 20 cm long or less, the stamine flowers few, subumbellately cymose at the apex of the peduncle, the primary branches 2 or 3, 1 cm long or less. Bracts prominent, orbicular or subreniform, membranaceous, deciduous, white, about 6 mm in diameter, two subtending each flower. Stamine flowers: Sepals 2, elliptic to elliptic-orbicular, broadly rounded, about 12 mm long. Petals 2, oblong-ob lanceolate, about 10 mm long, narrowed below. Stamens about 20; filaments 1 mm long; anthers narrowly obovoid, as long as the filaments. Pistillate flowers and fruits not seen.


A very characteristic species, at once distinguishable by its nearly equilateral, entire, deeply and subequally cordate leaves, and by its few, comparatively large, white flowers. In vegetative characters it resembles *Begonia suborbiculata* Merr., of Palawan, but is entirely different from that species in its floral characters.
**BEGONIA BILIRANENSIS** sp. nov. § *Diploclinium.*

Herba subitus foliis ad nervos petiolis pedunculisque brunneosetosis, caulibus prostratis; foliis confertis, longe petiolatis, usque ad 22 cm longis, oblique ovatis, acuminatis, valde inaequilateraliter cordatis, margine undulatis vel parce undulatolobatis; inflorescentiis folia subaequantibus, multifloris, floribus masculinis circiter 11 mm diametro, sepalis orbiculari-ovatis, quam petalis multo latioribus; staminibus circiter 60; capsulis circiter 1 cm longis, 1.5 cm latis, subaequaliter 3-alatis, alis rotundatis.

Stems creeping, rather stout, more or less brown-setose and with brown, ovate, acuminate stipules about 1 cm long, the leaves crowded, the peduncles, leaves on the nerves beneath, and petioles prominently brown-setose, the petioles 11 to 18 cm long. Leaf-blades obliquely ovate, strongly inaequilateral, the leaf-blades 15 to 22 cm long, 10 to 15 cm wide, acuminate, margins undulate or somewhat undulate-lobed, the upper surface somewhat olivaceous when dry, slightly shining, minutely puncticulate, glabrous, the lower surface greenish or brownish-olivaceous, the nerves in strong contrast, brown, brown-setose on the nerves and primary reticulations, everywhere white-puncticulate, the nerves about 10. Inflorescence about as long as the leaves, long-peduncled, ample, with both male and female flowers. Male flowers white or very pale-pink, about 11 mm in diameter. Sepals orbicular-ovate, rounded, about 5.5 mm long, 5 mm wide. Petals oblong-ovate, rounded, narrowed below, as long as the sepals, about 2 mm wide. Stamens about 60; anthers 0.6 mm long, obovoid, as long as the filaments. Female flowers: Sepals 2, broadly elliptic-ovate, rounded, about 6 mm long, 5 mm wide. Petals 2, as long as the sepals, oblong-ovate, 2.5 mm wide. Styles 3, about 3 mm long, forked above, the stigmas spiral. Capsules about 1 cm long, 1.5 cm wide, including the wings, the wings 3, subequal, rounded.

**Biliran, Bur. Sci. 18822** (type), 18760, 18544 McGregor, June, 1914, on rocks in forests, altitude 100 to 800 meters.

A species allied to *Begonia mindorensis* Merr., but with larger leaves, smaller flowers, and decidedly larger fruits.

**BEGONIA PLATYPHYLLA** sp. nov. § *Petermannia.*

Herba erecta, ramosa, *B. cumingii* affinis, differt foliis latioribus, usque ad 9 cm latis, minus pubescentibus, floribus masculinis multo minoribus, petalis circiter 5 mm longis.

An erect branched herb, nearly glabrous. Leaves inaequilateral, broadly oblong to oblong-ovate, 11 to 18 cm long, 7 to 9
cm wide, chartaceous, the apex abruptly short-acuminate, the base scarcely narrowed, one side much narrower than the other, acute, the broader side very broadly rounded, forming a shallow, wide sinus with the petiole, the margins irregularly and rather coarsely toothed, not at all lobed, the primary teeth very broad, short, acute, the shallow sinuses denticulate; upper surface glabrous, subolivaceous when dry, slightly shining, the lower surface much paler, glabrous except for the slightly subfurfuraceous nerves; nerves prominent, nearly straight, forked, the basal ones usually 9, of which 2, sometimes 3, are on the narrower side of the lamina, the lateral nerves above the base 2 on the narrower side, 3 on the broader side, ascending, the reticulations lax, indistinct; petioles 3.5 to 5.5 cm long, when young somewhat brown-furfuraceous; stipules 2 cm long. Staminate and pistillate flowers in different inflorescences on the same plant. Staminate inflorescence terminal, lax, divaricately branched, up to 10 cm long, few-flowered. Flowers pink or white. Sepals 2, orbicular, about 5 mm in diameter. Petals none. Stamens about 30; anthers ellipsoid, about 1 mm long, equaling the filaments. Pistillate inflorescence axillary and terminal, few-flowered, 5 cm long or less, each flower subtended by 2, deciduous, oblong-elliptic, acute or obtuse, membranaceous bracts. Sepals 5, narrowly elliptic, narrowed at both ends, acute, about 1.3 cm long. Mature capsules, including the wings, turbinate, about 2 cm long, 2.5 cm wide, subequally 3-winged, the apex truncate, the upper outer corners of the wings rounded, the base broadly rounded.

**LUZON, Province of Nueva Vizcaya, near Imugan, Bur. Sci. 20074 McGregor, January, 1912.**

In comparison with Begonia cumingii A. Gray (B. philippinensis A. DC.), to which the species is manifestly allied, the striking differences are in the small staminate flowers and the relatively broad, nearly glabrous leaves of the present species.

**BEGONIA MEGALANTHA** sp. nov. § Peterrmannia.

Species B. merrittii affinis, differt ramulis et subtus foliis ad nervos prominente pubescentibus, foliis subintegris vel leviter dentatis, vix lobatis, petiolo brevioribus, floribus majoribus, petals usque ad 2.5 cm longis.

An erect, branched shrub 1 to 2 m high, the stems very woody, stout. Branches and branchlets more or less zig-zag, prominently pubescent with short, more or less crisped, pale-brown hairs. Leaves inequilateral, oblong, chartaceous, 5 to 10 cm long, 1.8 to 4 cm wide, the upper surface brownish or olivaceous, slightly shining, the lower surface paler, densely punctulate, glabrous except the midrib and nerves which are prominently
brown-pubescent, the hairs similar to those on the branchlets, the apex slenderly acuminate, somewhat falcate, the base not at all or but slightly narrowed on the broadly rounded wider side, slightly narrowed and acute or somewhat cordate on the narrower side, the margins distantly and slightly toothed, not at all lobed, the base 6 or 7-nerved, the primary lateral nerves above the base 2 on the narrower side, usually 3 on the broader side, ascending, forked, prominent on the lower surface, the reticulations lax, indistinct; petioles brown-pubescent, 2 to 4 mm long; stipules oblong, submembranaceous, about 7 mm long, their midribs excurrent as long and slender apiculi. Staminate and pistillate flowers on separate inflorescences on the same plant, in rather lax, few-flowered, terminal cymes, sometimes reduced to two or three, long-pedicelled flowers. Staminate flowers: Sepals 2, pure white to somewhat pink, broadly ovate, membranaceous, glabrous, 2 to 2.5 cm long, 2 to 2.3 cm wide, the base broadly cordate, the apex broadly rounded. Petals none. Stamens about 50, inserted on the slightly elongated torus, the filaments 2.5 mm long, the anthers narrowly oblong-ovoid, about 1.5 mm long. Bracts membranaceous, apiculate, about 7 mm long. Pistillate flowers: Bracts elliptic-ovate, membranaceous, 1 cm long, apiculate, two subtending each flower, deciduous; pedicels slender, pubescent, about 2.5 cm long. Sepals 5, narrowly ovate, membranaceous, acute or obtuse, about 2.3 cm long. Stigmas spirally arranged. Capsules turbinate, including the wings about 1.5 cm long and wide, subequally 3-winged, the apex truncate or somewhat cordate, the tips of the wings broadly rounded, the baseacute or subtruncate, broadly rounded.


A striking species, manifestly closely allied to Begonia merritii Merr., from which it is distinguished by the numerous characters indicated in the diagnosis. It is remarkable for its large size, the development of woody tissue in the stems, and its very large flowers.

Begonia Lancifolia sp. nov. § Petermannia.

Erecta vel suberecta, ramosa, usque ad 60 cm alta, glabra, ramis ramulisque tenuibus; foliis lanceolatis, in siccitate membranaceis, viridis, usque ad 12 cm longis, deorsum angustatis, basi acutis vel obtusis, subaequilateralibus, apice longissime caudato-acuminatis, margine grosse irregulariter sinuato-lobatis; inflorescentiis terminalibus, paniculatis, tenuibus; floribus ♂ parvis, sepalis 2, petalis 0; capsulis 8 mm longis, aequaliter 3-alatis.

An erect or suberect branched glabrous herb 60 cm high or
more, the stems and branches slender, pale-brown when dry, sometimes geniculate and emitting small roots at the nodes. Leaves lanceolate, when dry membranaceous, green, of nearly the same color on both surfaces, glabrous, 8 to 12 cm long, 1.5 to 2.5 cm wide, narrowed below to the acute or obtuse, nearly equal or slightly inequilateral base, not at all cordate, the apex very long and slenderly caudate-acuminate, the acumen sharply toothed, the margins in the basal part entire, in the median portions coarsely and irregularly sinuate-lobed, about 3 lobes on each side of the midrib, the lobes acute, broad, the sinuses mostly rather shallow, rounded; stipules lanceolate, long and slenderly aristate-acuminate, about 10 mm long, 2 mm wide at the base; petioles slender, 1 to 2 cm long. Inflorescence terminal, 9 cm long or less, the branches and branchlets rather few, very slender, one or more female flowers at the base, the male flowers above, apparently rather numerous but early deciduous. Male flowers: Sepals 2, orbicular, broadly rounded, in nearly mature bud 4 mm in diameter. Petals none. Stamens about 25, the anthers oblong-obovoid, nearly 1 mm long. Capsules about 8 mm long, including the 3 subequal wings about 1.4 cm wide, the base truncate, the apex broadly rounded or subtruncate, the wings thin, rounded.


Most closely allied to Begonia littleri Merr., also known only from Basilan, but distinguished by its entirely different leaves, and its equally 3-winged capsules. From B. longistipula Merr. and B. palawanensis it not only differs in its much narrower, differently shaped leaves, but also in its very much smaller capsules.

BEGONIA LACERA sp. nov. § Petermannia.

Species prececedente affinis, differt foliis brevioribus angustioribusque, usque ad 7 cm longis, 1 cm latis, irregulariter lacerato-lobatis, stipulis brevioribus, circiter 6 mm longis, sepalis (fl. ♂ ) late ovatis, subacutis.

An erect, branched, slender herb about 40 cm high, quite glabrous, the branches and branchlets reddish-brown when dry, slender. Leaves lanceolate, thinly membranaceous when dry, green, 3 to 7 cm long, about 1 cm wide, narrowed to the sub-equilateral acute or obtuse base, the apex very long and slenderly caudate-acuminate, the margins irregularly lacerate-lobed in the median portion, the basal portion entire, the long and slender acumen sharply and rather coarsely toothed, the lobes few, rather narrow, acute or acuminate; petioles 5 mm long or less;
stipules lanceolate, 6 mm long, 1.8 mm wide below, long and slenderly aristate-acuminate. Inflorescence paniculate, terminal or in the uppermost axil, lax, 4 cm long or less, the branches few, slender. Flowers few, the staminate ones with 2, broadly ovate, subacute or obtuse, not rounded, sepals 3 mm in length. Petals none. Stamens about 20. Anthers broadly obovoid, rounded, 0.6 mm long. Female flowers apparently solitary at the base of the staminate panicle, the sepals lanceolate, acuminate or acute, 4 mm long, 1.2 to 1.5 mm wide. Stigmas 3, about 1 mm long, spirally twisted. Capsules not seen, but from the female flowers (in anthesis) apparently equally 3-winged.

BASILAN, Cumalarang River, in forests, Bur. Sci. 16111 Reillo, August 30, 1912.

A rather striking species, distinguishable by its lanceolate, very slenderly acuminate, more or less lacerate-lobed leaves which are narrowed to the subequilateral acute or obtuse bases. It is manifestly allied to Begonia lancifolia Merr., but can be readily distinguished by its smaller, more narrowly lobed leaves, shorter petioles and stipules, subacute or obtuse sepals of the male flowers and fewer shorter anthers.

BEGONIA OLIGANTHA sp. nov. § Petermannia.

Herba erecta, parce ramosa, glabra, circiter 30 cm alta; foliis oblongis, vel angustie oblongo-obovatis, membranaceis, usque ad 7 cm longis, sinuato-dentatis, acuminatiis, deorsum angustatis, leviter inequilateralibus, basi minute oblique subauriculatis; inflorescentiis terminalibus, paucifloris, floribus 2-18 cm diametro, sepalis 2, late ovatis, petalis 2, ob lanceolatis; capsulis 1.3 cm longis, aequaliter 3-alaatis, basi rotundatis, apice truncatis.

An erect herb, glabrous throughout, about 30 cm high, sparingly branched, the stems and branches reddish-brown when dry. Leaves membranaceous when dry, green, oblong to narrowly oblong-obovate, 5 to 7 cm long, 1 to 2 cm wide, slightly falcate, narrowed below to the slightly inequilateral, obtuse, obliquely subauriculate base, and above to the slenderly acuminate apex, the margins distinctly and irregularly sinuate-toothed; petioles 2 to 7 mm long; stipules narrowly lanceolate, long and slenderly acuminate, about 12 mm long, 1.5 mm wide. Inflorescence terminal or in the uppermost axil, paniculate, 5 to 7 cm long, the branches very few, few-flowered, slender. Male flowers: Sepals 2, broadly ovate, 9 to 10 mm long, about 6 mm wide, obtuse or narrowly rounded. Petals 2, oblanceolate, obtuse, 8 mm long, 2 mm wide. Stamens about 20, inserted on the elongated torus; anthers narrowly obovoid, rounded, base acute, 1.5 mm long. Pistillate flowers apparently solitary at the base of each panicle. Capsules 1.3 cm long, 1 to 1.5 cm
wide, equally 3-winged, broadly rounded at the base, the apex truncate, the upper outer angles sharp.


A species with the vegetative characters of *Begonia littleri* Merr., in general similar to that species, and to the allied forms *B. brevipes* Merr., *B. longistipula* Merr., and *B. palawanensis* Merr. It is at once distinguished by its large male flowers, which in this species are about 2 cm in diameter, while in the above species they do not exceed 1 cm in diameter.

**Begonia Latistipula** sp. nov. § *Petermannia.*

Herba erecta, ramosa, ramulisque crassis, teretibus, parce setoso-ciliatis; foliis usque ad 13 cm longis, valde inaequilateralibus, oblongis vel ovato-oblongis, acuminatis, irregulariter lobatis denticulatisque, lateraliter cordatis, basi haud angustatis; stipulis 1.5 ad 2 cm longis, ovatis, cilato-setosis; floribus paucis, axillaribus, fasciculatis, 1 vel 2, longe pedicellatis, circiter 3 cm diametro, 2 solitariis, subsessilibus; capsulis aequaliter 3-alatis, apice truncatis, basi acutis, circiter 1.5 cm longis, 2 cm lati.

An erect, sparingly branched, rather stout herb at least 50 cm in height, the stems and branches, stipules, petioles, and young leaves on the lower surface more or less setose-ciliate. Branches terete, reddish-brown when dry. Leaves thinly membranaceous when dry, strongly inequilateral, oblong to ovate-oblong, somewhat falcate, 9 to 13 cm long, 3 to 5 cm wide, when young ciliate-setose with brown hairs on the nerves of the lower surface, becoming glabrous or nearly so, the margins irregularly lobed, the broader side with one or two rather coarse, acute lobes and 5 or 6 much smaller ones more like coarse teeth, irregularly ciliate-denticulate, the apex rather slenderly acuminate, the base scarcely narrowed, prominently laterally cordate, the lobes rounded, that of the broader side very much wider than that of the narrow side; petioles 8 to 15 mm long, rather densely setose-ciliate with brown hairs; stipules ovate, somewhat inequilateral and slightly falcate, membranaceous, 1.5 to 2 cm long, 1 to 1.2 cm wide, prominently ciliate-setose on the margins, the midrib excurrent as a short micro. Flowers axillary, fascicled, one male and one female, or two males and one female in the same axil. Male flowers: Pedicels slender, up to 2 cm long. Sepals 2, broadly ovate, rounded, 1.5 cm long. Petals none. Stamens about 20, inserted on the elongated torus; anthers narrowly ovoid, 2 mm long, rounded. Capsule subsessile or shortly pedicelled, triangular, the base acute, the apex
truncate, the outer upper angles sharp, about 1.5 cm long and 2 cm wide across the apex.

LEYTE, Dagami, Bur. Sci. 15867 Ramos, August, 1912, in forests near the summit of Mount Buraui.

A characteristic species readily distinguishable by its broad stipules and its rather large axillary fascicled flowers, two or three flowers in a fascicle, one of which is pistillate and one or two staminate, the former shortly pedicelled or subsessile, the latter long and slenderly pedicelled. Its alliance seems to be with Begonia robinsonii Merr., which, however, it does not greatly resemble.

ERICACEAE

DIPLYCOSIA Blume

DIPLYCOSIA FASCICULIFLORA sp. nov.

Species D. parvifoliae affinis, differt floribus fasciculatis, pedicellis brevioribus, ramis ramulisque glabris, vix setosis.

Apparently scandent, probably epiphytic, the branches terete, glabrous, dark reddish-brown, the branchlets paler, glabrous, not at all setose. Leaves coriaceous, elliptic to elliptic-oblong, dull, 2 to 4 cm long, 1 to 1.5 cm wide, when young with few, long, slender, brown, setose hairs on the margins, and scattered ones on both surfaces, when mature quite glabrous, the midrib prominent, lateral nerves obsolete, base and apex acute; petioles 2 to 3 mm long, slightly setose. Flowers small, pedicelled, in axillary fascicles, up to 8 in each fascicle, the pedicels slender, glabrous, 5 mm long or less, the basal bracts small, the apical bracteoles very broadly ovate, obscurely acuminate, puberulent. Calyx glabrous, somewhat accrescent and 2.5 mm long, the lobes triangular, acute, about 1 mm long. Corolla and stamens not seen.


A species very similar and manifestly closely allied to Diplycosia parvifolia Merr., of Negros, strongly resembling that species in vegetative characters, especially in the obsolete lateral nerves and reticulations. It differs from that species, however, in its flowers being fascicled, not solitary, its longer pedicels, and somewhat larger leaves.

VACCINIUM Linnaeus

VACCINIUM IRIGAENSE sp. nov.

Frutex glaber, circiter 5 m altus; foliis usque ad 6 cm longis, coriaceis, oblongo-ovatis, petiolatis, utrinque angustatis, basi acutis, tenuiter 5- vel 7-plinerviis, apice subrostrato-acuminatis; racemis axillaribus, solitariis, usque ad 6 cm longis, multifloris; floribus 1 cm longis, oblongis, sursum angustatis, ebracteolatis; filamentis pilosis.
A glabrous shrub about 5 m high, the branches dark reddish-brown, terete, shining, the branchlets brownish. Leaves coriaceous, rather narrowly oblong-ovate, 4.5 to 6 cm long, 1.5 to 2.5 cm wide, shining, the lower surface paler than the upper, narrowed below to the acute and slenderly 5- or 7-plinerved base, and above to the somewhat rostrate-acuminate apex, the acumen blunt, less than 1 cm long; reticulations slender, lax; petioles 5 mm long or less. Racemes axillary, solitary up to 6 cm long, rather many flowered. Flowers red, 1 cm long, their pedicels 6 to 7 mm long, ebracteate. Calyx glabrous, about 1.5 mm long, 3 to 3.5 mm in diameter, the lobes broadly ovate, blunt, 1 mm long or less. Corolla oblong, 3 mm in diameter below, narrowed above and 1 mm in diameter under the orifice, glabrous, the lobes slightly spreading, oblong, obtuse, 1 mm long. Stamens 10; filaments flattened below, somewhat pilose, 4 mm long; anthers oblong, truncate, straight or slightly curved, 1.5 mm long. Style stout, glabrous, 8 mm long.

LUZON, Province of Camarines, Mount Iriga, Phil. Pl. 1549 Ramos, December 3, 1913, in the mossy forest.

A species manifestly allied to Vaccinium caudatum Warb., from which it differs in its quite differently shaped leaves and larger flowers.

VACCINIUM MACGREGORII sp. nov.

Frutex erectus (vel scandens ?), inflorescentiis parce pubescentibus exceptis glaber; foliis magnis, coriaceis, usque ad 18 cm longis, petiolatis, basi acutis, apice subcaudato-acuminatis, anguste ovatis ad oblongo-ovatis, basi prominente 7-plinerviis; racemis paucifloris, pubescentibus, axillaribus, solitariis, usque ad 9 cm longis, bracteolis oblongo-lanceolatis, acuminatis, 2 cm longis, deciduis; corolla rubra, 1.6 cm longa, supra leviter ampliata.

An erect (or scandent ?) shrub, the branches slender, brownish, striate, somewhat zig-zag between the distant leaves, glabrous. Leaves narrowly ovate to oblong-ovate, coriaceous, shining on both surfaces, 14 to 18 cm long, 6 to 7 cm wide, entire, the base acute, the apex slenderly subcaudate-acuminate, the base prominently 7-plinerved, sometimes with an additional outer fainter pair, the inner one or two pairs reaching the apex, the primary reticulations lax, the ultimate ones rather dense; petioles stout, 8 mm long. Racemes axillary, solitary, up to 8 cm in length, each about 10-flowered, all parts sparingly pubescent with short, white, scattered hairs, the bracteoles oblong-lanceolate, sharply acuminate, about 2 cm long, deciduous, the pedicels 1 to 1.5 cm long. Calyx-tube cup-shaped, slightly constricted above, the limb somewhat spreading, making the whole
The style is filiform, 54 and nearly funnel-shaped, resembles, February of laterally outside, the lobes 5, short, acute or rounded, about 4 mm wide and 2 mm long. Stamens 10; filaments 9 mm long, more or less pilose with long white hairs; anthers 8.5 mm long, narrowly oblong, base slightly curved and apiculate, the apical tubes laterally compressed, 5 mm long, the slit slightly oblique. Top of the ovary somewhat white-hispid; style 1.5 cm long, glabrous. Fruit unknown.

Luzon, Subprovince of Ifugao, Mount Polis, Bur. Sci. 19846 McGregor, February 11, 1913, indicated by the collector, with query, as a vine.

A species manifestly allied to Vaccinium indutum Vidal from which it is distinguished by its larger, more prominently nerved, glabrous or nearly glabrous leaves; from Vaccinium barandanum Vid., which it also resembles, it is distinguished by the vegetative characters just indicated and its pubescent inflorescence.

VACCININUM TURBINATUM sp. nov.

Frutex epiphyticus, glaber; foliis crasse coriaceis, obovatis ad anguste obovatis, usque ad 9 cm longis, obtusis vel abrupte breviter obtuseaque acuminatis, basi acutis, integris, margine revolutis, nervis utrinque 6, tenuibus, adscendentibus; floribus ignotis; racemis in axillis superioribus vel terminalibus, fructibus longe pedicellatis, turbinatis, circiter ¾ superioribus, 7 mm diametro.

An epiphytic glabrous shrub (flowers unknown), the branches olivaceous or brownish and more or less sulcate when dry, the growing parts reddish-brown. Leaves thickly coriaceous, obovate to narrowly obovate, 5 to 9 cm long, 2.5 to 5 cm wide, apex obtuse or abruptly, broadly, shortly, and obtusely acuminate, the base acute, entire, the margins revolute, with usually one or two pairs of prominent glands above the insertion of the petiole, shining on both surfaces, the upper surface pale, the lower one brownish when dry; lateral nerves about 6 on each side of the midrib, ascending, slender, not prominent, anastomosing; petioles stout, 5 to 7 mm long; bracteoles deciduous (not seen). Flowers unknown. Racemes, in fruit, about 5 cm long, in the uppermost axils or terminal, solitary, few, the pedicels about 1.5 cm long, thickened upward and about 2 mm thick at the apex, distinctly jointed to the calyx. Fruit turbinate, about 5 mm in diameter, one-third superior, the persistent calyx-teeth broadly triangular, acute or obtuse, about 2 mm long.

A characteristic species distinguishable by its fruit being one-third superior, the rounded upper part of the fruit as wide as the calyx in its thickest part, protruding above the persistent calyx-teeth. The plant somewhat resembles *Vaccinium jagori* Warb. in vegetative characters, but has larger, longer petioled leaves.

**RHODODENDRON** Linnaeus

**RHODODENDRON LEYTENSE** sp. nov. § *Vireya*

Frutex epiphyticus, subglaber, ramis ramulisque teretibus; foliis coriaceis, alternis vel subverticillatis, oblongis vel oblongo-ellipticis, usque ad 7 cm longis, utrinque angustatis acutisque, supra nitidis, subtus lepidotis, nervis lateralibus utrinque circiter 8, tenuibus, obscuris; floribus terminalibus, in umbellis sessilibus dispositis, bracteis involucrantibus caducis, oblongis, acuminatis, circiter 2.5 cm longis; corolla flava, 4 cm longa, late tubuloso-campanulata.

An epiphytic, nearly glabrous shrub, the branches and branchlets terete, grayish or reddish-brown, smooth, the ultimate ones about 2.5 mm in diameter. Leaves alternate or subverticillate, coriaceous, oblong to oblong-elliptic, 4 to 7 cm long, 1.5 to 3 cm wide, subequally narrowed to both the acute base and apex, or the base sometimes a little decurrent-acuminate, brownish when dry, the upper surface glabrous, shining, the lower somewhat paler, and with numerous, but not densely arranged, brown lepidote scales; lateral nerves slender, obscure, about 8 on each side of the midrib; petioles 1 to 1.5 cm long. Inflorescence terminal, the flowers in sessile umbels, in bud quite enclosed by imbricate bracts, the bracts caducous, brown when dry, glabrous, shining, oblong, acuminate, about 2.5 cm long, the bracteoles narrow. Flowers yellow, usually 4 or 5 in each umbel, their pedicels pubescent, about 1 cm long in anthesis, twice as long in young fruit. Calyx obsolete, represented by a mere thickening of the apex of the pedicel. Corolla broadly tubular-campanulate, yellow, about 4 cm long, the tube broad, about 2 cm long, the lobes broadly elliptic to obovate, rounded, 1.3 to 1.5 cm wide. Stamens 9 or 10, the filaments slender, a little unequal; anthers oblong, obtuse, 3 mm long. Ovary rather densely pubescent, cylindric, elongated, narrowed upward into the style which is pubescent below and glabrous above; stigma with 5, stout, broad, obtuse lobes.


A rather characteristic species, among the Philippine forms perhaps most closely allied to *Rhododendron kochii* Stein, although entirely different from that species in many details of its leaves, and in the color and character of its flowers.
There appears to be no reason whatever for substituting the generic designation Illepe for Bassia, as Baillon and Engler have done. This conclusion has been reached by Trimen, Cooke, and Gamble, and at my request Mr. F. V. Coville has examined the original publication of the two names, expressing the opinion that Illepe, as published in Linn. Mantissa 2 (1771) 563, has no standing whatever as a published generic name. It is manifest that Koenig merely intended Illepe to represent one of the native names of the original species, Bassia longifolia Linn. This status of the names Bassia and Illepe is confirmed by Richter.

Following Engler and Prantl several Philippine species have been referred to the genus Illepe, but are now transferred to the genus Bassia. It is possible that more complete material will necessitate the transfer of some to the genus Payena.

**BASSIA BETIS** (Blanco) comb. nov.

_Azaola betis_ Blanco _Fl. Filip._ (1837) 402.
_Illepe betis_ Merr. in _Bull._ _Bureau of Forestry_ (Philip.) _1_ (1903) 46.

A large tree of wide distribution in the Philippines, yielding a valuable timber commercially known as betis.

**BASSIA CORIACEA** (Merr.) comb. nov.

_Illepe coriacea_ Merr. in _Govt._ _Lab._ _Publ._ (Philip.) _17_ (1904) 41.

**BASSIA MULTIFLORA** (Merr.) comb. nov.

_Illepe multiflora_ Merr. _l. c._

**BASSIA RAMIFLORA** (Merr.) comb. nov.

_Illepe ramiflora_ Merr. _l. c._ 42.

**BASSIA MONTICOLA** sp. nov.

_Arbor circiter 8 m alta, glabra vel subglabra; foliis crasse coriaceis, oblongis ad oblongo-oblaceolatis, pallidis, nitidis, usque ad 14 cm longis, obtusis, basi cuneatis, nervis utrinque circiter 15; fructibus fasciculatis, e ramis defoliatis, ovoideis ad oblongo-ovoideis, in siccitate bruneis, glabris; sepalis late ovatis, extus parce pubescentibus glabrescentibus, circiter 6 mm longis._

A tree up to 8 m in height, nearly glabrous. Branches stout, terete, brownish, brown-pubescent at the attachment of the pedicels, otherwise glabrous, the branchlets with numerous petiolar scars. Leaves crowded near the apices of the branchlets, oblong to somewhat oblong-oblaceolate, thickly coriaceous, when dry pale and shining on both surfaces, 9 to 14 cm long,

'Trimen _Fl._ _Ceyl._ 2; 79; Cooke _Bombay Flora_ (cited by Gamble); Gamble in _Journ._ _As._ _Soc._ _Beng._ 72 (1905) 176.

"Codex Botanicus Linnaeianus" (1840) 455.
3 to 4 cm wide, narrowed upward to the obtuse apex and below to the cuneate base; lateral nerves about 15 on each side of the midrib, distinct on the lower surface, the reticulations lax, not prominent; petioles stout, 1 to 1.5 cm long. Flowers not seen. Fruits numerous, fascicled on the branches in the axils of fallen leaves, their pedicels brown, 1.2 to 2.2 cm long, glabrous, the points of attachment densely brown furfuraceous-pubescent. Young fruits brown when dry, ovoid to oblong-ovoid, glabrous, about 1.5 cm long, tipped by the rather stout 1 cm long style, the persistent calyx-lobes four, 2-seriate, broadly ovate, coriaceous, obtuse, the outer two about 6 mm long, 5 mm wide, the inner two somewhat thinner and a little broader, outside with few, appressed, dark-brown, shining hairs, becoming nearly or quite glabrous.

Palawan, Silanga Peak, Merrill 9622, May 30, 1913, in forests on the exposed peak, summit, altitude about 530 meters, distributed as Payena.

Apparently allied to Bassia multiflora Merr., but with relatively much narrower, less prominently nerved leaves.

**Bassia obovatifolia** sp. nov.

Arbor glabra circiter 20 m alta; foliis crasse coriaceis, obovatis, usque ad 12 cm longis, in siccitate nitidis, pallidis, apice obtusis, rotundatis vel retusis, basi cuneatis, nervis utrinque circiter 12; fructibus e axillis defoliatis, ellipsoideis, circiter 2.5 cm longis, pedicellis circiter 2 cm longis, sursum incrassatis; sepalis persistentibus, circiter 5 mm latis, irregulariter lacerato-retusi.

A tree about 20 m in height, entirely glabrous, the branches reddish-brown, terete, somewhat wrinkled when dry. Leaves thickly coriaceous, obovate to oblong-ovate, 7 to 12 cm long, 4 to 6.5 cm wide, pale and shining when dry, apex obtuse, broadly rounded or retuse, base narrowed, cuneate, margins recurved; lateral nerves about 12 on each side of the midrib, distinct, the reticulations lax, not prominent; petioles stout, about 1.5 cm long. Fruits solitary or in pairs in the axils of fallen leaves on the ultimate branchlets, in general ellipsoid, coarsely wrinkled when dry, pale-brownish, about 2.5 cm long, the style persistent as a slender straight apiculus up to 1 cm in length. Persistent calyx lobes 4, in two pairs, suborbicular, concave, coriaceous, about 5 mm wide, irregularly lacerate-retuse; pedicels about 2 cm long, rather prominently thickened upward.

Luzon, Province of Camarines, near Daet, For. Bur. 21426 (type), 21454 Alvarez, May, 1914, on forested slopes, 20 to 50 meters altitude.

A species similar to and manifestly closely allied to Bassia coriacea Merr., from which it is readily distinguished by its obovate leaves and fewer lateral nerves; distributed as Palaquium.
BASSIA MINDANAENSIS sp. nov.

Arbor circiter 15 m alta, floribus exceptis glabra; foliis oblongis, usque ad 23 cm longis, subcoriaces, in siccitate brunneis, nitidis, apice brevissime obtuse abrupteque acuminatis, basi acutis, nervis utrinque 15 ad 17, subitus prominentibus; floribus axillaribus, fasciculatis, sepalis 2-seriatis, extus pubescentibus, circiter 7.5 mm longis; staminibus circiter 30; ovario glabro, 8-loculare.

A tree about 15 m high, glabrous except the flowers. Ultimate branches subterete, brown, smooth. Leaves oblong, subcoriaceous, brown and shining when dry, 12 to 23 cm long, 5 to 8 cm wide, base shortly but rather prominently acuminate, the acumen blunt, base acute, sometimes a little inequilateral; lateral nerves 15 to 17 on each side of the midrib, very prominent on the lower surface, the reticulations rather fine, distinct; petioles 1.5 to 2 cm long. Flowers white, fragrant, axillary, about 3 in each fascicle, their pedicels somewhat appressed-pubescent, 10 to 12 mm long. Sepals four, 2-seriate, the outer two broadly ovate, obtuse, coriaceous, appressed-pubescent, about 7.5 mm long, 6.5 mm wide, the inner two thinner, somewhat narrower, their margins ciliate. Corolla tube about 3.5 mm long, enlarged upward, villous inside, the lobes 8, erect, oblong-lanceolate, obtuse, 6 to 7 mm long, 1.5 to 2 mm wide. Stamens about 30, the filaments very short; anthers lanceolate, slenderly acuminate, about 4 mm long, slightly pubescent. Ovary glabrous, 8-celled; style about 1 cm long.

MINDANAO, Province of Misamis, east of Mount Catmon, For. Bur. 17977 Miranda, February 21, 1913, in forests along streams, altitude about 120 meters.

A species recognizable by its leaves turning brown in drying, its prominent nerves, and its glabrous ovaries.

BASSIA PLATYPHYLLA sp. nov.

Arbor alta, floribus exceptis glabra; foliis oblongo-ellipticis, usque ad 30 cm longis, coriaceis, pallidis, nitidis, apice rotundatis vel brevissime obtuse abrupteque acuminatis, basi acutis, nervis utrinque circiter 23, subitus valde prominentibus; floribus axillaribus, longe pedicellatis, sepalis coriaceis, extus leviter pubescentibus, late ovatis, obtusis, circiter 8 mm longis.

A tree reaching a height of about 20 meters, glabrous except the flowers. Ultimate branchlets terete, brown, 4 to 5 mm in diameter. Leaves oblong-elliptic, coriaceous, 23 to 30 cm long, 10 to 13 cm wide, pale and shining when dry, the apex rounded or very shortly, broadly, obtusely, and abruptly acuminate, base acute; lateral nerves about 23 on each side of the midrib, very prominent on the lower surface, curved-spreading, scarcely anas-
tomosing, the reticulations distinct; petioles 4.5 to 5.5 cm long, much thickened and rugose at the base. Flowers axillary, about 5 in each axil, the pedicels glabrous or very slightly pubescent, nearly 3 cm long. Calyx-lobes four, 2-seriate, coriaceous, broadly ovate, obtuse, about 8 mm long, 7 mm wide. Corolla and stamens not seen. Fruit "green, globose" (not seen); seeds brown, shining, about 18 mm long, 10 mm wide, slightly compressed, acute.

**Mindanao, District of Zamboanga, Margosatubig, For. Bur. 21873 Villamil, June 9, 1914, forested slopes, altitude about 70 meters.**

A species characterized by its large leaves with numerous, very prominent nerves; flowering specimens may show it to belong in some other genus.

**Sideroxylon Linnaeus**

**Sideroxylon Villamilii** sp. nov.

Arbor alta partibus junioribus floribusque parce pubescentibus exceptis glabra; foliis oblongis, chartaceis vel subcoriaceis, usque ad 20 cm longis, nitidis, sursum angustatis, obtusis, basi cuneatis vel decurrento-acuminatis, nervis utrinque circiter 8, subtus prominentibus; floribus parvis, axillaribus, fasciculatis, breviter pedicellatis; sepalis 6, circiter 2 mm longis, extus parce pubescentibus; staminodeis oblongis, obtusis, integris, 0.7 mm longis; ovario dense hirsuto.

A tree reaching a height of 30 meters, glabrous except the slightly cinereous-pubescent flowers and pedicels and the growing tips of the branchlets. Branches terete, dark reddish-brown when dry, glabrous. Leaves oblong, chartaceous to subcoriaceous, 10 to 20 cm long, 3.5 to 7 cm wide, about equally narrowed to the obtuse tip and to the cuneate or decurrent-acuminate base, dark-olivaceous and shining when dry; lateral nerves about 8 on each side of the midrib, slender but prominent, curved, anastomosing, the reticulations lax, distinct; petioles 1 to 3 cm long. Flowers small, axillary, fascicled, up to 7 in each fascicle, the pedicels sparingly cinereous-pubescent, 3 to 5 mm long. Sepals 6, outside sparingly cinereous-pubescent, about 2 mm long, 1.5 to 2.5 mm wide, concave, rounded, the inner ones larger than the outer ones, varying from oblong-ovate to subreniform-ovate. Corolla tubular, about 2.7 mm long, glabrous, the lobes 5, orbicular-ovate, rounded, about 1 mm in diameter. Stamens 5, the filaments very short; anthers ovoid, acute, 0.6 mm long. Staminodes alternating with the corolla lobes, oblong, obtuse, entire, 0.7 mm long, glabrous. Ovary densely hirsute; style stout, glabrous, 2 mm long. Fruit globose or depressed-globose, glabrous, fleshy, when dry up to 4 cm in diameter, the seeds pale-
brown, shining, hard, somewhat compressed, about 1.8 cm long and 1.2 cm wide.


A species resembling in vegetative characters *Sideroxylon macranthum* Merr., but quite different in floral characters; it is readily distinguished by its very much smaller flowers which are but slightly pubescent.

**Sapotaceae**

**Palaquium** Blanco

**Palaquium foxworthyi** sp. nov.

Arbor, partibus junioribus floribusque exceptis glabra; foliis coriaceis, oblongo-obovatis ad obovatis, usque ad 12 cm longis, in siccitate brunneis, nitidis, nervis utrinque 12 ad 14, apice breviter obtuseque acuminatis, basi cuneatis; floribus axillaribus, fasciculatis, sepalis extus pubescentibus; staminibus 16; ovario 6-loculare, pubescente; pedicellis circiter 1.5 cm longis, leviter pubescentibus.

A tree, apparently of large size, glabrous except the very tips of the branchlets, pedicels, and parts of the flowers. Branches terete, grayish-brown, glabrous. Leaves coriaceous, oblongo-obovate to obovate, 8 to 12 cm long, 3 to 5 cm wide, dark-brown and shining when dry, the lower surface a little paler than the upper, the apex very shortly and broadly blunt-acuminate, base gradually narrowed, cuneate; lateral nerves 12 to 14 on each side of the midrib, prominent, the reticulations very fine; petioles 5 to 10 mm long. Flowers axillary and in the axils of fallen leaves, fascicled, 2 to 5 in each axil, their pedicels slightly pubescent, about 1.5 cm long. Sepals broadly ovate, about 3 mm long, the outer three thickly coriaceous, acute or slightly acuminate, the inner three rounded or obtuse. Corolla tube about 3 mm long, the lobes 6, reflexed, lanceolate, about 6 mm long, 2.5 mm wide. Stamens 16; filaments 3 mm long; anthers lanceolate, acuminate, 2.8 mm long. Ovary appressed-pubescent, 6-celled; style about 12 mm long.


A species similar to *Palaquium lanceolatum* Blanco, differing in its somewhat smaller leaves, much shorter, less pubescent pedicels, smaller flowers, and pubescent ovaries. To this species I tentatively refer the following sterile material: **Luzon**, Province of Laguna, *For. Bur. 22323* Mariano: Province of Pangasinan, *For. Bur. 19441* Agama.
PALAQUIUM GLABRUM sp. nov.

Arbor alta, sepalis interioribus exceptis glabra; foliis subcoriaceis, usque ad 16 cm longis, obovatis ad oblongo-obovatis, in siccitate brunneis, nitidis, apice obtusis ad rotundatis, basi cuneatis, nervis utrinque 8 ad 10, subitus prominentibus; floribus numerosis, axillaribus, fasciculatis, longe pedicellatis, sepalis exterioribus glabris, interioribus leviter pubescentibus; staminibus 18; ovario glabro, 6-loculare.

A tree about 20 m high, quite glabrous except the inner sepals. Branches terete, grayish-brown, rugose when dry. Leaves rather crowded on the ultimate branchlets, obovate to oblong-obovate, 11 to 16 cm long, 5 to 7 cm wide, subcoriaceous, brown and shining when dry, of about the same color on both surfaces, the apex obtuse to somewhat rounded, base gradually narrowed, cuneate; lateral nerves 8 to 10 on each side of the midrib, prominent on the lower surface, the reticulations very slender, not prominent; petioles 1 to 1.5 cm long. Flowers very numerous, in the axils of leaves and of fallen leaves, several in each axil, their pedicels slender, glabrous, about 3 cm long. Sepals 6, 2-seriate, broadly ovate, coriaceous, 3.5 to 4 mm long, the outer three quite glabrous, the inner three sparingly pubescent. Corolla lobes (in bud) 6, oblong, obtuse, glabrous, 3.5 mm long. Stamens 18; anthers lanceolate, acuminate, 2.5 mm long. Ovary glabrous, 6-celled; style stout, about 2.5 mm long.

LUZON, Province of Rizal, back of Bosoboso, Bur. Sci. 18582 Ramos, August 15, 1911, in forests along streams, locally known as alacaac na puti.

A very characteristic species, readily recognized by its long slender pedicels, and in being quite glabrous in all parts except the inner sepals.

PALAQUIUM HETEROSEPALUM sp. nov.

Arbor circiter 15 m alta, ramulis junioribus floribusque exceptis glabra; foliis crasse coriaceis, obovatis, apice rotundatis, basi cuneatis, usque ad 4 cm longis, nervis utrinque circiter 10, obscuris vel subobsoletis; floribus breviter pedicellatis, circiter 6 mm longis, sepalis 4 vel 6, staminibus 12.

A tree about 15 m high, quite glabrous except the growing tips of the branchlets and the flowers. Branches and branchlets rather stout, dark-colored when dry, glabrous. Leaves crowded toward the apices of the branchlets, thickly coriaceous, obovate, 2 to 4 cm long, 1.5 to 2.5 cm wide, brownish when dry, shining, apex broadly rounded, base cuneate; lateral nerves about 10 on each side of the midrib, very slender, obscure or nearly obsolete; petioles 5 mm long or less. Flowers in the axils of fallen leaves
on the ultimate branchlets, rather numerous, white, their pedicels slightly ferruginous-pubescent with short appressed hairs as are the sepals externally. Sepals 4 or 6, orbicular-ovate, coriaceous, rounded, 2 to 3 mm long, the inner two or three a little larger than the outer two or three. Corolla about 6 mm long, the tube about 1.5 mm, the lobes 6, oblong-elliptic, rounded or obtuse, about 4.5 mm long, 2.5 to 3 mm wide, externally very slightly pubescent. Stamens 12; anthers oblong, acute or acuminate, about 2.5 mm long. Ovary ovoid, pubescent, 5- to 7-celled, narrowed upward into the rather stout style, the ovary and style about 6 mm long.

LUZON, Province of Rizal, Mount Susong Dalaga, Bur. Sci. 19160 Reillo, December 6, 1914, altitude not indicated, but from the mossy forest.

The species somewhat resembles a small leaved form of *Palaquium cuneatum* Vidal, and is characterized not only by its unusually small leaves, but by its very obscure, often nearly obsolete nerves, very short pedicels, and the variable number of sepals, either 4 or 6; in those flowers with 4 sepals, however, there are always 6 corolla lobes and 12 stamens. I know of no other species of *Palaquium* where the number of calyx lobes is variable.

**PALAQUIUM LANCEOLATUM** Blanco Fl. Filip. (1837) 403, ed. 2 (1845) 282, ed. 3, 2 (1878) 159.

This species is of importance as it is the type of the genus *Palaquium* Blanco, and no material previously referred to the species, unless it be Vidal's specimen cited by Dubard, has agreed with Blanco's description in essential characters; specimens referred by me at various times to the species have correctly been indicated by Dubard as a distinct species, *Palaquium merrillii* Dubard,' as Blanco's species has 18 stamens, and the material Dubard has referred to *P. merrillii* has but 12 stamens. Specimens in flower, recently collected, agree in practically all details with Blanco's description, and I feel perfectly confident that the present interpretation of the species is the correct one, and an amplification of Blanco's description follows:

A tall tree, quite glabrous except the younger parts and the flowers. Branchlets and young petioles ferruginous-pubescent. Leaves oblong to oblong-oblanceolate or obovate, rarely approaching the lanceolate type, coriaceous or subcoriaceous, brown and shining when dry, glabrous on both surfaces, shortly and obtusely acuminate to obtuse or even rounded at the apex, base narrowed, cuneate; lateral nerves about 11 on each side of the midrib, prominent, the reticulations fine; petioles about 1 mm long. Flowers numerous, axillary, in the axils of leaves and of fallen leaves on the ultimate branchlets, fascicled, their pedicels ferruginous-pubescent, 2.5 to 4 cm long. Outer 3 sepals densely ferruginous-pubescent, ovate, acute to somewhat acuminate, cori-
aceous, about 4.5 mm long, 3 to 3.5 mm wide, the inner three thinner, oblong to oblong-elliptic, obtuse, pubescent, 4 to 4.5 mm long, 2.5 to 3 mm wide. Corolla glabrous, the tube about 3 mm long, the lobes lanceolate, acuminate, reflexed, about 8 mm long, 2 mm wide. Stamens 18; filaments 4 to 5 mm long, 3 to 3.5 mm wide. Ovary glabrous, 6-celled; style 12 to 15 mm long.


As to Blanco's description, the above specimens agree with it absolutely in all respects except that the leaves are not "lanceoladas," but while some approach the lanceolate type, most of them are oblong-ovate to oblong-oblong-elliptic; they are glabrous and the petioles are short. The flowers agree perfectly especially in the corolla lobes "estrechas, aguzadas, y muy revueltas hácia abajo." The stamens are 18 (in Blanco's description 18, 19, or fewer); ovary (fruit) 6-celled; style longer than the stamens. Blanco gives the date of flowering as March, but saw only old dried flowers; his specimens were from the Province of Batangas which may account for the difference in the time of flowering, which at most would be about one month, as the specimens from Camarines were collected on January 25. The native (Tagalog) name bagalangit does not appear on any of our specimens of Palaquium.

Whether or not "Vidal 7" referred to Blanco's species by Dubard is the same as my interpretation of Blanco's species I cannot say. I have a copy of Pierre's detailed drawing of the flower, apparently taken from young buds, and it does not appear to be the same as the specimens cited above; the differences, however, may be due to the stage of development. At any rate, Pierre's drawing does not agree with Blanco's description in the corolla lobes which in Vidal's specimen are rounded and merely elliptic, not "estrechas, aguzadas."

Palaquium negrosense sp. nov. § Palaquoides.

Arbor circiter 20 m alta, partibus junioribus inflorescentiisque exceptis glabra; foliis crasse coriaceis, obovatis, usque ad 22 cm longis, in siccitate brunneis, nitidis, apice late rotundatis, basi angustatis, cuneatis, nervis utrineque circiter 12, subtus prominentibus; floribus axillaribus, paucis, sepalis extus pubescentibus; staminibus 18; ovario parce pubescente, 6-loculare.

A tree about 20 m high, glabrous except the younger parts and the flowers. Branches rather stout, terete, brown, the growing tips somewhat ferruginous-pubescent, as are the very young petioles, the pedicels, and the calyx externally. Leaves thickly coriaceous, obovate, 14 to 22 cm long, 6 to 12 cm wide, apex broadly rounded, base gradually narrowed, cuneate, when dry brown and shining on both surfaces; lateral nerves about 12 on each side of the midrib, prominent, the reticulations very fine; petioles 1.5 to 2.5 cm long. Flowers few, axillary and in the
axils of fallen leaves, but one or two in each axil, the pedicels ferruginous-pubescent, up to 3 cm long. Young sepals broadly ovate, obtuse, ferruginous-pubescent, coriaceous, about 4 mm long. Very young corolla-lobes elliptic-ovate, rounded or slightly retuse, 3 mm long. Stamens 18, the young anthers 2 mm long. Ovary very slightly pubescent, 6-celled. Fruit oblong, inequilateral, up to at least 3 cm in length (immature) tipped by the style which is up to 14 mm in length, glabrous.


This is the species that Dubard has referred, with doubt, to Palaquium obovatum King & Gamble,19 from fruiting specimens; a more recent collection, however, presents young flowers, and an examination of these shows 18, not 12 stamens, so that the specimens must be referred to the section Palaquoides, not to Eupalaquium, to which P. obovatum belongs. It is closely allied to Palaquium lanceolatum Blanco, differing in its larger leaves which are broadly rounded at the apex, not at all acuminate, its somewhat shorter pedicels, its much fewer flowers, but one or two in each axil, and its slightly pubescent ovary.

**APOCYNACEAE**

**ALYXIA R. BROWN**

**ALYXIA CONFERTIFLORA** sp. nov.

Species ut videtur A. lucidae Wall. affinis, differt inflorescentiis valde congestis, haud pedunculatis, quam petiolo multo brevio-ribus, floribus longioribus, circiter 1 cm longis.

A scendent shrub, quite glabrous except the inflorescence. Branches smooth, reddish-brown, distinctly 4-angled. Leaves fragrant in drying, whorled, 4 in each whorl, oblong, chartaceous to subcoriaceous, 6 to 10 cm long, 2 to 3.5 cm wide, about equally narrowed at both ends, the apex blunt-acuminate, the base decurrent-acuminate, both surfaces slightly shining when dry, the lower a little paler than the upper, the margins recurved; lateral nerves very slender, indistinct, about 50 on each side of the midrib, anastomosing with the faint submarginal nerve; petioles 1 to 1.5 cm long. Cymes axillary, sessile or very shortly peduncled, congested, about 0.8 mm long (excluding the corollas), pubescent, the flowers sessile, 5-merous, each subtended by an ovate, pubescent, acute or acuminate bract about 3 mm long and several similar but much smaller bracteoles. Calyx 3 mm long, the lobes ovate, acute, about 2 mm long, ciliate-pubescent or puberulent. Corolla-tube cylindric, externally glabrous, 10 mm long, swollen above opposite the anthers, contracted at the

throat, the tube prominently pubescent inside; lobes spreading-recurved, orbicular, 3 mm in diameter. Anthers narrowly ovate-lanceolate, 1.2 mm long. Ovary short, pubescent. Fruit not seen.

A species manifestly allied to the Malayan Alyxia lucida Wall., which it greatly resembles, but from which it is distinguished by its congested inflorescence which is much shorter than the pedioles, its longer flowers, and more numerous nerved leaves. It is also closely allied to Alyxia odorata Wall., perhaps closer to this than to A. lucida, but is distinguishable by its acuminate, not acute or obtuse leaves, shorter cymes, sessile flowers, and orbicular, not ovate, corolla-lobes.

ALSTONIA R. Brown

ALSTONIA OBLONGIFOLIA sp. nov. § Dissuraspernum.

Arbor circiter 10 m alta, ramulis subtus foliis inflorescentiisque leviter pubescentibus; foliis ternis vel quaternis, chartaceis vel subcoriaceis, subtus pallidis, oblongis ad oblongo-lanceolatis, usque ad 14 cm longis, nervis distantibus, utrinque 14 ad 18, distinctis; inflorescentiis terminalibus, floribus circiter 8 mm longis.

A tree about 10 m high. Branches obscurely angled, slightly pubescent. Leaves whorled, 3 or 4 at each node, oblong to oblong-lanceolate, narrowed and somewhat acuminate at both ends, chartaceous or subcoriaceous, 6 to 14 cm long, 2 to 4 cm wide, the upper surface glabrous, shining, brown when dry, the lower surface much paler, slightly pubescent, especially on the midrib and nerves; nerves distant, spreading, distinct, brown, 14 to 18 on each side of the midrib, the reticulations slender, not prominent; petioles somewhat pubescent, less than 1 cm long. Inflorescence terminal, sessile, that is numerous peduncles springing from the apex of the branchlet, the peduncles slender, slightly pubescent, 2 to 7 cm long, subumbellately or corymbosey branched at their apices, the branches gray-villous but not densely so. Flowers numerous, white, their pedicels 1 to 2 mm long. Calyx cup-shaped, slightly gray-pubescent, about 1.5 mm long, the lobes very short. Corolla-tube about 5 mm long, cylindric, slightly pubescent on the outside, somewhat inflated above the middle opposite the insertion of the stamens, inside and throat villous, the lobes oblong, obtuse, 3.5 to 4 mm long, overlapping to the right, their margins ciliate-villous. Anthers inserted above the middle, about 1 mm long. Ovary glabrous, narrowed into the slender, 2 mm long style.

A species apparently allied to *Alstonia angustifolia* Wall., of the Malay Peninsula, but differing in many characters, notably, in its quite different flowers.

**KICKXIA** Blume


Rolfe's species is typified only by the plate in the third edition of Blanco's *Flora de Filipinas*, no description having been published; the plate well represents the species as here interpreted. There is some variation in vegetative characters, but in essentials the species is quite constant. A careful examination of all available material has convinced me that the two recently described species, above cited as synonyms, are not distinct from *Kickxia blancoi* Rolfe. The species is sometimes known as *lanete*, as *laneting gubat*, and as *ayate*, and probably represents the form mentioned by Blanco Fl. Filip. (1837) 114, ed. 2 (1845) 81 after the description of *Anasser lamiti* as "Hai otra especie con las flores axilares solitarias." It is represented by the following material:


By description alone *Kickxia macgregorii* Elm. appears to be a remarkably distinct form, but this is due to errors in the description. "Calyx 1.5 to 2.25 cm long" is the description of the pedicel, the calyx being very short; the pedicel is subtended by a very few, small, obscure bracteoles. The flowers are about 6 cm long as in the other specimens referred to *Kickxia blancoi* Rolfe and as represented by Naves' plate.

**TABERNAEMONTANA** Linnaeus

**TABERNAEMONTANA HEXAGONA** sp. nov.

Frutex glaber, circiter 2 m altus; foliiis chartaceis vel submembranaceis, oblongo-ellipticis, usque ad 17 cm longis, acutis ad abrupte obtuseque acuminatis, nervis utrinque circiter 14, patentibus; pedunculis axillaribus, ut videtur paucifloris; fructibus oblongo-lanceolatis, rectis, acuminatis, basi acutis, 6-angulatis vel angulis propriis (3) anguste 3-alatis, alternantibus vix alatis, circiter 6 cm longis, in siccate minute verruculosis.

A glabrous shrub, according to the collector about 2 m high. Branches terete, light-gray, the younger ones somewhat compressed when dry. Leaves membranaceous to somewhat chartaceous, oblong-elliptic, the larger ones 13 to 17 cm long, 4 to 7 cm wide, base acute or decurrent-acuminate, apex acute to
shortly, broadly, and obtusely acuminate, when dry shining, the upper surface pale-olivaceous, the lower very much paler; lateral nerves about 14 on each side of the midrib, spreading, evanescent or subevanescent near the margins, sometimes obscurely anastomosing, the reticulations subobsolete; petioles 1 cm long or less, inflated at the base on the upper side. Peduncles axillary, apparently few-flowered (1-flowered ?), in fruit 3 to 4 cm long. Flowers not seen. Follicles two, free to the very base, oblong-lanceolate in outline, straight, not at all curved, acute at the base, acute or somewhat rostrate-acuminate at the apex, about 6 cm long, 1.3 to 1.5 cm in diameter, 6-angled, or better with 3 longitudinal, narrow wings, and 3 alternating, less prominent ridges, the pericarp coriaceous, greenish-olivaceous when dry, shining, minutely verruculose. Seeds about 24 in each follicle, irregularly oblong-obovoid, about 7 mm long.


The species presents no particularly striking vegetative characters by which it may be distinguished from some other species. Its follicles, however, are very distinct in form, being quite different from those of any other species known to me except the following one. They are straight, not at all falcate as is usually the case in this genus, free to the very base, oblong-lanceolate in outline, acuminate, and with 3 longitudinal, narrow, thick wings, and 3 alternating, less prominent ridges.

**Tabernaemontana mindanaensis** sp. nov.

Frutex glaber 2 ad 4 m altus; foliis chartaceis, oblongo-lanceolatis ad late oblongo-ob lanceolatis, usque ad 12 cm longis, utrinque angustatis, apice acuminatis, basi acutis, nervis utrinque circiter 9; cymis axillaribus, brevibus, paucifloris; folliculis rectis vel leviter curvatis, oblongis vel oblongo-lanceolatis, acuminatis, 4 ad 5 cm longis, circiter 1 cm diametro.

A glabrous shrub about 4 m high. Branches terete, slender, gray, not lenticellate, the younger ones sometimes slightly compressed. Leaves chartaceous, oblong-lanceolate to broadly oblong-ob lanceolate, 7 to 12 cm long, 2 to 4.5 cm wide, narrowed upward to the sharply acuminate apex, the acumen straight or somewhat falcate, somewhat apiculate, and to the cuneate base; lateral nerves about 9 on each side of the midrib, slender but prominent on the lower surface, the reticulations fine; petioles 4 to 8 mm long. Cymes axillary, few-flowered, in anthesis 4 cm long or less, somewhat elongated in fruit, the immature buds up to 1.5 cm long, the pedicels less than 1 cm in length. Follicles usually in pairs, oblong to lanceolate, 4 to 5 cm long, about 1 cm in diameter, straight or somewhat curved, with 4 rather prominent ridges and 2 less prominent ones, red, the base
acute, the apex acuminate, the pericarp coriaceous. Seeds about 20 in each follicle, irregular, about 6 mm long.

MINDANAO, District of Cotabato, Craan, For. Bur. 14930 Tarrosa & Almagro, April, 1912 (type); Reina Regente, Bur. Sci. 11653 Robinson, June, 1910, in thickets and open places at low altitudes.

A species in vegetative characters somewhat resembling the common Tabernaemontana pandacaqui Poir., but with entirely different fruits, which resemble those of Tabernaemontana hexagona Merr.; it differs from T. hexagona Merr. in its smaller, much fewer nerved leaves.

**TABERNAEMONTANA OLIGANTHA** sp. nov.

Frutex glaber circiter 2 m altus; foliis membranaceis vel chartaceis, oblongo-ellipticis, usque ad 15 cm longis, utrinque subaequaliter angustatis, apice acuminatis apiculatisque, basi acutis, nervis utrinque circiter 9, subtus prominentibus; cymis axillaribus, laxis, circiter 10 cm longis, paucifloris; floribus albis, longe pedicellatis, circiter 2.5 cm diametro, corollae tubo circiter 1.7 cm longo.

A glabrous shrub about 2 m high with very lax, few-flowered, axillary cymes, the flowers about 5 to each cyme, long pedicelled. Branches terete, slender, grayish-brown, lenticellate. Leaves membranaceous to chartaceous, oblong-elliptic, 12 to 15 cm long, 5 to 7 cm wide, olivaceous and somewhat shining when dry, subequally narrowed to the acute base and to the distinctly acuminate and slightly apiculate apex; lateral nerves about 9 on each side of the midrib, prominent on the lower surface, curved, obscurely anastomosing, the reticulations fine; petioles 5 mm long or less. Cymes axillary, solitary, about 10 cm long, each about 5-flowered, the branches divaricate, lax. Flowers white, their pedicels 1.5 to 3.5 cm long. Calyx 4 to 5 mm long, the lobes elliptic-ovate, obtuse or acute, 2.5 to 3 mm long. Corolla tube cylindric, 1.5 to 1.8 cm long, the lobes spreading, 12 to 13 cm long, 4 to 5 mm wide, oblong, falcate, rounded. Anthers 2 mm long. Ovary glabrous.

Samar, Cauayan Valley, forested slopes, Phil. Pl. 1621 Ramos, April, 1914.

A species well characterized by its long, very lax, few-flowered cymes, the flowers about 5 in each cyme, long pedicelled.

**URCEOLA** Roxburgh

**URCEOLA IMBERBIS** (Elmer) comb. nov.


The species is in all respects a typical *Urceola* as evidenced by its very short flowers and valvate corolla lobes. It belongs in the group with *Urceola brachysepala* Hook. f. of the Malay Peninsula. The follicles are cylindric and brown when dry, not at all torulose, straight or slightly curved, about 13 cm long, 3 to 4 mm in diameter. The genus, which is new to the Philippines, is also represented by the following allied species:

**URCEOLA PHILIPPINENSIS** sp. nov.

Species praecedente similis et affinis, differt foliis chartaceis, haucl coriaceis, calycis lobis longioribus prope ad basin porrectis.

A scandent shrub, glabrous except the inflorescence, the branches slender, terete, reddish-brown. Leaves chartaceous, oblong-ovate, brown or brownish-olivaceous when dry, slightly shining, 7 to 11 cm long, 3 to 5.5 cm wide, apex prominently acuminate, base rounded to subacute; lateral nerves about 7 on each side of the midrib, rather prominent, curved-anastomosing near the margin, the reticulations distinct; petioles 1 to 1.8 cm long, reddish-brown. Inflorescence corymbose, terminal and in the upper axils, frequently forming an ample, somewhat leafy inflorescence, 7 to 25 cm in width, the younger parts more or less villous with pale or brownish hairs. Flowers very numerous, crowded on the ultimate branchlets, the bracts subtending the primary branches linear, 5 to 15 mm long. Calyx pubescent, cleft nearly to the base, the lobes narrowly ovate, 1 to 1.3 mm long, acute. Corolla about 3 mm long, somewhat pubescent externally, the lobes 5, narrowly ovate, acute, about 1 mm long, valvate. Anthers about 1.3 mm long, base sagittate. Disk prominent, somewhat 5-costate. Ovary glabrous.


A species manifestly closely allied to *Urceola imberbis* (Elm.) Merr., to which most of the specimens have previously been referred, differing in its thinner leaves and manifestly much more deeply cleft calyx. In *U. imberbis* the leaves, when mature, are rather thickly coriaceous, and the calyx lobes extend less than half way to the base.

**URCEOLA LAEVIS** (Elmer) comb. nov.


Like *Carruthersia imberbis* Elm., this species has the characteristic flowers of *Urceola* and must be transferred to that genus. It is readily distinguished from the two other Philippine species by its oblong-oblative bracts and bracteoles, fewer nerves, less prominently acuminate coriaceous leaves, and especially by its calyx lobes extending quite to the base.

**PALAWAN,** Puerto Princesa, *Elmer 12837*, March, 1911, type number.
VALLARIS Burman f.

VALLARIS DARONENSIS (Elmer) comb. nov.


MINDANAO, District of Davao, Elmer 11912 (type number), in fruit, October, 1909: District of Lanao, Camp Keithley, Mrs. Clemens a. n., May, 1907, with young flowers: Province of Misamis, Quadras 100, from Talisayan, locally known as pamacoton.

This species is in all respects a Vällaris, not a Holarrhena, and is accordingly transferred to the former genus; it is closely allied to Vällaris gitingensis (Elmer) Merr., but has broader, more prominently nerved leaves and apparently somewhat larger flowers.

VALLARIS GITINGENSIS (Elmer) comb. nov.


The name proposed by Mr. Elmer, sub Kickxia, has priority over that used by me, sub Vällaris, the latter being the proper genus as the anthers are exserted, not included in the corolla tube. Mr. Elmer's specific name is accordingly adopted, transferred to Kickxia, and K. angustifolia Merr. reduced as a synonym. The two are identical in all respects. Vällaris gitingensis is represented by the following material:


The follicles are in pairs, about 20 cm long, 5 mm in diameter, narrowed at both ends, straight or slightly curved; seeds linear-lanceolate, about 2 cm long, the coma plumose, the hairs very soft, pale-brownish, abundant, 5 to 6 cm long.

VERBENACEAE

CALLICARPA Linnaeus

CALLICARPA LANCIFOLIA sp. nov.

Frutex 1 ad 4 m altus plus minusve stellato-pubescentibus glandulosisque; foliis lanceolatis vel anguste oblongo-lanceolatis, chartaceis, usque ad 20 cm longis, basi leviter inaequilateralibus, obtusiis, apice longe caudato-acuminatis, supra parce simpliciter pubescentibus, eglandulosis, subtus leviter stellato-pubescentibus, glandulosis, nervis utrinque circiter 11; cymis axillaribus solitariis, laxis, 2 ad 4 cm longis, dichotomis; floribus 4-meris, circiter 3 mm longis, corolla glabra vel subglabra.

A shrub 1 to 4 m high. Branches terete, slender, subglabrous or more or less ferruginous-stellate-pubescent, the young ones
densely stellate-pubescent and with scattered, longer, sparingly branched hairs intermixed. Leaves chartaceous, lanceolate to narrowly oblong-lanceolate, 15 to 20 cm long, 3 to 5 cm wide, narrowed above to the long and slender, often subfalcate, caudate-acuminate apex and below to the obtuse, usually slightly inequilateral base, the margins serrate-dentate, the teeth distinct, gland-tipped, the upper surface usually olivaceous when dry, eglandular, with scattered, short simple hairs, the lower surface usually somewhat paler, sparingly stellate-tomentose, minutely glandular; lateral nerves about 10 on each side of the midrib, distinct, curved-ascending, anastomosing; petioles densely stellate-tomentose, 5 to 8 mm long. Cymes axillary, solitary, peduncled, dichotomous, 2 to 4 cm long, rather lax and open, many-flowered, the branches divaricate, rather densely pubescent with simple and stellate hairs intermixed. Flowers lilac, 4-merous, small, the bracteoles linear, pubescent, small. Calyx about 1 mm long, sparingly hirsute-pubescent with short, straight, simple hairs, obscurely and subequally 4-toothed. Corolla-tube about 2 mm long, glabrous, the lobes 4, orbicular-ovate, rounded, about 1 mm long. Filaments 4 mm long; anthers 0.5 mm long. Style slender, 5.5 mm long, slightly thickened near the apex.

**MINDORO,** Mount Halcon, Merrill 5556. **TICAO,** For. Bur. 2534 Clark.


This species has been confused with *Callicarpa caudata* Maxim., and *C. longifolia* Lam., and is manifestly allied to the former, differing in its very different indumentum. It is apparently more closely allied to *C. stenophylla* Merr., than to *C. caudata*, but is distinguished from the former by its broader leaves. Among the extra-Philippine forms it is apparently most closely allied to *Callicarpa longifolia* Lam., differing in its indumentum, shape of its leaves, and in details of its flowers.

**CALLICARPA MEGALANTHA** sp. nov.

Arbor circiter 10 m alta, omnibus partibus plus minusve dense glandulosis et stellato-plumoso-pubescentibus, indumento obscure fusco vel griseo-fusco; foliis oppositis, oblongo-ovatis, subcoriaceis, acuminatis, integris, basi acutis, usque ad 16 cm longis, nervis utrinque circiter 9, subtus prominentibus; cymis axillarisibus, longe pedunculatis, dense multifloris; floribus albis, 6 ad 7 mm longis.

A tree about 10 m high, most parts, except the upper surfaces of adult leaves more or less yellow-glandular and stellate-plumose pubescent, the indumentum dark-brown or dark grayish-brown in color. Branches terete, the younger ones more or less com-
pressed, yellow-glandular, and the younger parts densely stellate-plumose pubescent. Leaves oblong to oblong-ovate, subcoriaceous, entire, 12 to 16 cm long, 5 to 6 cm wide, about equally narrowed to the acute base and to the acuminate apex, the upper surface when young more or less stellate-pubescent, becoming nearly glabrous, brownish-olivaceous, slightly shining, the lower surface paler, with numerous, scattered, pale-yellow, shining glands, densely stellate-pubescent on the midrib and nerves, with scattered stellate hairs on the lamina; lateral nerves about 9 on each side of the midrib, prominent on the lower surface, anastomosing, curved upward; petioles very densely stellate-pubescent, 2 to 2.5 cm long. Cymes in the upper axils, solitary, densely many-flowered, dichotomously branched, 7 to 8 cm in diameter, the peduncles stout, about 8 cm long, the peduncles, branches, bracts, bracteoles, and calyces densely stellate-plumose pubescent, the indumentum almost obscuring the scattered, shining, pale-yellow glands. Flowers white, 6 to 7 mm long, the bracts oblanceolate to spatulate, 6 to 8 mm long, the bracteoles similar but much smaller. Calyx somewhat funnel-shaped, equally 4-lobed, 3 mm long, the lobes short, acute. Corolla 6 to 7 mm long, outside sparingly supplied with small, yellow, shining glands, the lobes 4, subequal, oblong-ovate, broadly rounded, 3 to 3.5 mm long, externally in the median portion sparingly stellate-pubescent as well as glandular. Filaments 7 and 8 mm long; anthers ovoid, 1.2 mm long, somewhat glandular on the back. Ovary ovoid, very densely covered with small, shining, pale-yellow glands.


Probably most closely allied to Callicarpa subglandulosa Elm., but differing from that species in many characters. Callicarpa megalantha is remarkable for its comparatively large flowers which are indicated by the collector as being white, a color otherwise unknown or at least very rare in the genus, its long-peduncled cymes, and its dark-brown or dark grayish-brown indumentum.

CLERODENDRON Linnaeus

CLERODENDRON PUBERULUM sp. nov.

Species C. intermedio valde affinis, differt omnibus partibus plus minusve puberulis vel pubescentibus.

A suffrutescent, erect, sparingly branched plant 2 m high or less, very similar in appearance to Clerodendron intermedium Cham. Older stems glabrous or nearly so, 4-angled, the younger ones distinctly puberulent. Leaves broadly ovate, chartaceous, 10 to 20 cm long, 9 to 17 cm wide, acuminate, base with a
deep, wide sinus, the basal lobes broadly rounded, margins re-
pand-toothed, the upper surface hispid-hirsute with scattered,
appressed, stiff hairs, the lower surface densely and softly puber-
ulent, the indumentum nearly obscuring the glands; petioles
up to 15 cm in length, puberulent. Panicles terminal, narrowly
pyramidal, about 20 cm long, the lower branches about 7 cm
long, all parts puberulent, the bracts narrowly spatulate, 1 to 1.5
cm long, the bracteoles linear or subfiliform, short. Flowers
numerous, red, their pedicels slender, 1 to 1.5 cm long. Calyx-
lobes pubescent, oblong, obtuse, somewhat unequal, about 3 mm
long, accrescent in fruit and 5 to 6 mm long. Corolla-tube
slender, about 12 mm long, 1 mm in diameter, slightly enlarged
above, sparingly pubescent externally, the lobes somewhat un-
equal, oblong to oblong-ovate, obtuse or rounded, 5 to 7 mm
long. Filaments slender, the exserted parts about 2 cm in length.
Fruit about 5 mm long, 8 mm wide, depressed-globose, of 2 to 4,
1-seeded pyrenes.

MINDANAO, District of Davao, Davao, in open wet places, Copeland, 404
(type), March 9, 1904, DeVore & Hoover 177, April, 1903.
A species manifestly very closely allied to Clerodendron intermedium
Cham., which it greatly resembles in aspect. The chief differences appear
to be in the indumentum, C. intermedium Cham. being entirely glabrous,
the present species rather densely puberulent and pubescent.

PREMNA Linnaeus

PREMNA AREOLATA sp. nov. § Gumira.

Frutex scandens, inflorescentiis exceptis glaber; foliis oblongis,
usque ad 14 cm longis, chartaceis ad subcoriaceis, nitidis, in-
tegris, breviter acuminitis, basi acutis ad rotundatis, subtus
dense areolatis, nervis utrinque circiter 6; inflorescentiis ter-
minalibus, brunneo-puberulis, multifloris; floribus 4-meris, par-
vis, calycibus obsolete 4-dentatis, corollae lobis late rotundatis,
subaequalibus.

A scandent shrub, glabrous except the inflorescence, the
branches terete, grayish, somewhat lenticellate, the younger ones
dark-colored when dry. Leaves chartaceous to submembrana-
ceous, oblong, entire, 8 to 14 cm long, 3 to 5 cm wide, the
apex shortly acuminate, the base acute to rounded, olivaceous
or somewhat brownish when dry, shining, of about the same
color on both surfaces or the lower one a little paler, the lower
surface very densely areolate, the areolae small, 1 mm or less
in diameter, each enclosed by the ultimate reticulations; lateral
nerves about 6 on each side of the midrib, slender, rather distinct,
somewhat ascending, anastomosing; petioles 1 to 2 cm long.
Inflorescence terminal, many flowered, usually peduncled, up to
10 cm long and wide, the rachis, branches, branchlets, and bracts rather densely brown-puberulent, the bracts lanceolate, the largest ones 5 mm long or less. Flowers 4-merous, white or nearly so, cymose, sessile. Calyx somewhat puberulent, 2 mm long, truncate, obsoletely 2-toothed. Corolla-tube glabrous externally, about 2.5 mm long, throat and upper part of the tube inside densely villous, the lobes 4, subequal, broadly ovate, rounded, about 1.4 mm long. Filaments slender, 2 to 2.5 mm long. Style slender, glabrous, 3 mm long, the arms slender, nearly 1 mm in length.

**BASILAN, Bur. Sci. 16179 Reillo, September 6, 1912 (type). MINDANAO, District of Lanao, Camp Keithley, Mrs. Clemens 604, September, 1906.** Said by Mrs. Clemens to be a vine reaching a length of from 75 to 100 feet, growing in large Ficus trees.

The species is a very characteristic one, distinguishable by its oblong leaves which are densely areolate on the lower surface, its scandent habit, and its brown-puberulent inflorescence.

**PREMNA WILLIAMSII** sp. nov. § *Gumira.*

Species *P. areolatae* affinis, differt foliis subtus haud areolatis, basi semper acutis, apice acute acuminatis, nervis utrinque 5, petiolo longioribus, floribus paullo majoribus.

A scandent shrub, glabrous except the inflorescence. Branches terete, gray or brownish, somewhat lenticellate, the younger ones scarcely darker in color than the mature ones. Leaves oblong, chartaceous, entire, shining, of the same color on both surfaces, 8 to 14 cm long, 3 to 5 cm wide, narrowed below to the acute base, the apex sharply acuminate; lateral nerves 5 on each side of the midrib, curved-ascending, distinct; petioles up to 3 cm in length. Inflorescence terminal, cymose, brown-puberulent up to 8 cm long and wide, many-flowered. Flowers 4-merous. Calyx cup-shaped, very obscurely puberulent or nearly glabrous, somewhat 4-angled, 2.2 mm long, truncate, obscurely and broadly 4-toothed. Corolla-tube 3 mm long, glabrous externally, inside in the upper part and the throat densely villous, subequally 4-lobed, the lobes broadly ovate, rounded, about 1.5 mm long. Style slender, glabrous, 5 mm long, the arms about 1 mm in length.

**MINDANAO, District of Zamboanga, Sax River, Williams 2330,** the stems trailing, reaching a diameter of 5 cm, flowers white.

Manifestly very closely allied to the preceding species which it greatly resembles. The leaves, however, are not at all areolate on the lower surface, the petioles are longer, nerves fewer, and the flowers slightly larger.
GESNERIACEAE

CYRTANDRA Forster

CYRTANDRA ATROPURPUREA sp. nov. § Aureae.

Frutex erectus, simplex, circiter 2 m altus; foliis confertis, oblongi-obovatis, usque ad 30 cm longis, sessilibus, coriaceis, grosse irregulariter serratis, acuminatis, basi valde angustatis, in siccitate atropurpureis, subtus ad costa nervisque adpresse pubescentibus, nervis utrinque circiter 13, prominentibus; inflorescentiis axillaribus, pedunculatis, bracteis numerosis, oblongo-ellipticis, usque ad 5 cm longis.

An erect, unbranched shrub about 2 m high, the stems stout, the leaves more or less crowded near the summit. Leaves oblong-obovate, 25 to 30 cm long, about 10 cm wide, sessile, coriaceous, the apex shortly and rather sharply acuminate, the base much narrowed, the lower 2 to 4 cm 2 cm wide or less, the margins coarsely serrate, the larger teeth corresponding to the ends of the lateral nerves and up to 6 mm long, with intermediate similar but smaller teeth, the upper surface dark-colored when dry, smooth, somewhat shining, the lower surface when fresh red, when dry dark-purple, the midrib, lateral nerves, and primary reticulations on the lower surface rather densely ferruginos-pubescent with appressed hairs; lateral nerves about 13 on each side of the midrib, anastomosing, curved-ascending, very prominent on the lower surface, the reticulations lax. Inflorescence axillary, the peduncles stout, up to 2 cm long, furfuraceous-pubescent, bearing at their apices numerous, crowded, large bracts and apparently numerous, crowded flowers, the bracts mostly elliptic-oblong to ovate-elliptic, narrowed at both ends, membranaceous or chartaceous 2.5 to 5 cm long, rather prominently nerved, acuminate, coarsely toothed, the nerves more or less pubescent. Flowers not seen. Capsules narrowly ellipsoid, about 12 mm long, narrowed above, glabrous, their pedicels about 5 mm long.


A species manifestly allied to Cyrtandra rex Kränzl., from which it is at once distinguished by its colored leaves; from other Philippine species in this group such as Cyrtandra cumingii Clarke, C. oblongata Merr., C. alnifolia Kränzl., etc., it differs in its sessile leaves.

CYRTANDRA FERRUGINEA sp. nov. § Cuneatae?

Frutex erectus, omnibus partibus plus minusve dense ferrugineo-pubescentibus; foliis oppositis, longe petiolatis, oblongis ad
oblongo-ellipticus, usque ad 20 cm longis, inaequilateralibus, plus minusve falcatis, acutis vel leviter acuminatis, margine denticulatis, basi acutis vel subrotundatis, nervis utrinque circiter 10; inflorescentiis axillarisbus, 1- ad 3-floris, usque ad 5 cm longis, bracteis lanceolatis, liberis; floribus 4 cm longis, calycibus persistribus, lobis lanceolatis, acuminatis, quam tubo paullo brevioribus.

An erect shrub or suffrutescent plant apparently sparingly branched, all parts more or less densely covered with pale-ferruginous, weak, shining hairs, the younger parts very densely pubescent. Branches terete, or somewhat compressed when dry. Leaves opposite, in somewhat unequal pairs, chartaceous, oblong to oblong-elliptic, 12 to 20 cm long, 2 to 12 cm wide, inequilateral, somewhat falcate, apex acute or slightly acuminate, margins distantly denticulate, base acute or rounded, very inequilateral, the lamina blunt or usually rounded and extending farther on one side than on the other which is acute; lateral nerves about 10 on each side of the midrib; petioles 4 to 7 cm long, those of the smaller leaves of each pair shorter than those of the larger ones. Inflorescence axillary, solitary, few-flowered, 5 cm long or less, the flowers 1 to 3; bracts few, lanceolate, acuminate, free, 1 cm long. Calyx in anthesis 1.5 cm long, in fruit 2 cm long, persistent, the lobes 5, lanceolate, acuminate, somewhat shorter than the tube, the pedicels 1 to 1.5 cm long. Corolla white, 4 cm long, the tube narrow, the lobes rounded. Fruit lanceolate, including the persistent slender style about 3 cm long, slightly pubescent, the fruit proper about as long as the calyx, the style exserted.

LUZON, Province of Camarines, Mount Cauayan, Phil. Pl. 1548 Ramos, December 9, 1913.

Not closely allied to any Philippine form known to me, well characterized by its rather uniformly dense ferruginous pubescence, its opposite inequilateral leaves, few flowers, narrow free bracts, and persistent calyces.

CYRTANDRA KRÄNZLINII sp. nov. § Campanulaceae?

Suffrutex erectus vel adscendentibus, simplex, usque ad 50 cm altus, plus minusve ferrugineo-villosus; foliis oppositis, crenatis, in paribus valde inaequalibus, majoribus oblongo-obovatis, apice rotundatis, usque ad 18 cm longis, minoribus subellipticis, 1.5 ad 4 cm longis; floribus axillarisbus, solitariis, longe pedicellatis, albis, circiter 5 cm longis, anguste campanulatis.

An erect or ascending undershrub, simple, 30 to 50 cm high, the stems, petioles, lower surfaces of the leaves on the midrib and lateral nerves densely covered with long, weak, ferruginous, jointed hairs. Leaves opposite, firmly chartaceous, slightly cre-
nate, the upper surface glabrous, dark-olivaceous, the lower much paler, in very unequal pairs; larger leaf of each pair oblong-ovate, 12 to 18 cm long, 5 to 8 cm wide, the apex usually broadly rounded, narrowed below to the acute or obtuse, usually strongly inequilateral base; primary lateral nerves about 7 on each side of the midrib, prominent on the lower surface, irregular, the reticulations lax; petioles densely villous, 12 mm long or less: smaller leaves of each pair mostly elliptic, 1.5 to 4 cm long, 0.8 to 2 cm wide, shortly petioled, slightly acuminate. Flowers white, axillary, solitary, ebracteolate, the pedicels densely villous, slender, about 2 cm long. Calyx 2 cm long, sub-persistent, narrowly campanulate, villous-pubescent with scattered, long, ferruginous, jointed hairs, the lobes ovate-lanceolate, slenderly caudate-acuminate, about 8 mm long. Corolla narrowly tubular-campanulate, white, about 5 cm long, slightly pubescent externally, the tube (flattened) about 4 mm wide for the lower 1.5 cm, then gradually widened and about 2 cm wide at the throat, the lobes broadly rounded, comparatively short. Disk glabrous, truncate, 2 mm high. Stamens included, the filaments of both the fertile stamens and the staminodes somewhat spirally twisted; anthers narrowly oblong, 3 mm long. Ovary puberulent; style somewhat hirsute; stigma obliquely oblong, 3 mm long. Capsule (immature) cylindric, about 3 cm long, 3.5 mm in diameter, rostrate, rugose, surrounded at the base by the persistent calyx.

**Palawan**, Malampaya Bay, Binaloan, Merrill 7247, September, 1910, in forests at sea level, on damp shaded banks.

A very characteristic species, distinguished by its very unequal leaves, its villous, ferruginous indumentum, and its solitary, axillary, long-peduncled, comparatively large flowers. The flowers are frequently borne in the axils of fallen leaves slightly above the surface of the ground.

**CYRTANDRA LONGIPEDUNCULATA** sp. nov. § **Polynesiaceae**.

Frutex subglaber, ramulis junioribus inflorescentiis que parce pubescentibus; foliis oppositis, lanceolatis ad oblongo-obtanceolatis, in paribus leviter inaequalibus, usque ad 10 cm longis, glabris, acuminatis, basi acutis, margine distanter serratis vel denticulatis, nervis utrinque 5 vel 6, prominentibus; inflorescentiis axillaribus, solitariis, umbellatis, paucifloris, laxis, quam folia brevioribus, longe graciliterque pedunculatis; floribus albis, circiter 1.8 cm longis.

An erect shrub, glabrous except the younger branchlets and the inflorescence. Branches and branchlets slender, light-gray, terete, or when dry more or less ridged or striate, the younger parts minutely pubescent with short, brown, appressed hairs.
Leaves opposite, in somewhat unequal pairs, chartaceous or sub-coriaceous, lanceolate to oblong-oblancoate, 4 to 10 cm long, 1 to 3 cm wide, narrowed above to the rather long-acuminate apex and below to the acute or cuneate base, the margins distantly and coarsely serrate to merely denticulate, the upper surface smooth, shining, brownish-olivaceous, the lower paler, often brownish, when young somewhat pubescent, becoming entirely glabrous; lateral nerves 5 or 6 on each side of the midrib, prominent on the lower surface, Anastomosing, the reticulations lax, prominent; petioles of the larger leaves about 5 mm long, of the smaller ones somewhat shorter. Inflorescence very slender, axillary, solitary, few-flowered, shorter than the leaves, the flowers umbellately disposed at the apices of the simple peduncles. Peduncles very slender, 3.5 to 5.5 cm long, the bracts lanceolate, 4 mm long, the pedicels 1 to 1.5 cm long. Flowers few, white, but one or two opening at the same time in each umbel. Calyx 6 mm long, glabrous or nearly so, ovoid, the tube 3 mm long, the lobes ovate-lanceolate, 3-nerved, long-acuminate, more or less spreading, about 3 mm long. Corolla glabrous, narrowly campanulate, about 1.8 cm long, slightly widened upward, 2-lipped, the upper lip with 2, broadly ovate, rounded lobes about 3 mm long, the lower lip with 3 lobes, similar to those of the upper lip but slightly larger. Disk cupular, truncate, glabrous, 2 mm high. Stamens 2; filaments slightly pubescent; anthers 1 mm long, connate. Ovary narrowly ovoid, glabrous, tapering upward into the style which is glabrous below, and pubescent in the upper one-half or two-thirds.

LUZON, Subprovince of Ilocos, Mount Polis, Bur. Sci. 19664 (type), 19796 McGregor, February 8, 1913.

A species similar to and manifestly closely allied to Cyrtandra plectrantha flora Kränzl., from which it differs in its differently shaped, glabrous, smaller, fewer-nerved leaves and its larger flowers.

CYRTANDRA OBLONGATA sp. nov. § Aureae.

Frutex erectus, 2 ad 3 m alta, plus minusve pubescentibus; folii oblongis, coriaceis, usque ad 25 cm longis, acuminatis, base longe angusteque decurrentibus, margine irregulariter serratis, supra glabris, subtus dense ferrugineo-pubescentibus; nervis utrinque 14 ad 16, adscendentibus, subtus valde prominentibus; inflorescentiis axillaribus, sessilibus, floribus confertis, circiter 3 cm longis, bracteis involucrantibus albis, usque ad 3 cm longis, anguste obovatis vel elliptico-ovatis.

An erect, more or less branched shrub 2 to 3 m high, the branches stout, terete, or the younger ones more or less angled.
Leaves somewhat crowded toward the ends of the branchlets, oblong, coriaceous, 18 to 25 cm long, 4 to 8 cm wide, the upper surface glabrous, dark-olivaceous, smooth, the lower much paler, the apex shortly but sharply acuminate, the base long and narrowly decurrent, winging the stout, 3 to 6 cm long petiole, the margins rather coarsely and irregularly serrate; nerves 14 to 16 on each side of the midrib, curved-ascending, very prominent on the lower surface, and with the midrib and the primary reticulations densely lanate-pubescent with brown hairs. Inflorescence axillary, sessile, the flowers crowded, shortly pedicelled, subtended by an involucre of large bracts. Bracts numerous, white, narrowly obovate to ovate-elliptic, membranaceous, up to 3 cm long and 2 cm wide, acuminate, coarsely toothed, sessile, prominently veined, the reticulations lax, slightly pubescent. Calyx about 18 cm long, outside appressed ferruginous-lanate, the upper 1 cm divided into 5, ovate-lanceolate, long and slenderly acuminate lobes. Corolla white, narrowly campanulate, 3 cm long, the two lobes of the upper lip about 6 mm long, orbicular-ovate, rounded, the cleft between them narrow, 5 mm deep, the three lobes of the lower lip broadly ovate, rounded, about 10 mm long. Stamens 4; anthers about 2.5 mm long. Ovary narrowly ovoid, glabrous, 4 to 5 mm long; style pubescent below the stigma. Capsule narrowly ellipsoid, about 12 mm long.

LUZON, Provinces of Tayabas and Laguna, Mount Banajao, Merrill 7515 (type), February, 1911, Whitford 931, 1008, October, 1904: without definite locality, Loker 6650. Merrill 5578, from Mount Halcon, Mindoro, a very poor specimen, is also apparently referable here.

This species has previously been confused with Cyrtandra cumingii Clarke, to which it is allied, but from which it differs in many characters, the shape and pubescence of its leaves, and the elongated, narrowly winged petioles. It is apparently closer to Cyrtandra rex Kränzl. than to C. cumingii Clarke, but is very different from Kränzlin's species.

CYRTANDRA NANA sp. nov. § Brevicaules.

Planta parva, glabra, erecta, simplex, circiter 4 cm alta; foliis oppositis et ternis, sessilibus, oblongis, chartaceis, acutis, serratis, aequalibus, circiter 2 cm longis, 4 mm latis; floribus axillaribus, solitariis, circiter 1 cm longis, calycibus alte 5-partitis.

A small, glabrous, erect, unbranched plant about 4 cm high. Leaves rather crowded, the internodes short, mostly ternate or some opposite, equal, sessile, chartaceous, oblong, about 2 cm long, 4 mm wide, acute, base narrowed-decurrent, margins sharply serrate, the nerves obscure. Flowers apparently pur-
plish, solitary, axillary, their pedicels about 7 mm long, the bracts small or wanting. Calyx divided nearly to the base into 5, linear-oblong, obtuse lobes, the lobes about 6 mm long, 0.7 mm wide. Corolla narrowly funnel-shaped, somewhat enlarged upward, obscurely 2-lipped, the lobes broadly rounded, quite glabrous, 1 cm long. Ovary narrowly oblong, glabrous, 1.5 mm long, narrowed upward into the 5 mm long style. Stamens included, the staminodes inserted higher up than the stamens.

MINDANAO, Bukidnon Subprovince, near Tangcolan, Bur. Sci. 21462 Escritor, August 2, 1913.

A species well characterized by its very small size, the entire plant not exceeding 4 cm in height. Other striking characters are its solitary, pedicelled flowers, and its sessile ternate and opposite sessile leaves.

**DICHROTRICHUM** Reinwardt

**DICHROTRICHUM PAUCIFLORUM** sp. nov.

Suffrutex epiphyticus, scandens, plus minusue setoso-hirsutus; foliiis longe petiolatis, ellipticis, usque ad 13 cm longis, 7 cm latis, basi acutis, apice breviter obtuse acuminatis, nervis utrinque circiter 7; inflorescentiis axillarisbus, brevibus, paucifloris; floribus circiter 3 cm longis, extus setoso-hirsutis.

An epiphytic, sparingly branched suffrutescent vine, the stems terete, somewhat fleshy when fresh, glabrous, emitting numerous roots along the side next to the supporting plant, glabrous, light-gray when dry, the apical parts more or less setose-hirsute. Leaves elliptic, 10 to 13 cm long, 5.5 to 7 cm wide, chartaceous, olivaceous, the base acute, the apex shortly and obtusely acuminate, margins irregularly and doubly toothed, the teeth small, both surfaces with more or less scattered, long, stiff, white, jointed, setose-hirsute hairs especially along the midrib and lateral nerves, similar hairs also on the petioles and the inflorescence; lateral nerves about 7 on each side of the midrib, rather prominent on the lower surface, curved-ascending; petioles 4 to 6 cm long, when young densely setose-hirsute, less so when old. Inflorescence axillary, few-flowered, setose-hirsute, including the prominent flowers 4 cm long or less, the flowers subfascicled or arranged on a very short peduncle. Flowers up to 5 in each axil, but one or two opening at the same time, red, their pedicels 3 to 4 mm long, setose. Sepals 5, oblong-obovate to oblong-oblanceolate, 1.2 to 1.5 cm long, 3 to 4 mm wide, obtuse or acute, irregularly and rather prominently toothed, dorsally setose-hirsute with long stiff hairs. Corolla about 3 cm long, somewhat curved, externally somewhat setose-hirsute, the mouth very oblique, lobes broadly rounded.
ments exserted 6 to 10 mm. Ovary glabrous; style spatulate. Disk prominent, glabrous, about 1.5 mm in diameter.

Palawan, Mount Capoas, Malampaya Bay, Merrill 9497, April 21, 1913, epiphytic in the mossy forest, altitude about 950 meters.

A species readily distinguished by its very short inflorescence, in this character approaching D. asperifolium Benth. & Hook. f., and D. brevipes Clarke, from both of which, however, it is very distinct.

**TRICHOSPORUM** D. Don

**TRICHOSPORUM BRACHYSEPALUM** sp. nov.

Frutex epiphyticus, scandens, glaber, tenuibus; foliis oppositis, coriaceis, oblongo-lanceolatis, usque ad 8 cm longis, acuminatis, nervis lateralibus obsoletis; floribus axillaribus, solitariis, pedicellatis, calycis usque ad basin divisi, segmentis 2 mm longis; corolla 2.2 cm longa, curvata, staminibus exsertis, filamentis pubescentibus.

An epiphytic, glabrous, slender, branched vine, the stems and branches rather slender, terete, light-gray, the branchlets often longitudinally sulcate or striate when dry. Leaves opposite, oblong-lanceolate, fleshy when fresh, coriaceous and wrinkled when dry, 6 to 8 cm long, 1.5 to 2 cm wide, narrowed below to the acute base, and above to the sharply and usually slenderly acuminate apex, the lateral nerves obsolete or nearly so; petioles 2 to 5 mm long. Flowers axillary, solitary, their pedicels slender, glabrous, about 1 cm long. Calyx consisting of 5, small, ovate-lanceolate, acuminate, 2 mm long, glabrous lobes. Corolla tubular, curved, base broadly rounded, glabrous, 2 to 2.2 cm long, about 4.5 mm in diameter, the throat somewhat oblique, limb 2-lipped, 2 lobes somewhat larger than the other 3, the lobes orbicular, rounded, about 4 mm in diameter, their margins with few, scattered, stiff hairs. Disk glabrous, truncate, 0.5 mm in diameter. Ovary glabrous; style pubescent. Stamens exserted about 1 cm; filaments pubescent; anthers connate, about 2 mm long.


A species well characterized by its greatly reduced calyx which consists merely of 5, ovate-lanceolate, acuminate, 2 mm long lobes.

**TRICHOSPORUM MACGREGORII** sp. nov. § _Haplotrichium._

Species _T. rizalense_ affinis, differt floribus majoribus, 3.5 cm longis, corolla deorsum haud angustata, lobis majoribus (circiter 6 mm diametro), foliis tenuiter acuminatis.

An epiphytic vine, glabrous except the inflorescence, the branches light-gray, terete, the branchlets slender. Leaves
oblong-ovate to ovate-lanceolate, chartaceous or subcoriaceous when dry, usually olivaceous, 3.5 to 5 cm long, 1.3 to 1.6 cm wide, the base acute, the apex slenderly and sharply acuminate; lateral nerves 3 or 4 on each side of the midrib, ascending, very slender, often obscure; petioles about 2 mm long. Flowers solitary, axillary, their pedicels rather densely hirsute, about 6 mm long. Calyx cleft to the base into 5, narrowly lanceolate, acuminate or blunt lobes which are somewhat hirsute, about 7 mm long, 1.2 mm wide, 3-nerved. Corolla red, somewhat curved and ventricose, 3.5 cm long, hirsute outside, the mouth somewhat oblique, the lower 3 lobes broadly ovate, rounded, about 6 mm in diameter, the upper two about 4 mm in diameter. Disk glabrous, truncate, about 2 mm long. Ovary glabrous; style hirsute. Anthers 2 mm long, connate, included, the filaments as long as the corolla-tube.


Manifestly closely allied to *Trichosporum rizalense*, which it closely resembles, differing in the indicated floral and vegetative characters.

**TRICHOSPORUM RIZALENSE** sp. nov. § Haplotrichium.

Species *T. philippinense* simillima et affinis, differt floribus majoribus, circiter 3 cm longis, extus parce hirsutis, nervis lateralibus vix obsoletis, tenuibus, adscendentibus.

A scandent, slender, epiphyte, glabrous except the inflorescence. Branches and branchlets slender, terete, mostly light gray. Leaves opposite, when fresh fleshy, when dry coriaceous, elliptic-ovate, 3.5 to 4 cm long, 1.5 to 2 cm wide, the base acute, the apex acute or slightly acuminate, rather pale when dry; lateral nerves slender, ascending, about 4 on each side of the midrib, sometimes indistinct; petioles about 3 mm long. Flowers solitary, axillary, their pedicels slender, hirsute, 5 to 6 mm long. Calyx cleft to the base into 5, lanceolate, obtuse, 3-nerved lobes 5 to 6 mm long, about 1.4 mm wide, sparingly hirsute. Corolla red, somewhat curved, 3 cm long, sparingly hirsute outside, narrowed below, the mouth somewhat oblique, 2-lipped, lobes of the upper lip broadly rounded-ovate, about 4 mm in diameter, of the lower lip about 5 mm in diameter. Disk glabrous, truncate, 1.5 mm long. Ovary glabrous; style hirsute. Anthers included, connate in pairs, 2 mm long, the filaments as long as the corolla.


In general appearance greatly resembling *Trichosporum philippinense*, differing however, among other characters, in its larger hirsute flowers.
TRICHOSPORUM MALINDANGENSE sp. nov. § Haplotrichium?

Frutex epiphyticus, scandens, gracile, inflorescentiis exceptis glaber; foliis coriaceis, anguste lanceolatis vel oblongis, glabris, circiter 7 cm longis, integris, nervis lateralisibus obsoletis; calycibus tubulosis, breviter dentatis, extus parce capitellato-hirsutis, 2 ad 2.5 cm longis; corolla 4 cm longa, cylindrica, extus parce hirsuta.

An epiphytic, scandent shrub, the branches rather stout, terete, pale-brown when dry, very slightly pubescent or subglabrous. Leaves opposite, lanceolate to narrowly oblong, thickly coriaceous, pale and more or less wrinkled when dry, 6 to 7 cm long, 1.5 to 2 cm wide, narrowed above to the blunt apex, the base acute, somewhat shining, the midrib prominent, the nerves and reticulations obsolete; petioles 5 to 7 mm long. Flowers axillary, the pedicels 6 to 8 mm long, solitary or 2 to 4 fascicled in the upper axils. Calyx tubular, 2 to 2.5 cm long, 6 to 8 mm in diameter, slightly inflated in the middle, 5-toothed, the teeth short, acute, outside with scattered, short, white, capitate hairs. Corolla red, about 4 cm long, narrowly tubular, the limb somewhat spreading, irregularly 5-lobed, the lobes ovate, rounded, about 6 mm in diameter. Stamens 4, included or slightly exserted; anthers about 3 mm long. Disk glabrous. Ovary nearly as long as the corolla, rather densely capitellate-hirsute.

MINDANAO, Province of Misamis, Mount Malindang, For. Bur. 4660 Mearns & Hutchinson, May, 1906, in forests, altitude about 1,000 m.

TRICHOSPORUM MINDORENSE sp. nov. § Haplotrichium.

Species T. philippinense affinis, differt pedunculis unifloris, floribus brevioribus latioribusque, circiter 2 cm longis,

An epiphytic, scandent shrub, quite glabrous, the branches slender, terete, light-gray, 2 to 3 mm in diameter. Leaves fleshy when fresh, when dry coriaceous, pale-brownish, dull or slightly shining, oblong-ovate to oblong-lanceolate, 4 to 6 cm long, 1.5 to 2 cm wide, entire, the base acute, the apex long and slenderly subcaudate-acuminate, the midrib distinct, the lateral nerves and reticulations obsolete; petioles about 2 mm long. Flowers scarlet, axillary, solitary, their pedicels about 1 cm long, jointed in the middle, with a pair of linear, obtuse, 4 mm long bracts near the joint. Calyx cleft to its base into linear, obtuse, 4 to 5 mm lobes. Corolla scarlet, 2 cm long, glabrous, slightly curved, when flattened about 1 cm wide at the throat, somewhat ventricose, the mouth somewhat oblique, not contracted, the three lower lobes rounded-reniform, about 7 mm in diameter. Stamens
included; anthers connate in pairs, 2 mm long. Disk 2 mm high, truncate, about 1.5 mm in diameter.

MINDORO, Mount Halcon, Merrill 6141, November, 1906 (type), For. Bur. 4879 Merritt, June, 1906, altitude about 1,300 m; Mount Sablayan, For. Bur. 9761 Merritt, March, 1908, altitude about 1,000 m.

A species manifestly allied to Trichosporum philippinense O. Ktze., with which the three specimens above cited have previously been confused, and which they greatly resemble, especially in vegetative characters. The flowers, however, are very different, relatively much shorter and broader, while the peduncles bear but a single flower, both the peduncles and pedicels being longer in the present species than in T. philippinense O. Ktze.

TRICHOSPORUM IRIGAENSE sp. nov.

Frutex epiphyticus, glaber, ramulis teretibus; foliis oppositis, petiolatis, coriaceis, oblongo-lanceolatis vel ovato-lanceolatis, nitidis, usque ad 9 cm longis, basi acutis, apice longe tenuiterque acuminatis, nervis lateralibus numerosis, densis, tenuibus, ascendentibus; floribus axillaribus, solitariis, pedicellatis, circiter 3 cm longis; sepalis oblongis, acutis, circiter 1 cm longis, 3 ad 4 mm latis; corolla glabra, leviter inflata, plus minusve curvata.

An epiphytic plant, sparingly branched, quite glabrous, the branches terete, apparently somewhat fleshy, when dry 2 to 3 mm in diameter. Leaves opposite, coriaceous, oblong-lanceolate to ovate-lanceolate, 6 to 9 cm long, 2 to 3 cm wide, base acute or somewhat rounded, apex long and slenderly acuminate, straight or slightly falcate, the upper surface olivaceous, shining, the lower paler; lateral nerves 10 or more on each side of the midrib, slender, densely arranged, sharply ascending, about equally evident on both surfaces; petioles 10 to 12 mm long. Flowers axillary, solitary, apparently red, quite glabrous, about 3 cm long, their pedicels about as long as the petioles. Calyx lobes nearly free, oblong, acute or obtuse, about 1 cm long, 3 to 4 mm wide, narrowed at both ends. Corolla somewhat inflated, slightly curved, when flattened out about 7 mm in diameter, enlarged upward.

LUZON, Province of Camarines, Mount Iriga, on trees at the summit, altitude about 1,200 m, Bur. Sci. 22211 Ramos, December 3, 1913.

The alliance of this species seems to be with Trichosporum foxworthyi (KränzI.) Aeschynanthus foxworthyi (KränzI.), but is sufficiently distinct. The slender ascending nerves are characteristic.

[Vol. IX, Sec. C, No. 6, including pages 495 to 563, was issued March 20, 1915.]
NEW OR NOTEWORTHY PHILIPPINE PLANTS, XII

By E. D. Merrill
(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

Separate from
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By E. D. Merrill

(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

The preceding number of this series was published in the early part of the present year, and the present contribution is essentially like its predecessors. Seven genera are for the first time credited to the Archipelago, Avena, Polytoca, Angelesia, Glyptopetalum, Ochrocarpus, Asystasia, and Polytrema. Sixty-two new species are described in various families, while 18 species previously described from extra-Philippine material are for the first time credited to the Archipelago. The total additions to the Philippine flora in the present paper are eighty species. Some reductions are made, and the synonymy of some species is discussed, resulting in a few cases in the substitution of older specific names for those in more general use. All proposed changes in nomenclature are in accordance with the rules of the International Botanical Congress.

GRAMINEAE

AVENA Linnaeus


Luzon, Benguet Subprovince, Bur. Sci. 2812 Mears, April, 1907.

This European species is now widely distributed in Asia, northern Africa, and North America, a weed of cultivation. It has previously been recorded from the Philippines by F.-Villar, but his record has not before been verified. It is apparently a casual plant here and may or may not persist.

1 Associate professor of botany, University of the Philippines.
CHLORIS Swartz


MINDANAO, District of Zamboanga, Merrill 8279, December 6, 1911, along roadsides near Calarian, and on dry hills back of Zamboanga, ascending to at least 200 meters altitude. PALAWAN, Taytay, Merrill 9275, sandy seashore; Silanga, Merrill 9616, Phil. Pl. 1308 Merrill, open places near the seashore. LUZON, Province of Zambales, Gates.

Not previously reported from the Philippines, India, Formosa, and Malaya. In addition to the Philippine specimens, cited above, I have before me also Henry 1151 from Formosa, and Koorders 21237 from Java.

Chloris mearnsii Merr., from Luzon, is allied, but is much smaller, with much narrower leaves, fewer, slenderer, and shorter spikes, and smaller spikelets.

POLYTOCA R. Brown

POLYTOCA HETEROCLITA (Roxb.) comb. nov.

Coix heteroclita Roxb. Fl. Ind. ed. Carey 3 (1832) 572.


MINDANAO, Bukidnon Subprovince, Tongkulan, C. F. Baker 3616, June, 1914.

The first representative of the genus to be found in the Philippines, here recorded under its oldest specific name; India to Burma, Tonkin, and Java.

CYPERACEAE

CLADIDIUM Schrader

CLADIDIUM RIPARIUM (Nees) Benth. Fl. Austral. 7 (1878) 405; C. B. Clarke Ill. Cyp. (1909) t. 85, fig. 5–8.

Chapelliera riparia Nees in Lehm. Pl. Preiss. 2 (1846–48) 76.

Baumea riparia Boeckl. in Linnaea 38 (1874) 246.

MINDANAO, Lake Lanao, Camp Keithley, Mrs. Clemens 916, January, 1907, in swamps.

In attempting to identify the above specimen, it was suspected that it might represent the species described by Gaudeichaud as Baumea glomerata, and accordingly a duplicate was sent to the Museum of Natural History, Paris, for comparison with Gaudichaud’s type. Dr. E. G. Camus, who kindly made the comparison, reports that it is not Gaudichaud’s species, but is manifestly the same as Cladium riparium Benth., in which identification I concur after studying the description of Bentham’s species and fragments supplied me by Doctor Camus for comparison. A distinct Australian type.

ARACEAE

ACORUS Linnaeus


LUZON, Province of Laguna, near San Antonio, on bowlders in stream beds, Bur. Sci. 14949 Ramos, June 20, 1912.
This species has not previously been reported from the Philippines. Widely distributed in central and in temperate eastern Asia, extending from Sikkim and Tibet to Japan, southward to Burma, southern China, and Formosa. It is known from no part of Malaya and must be considered a northern type in the Philippine flora.

The commoner and widely distributed *Acorus calamus* L. occurs in the Philippines as an introduced and cultivated plant, but is thoroughly spontaneous in some localities in Mountain Province, Luzon.

**AMORPHOPHALLUS** Blume

**AMORPHOPHALLUS LUZONIENSIS** sp. nov. § Conophallus.

Tuber parvum, depresso-globosum, in siccatute circiter 2 cm diametro; foliis umbraculiformibus, tripartitis, segmentis circiter 20 cm longis, pinnatisectis, segmentis utilimitis oblongis vel oblongo-ovatis, caudato-acuminatis, 5 ad 9 cm longis; petiolo circiter 50 cm longo; pedunculis tenuibus, 10 cm longis; spathis circiter 15 cm longis, 6 cm latis, purpureis; spadices quam spathe paulo brevioribus, cylindraceis, supra sensim caudato-angustatis; stilus quam ovario triplo longior.

Tubers depressed-globose, when dry about 2 cm in diameter, emitting many roots. Petioles slender, about 50 cm high; lamina umbraculiform, 3-partite, the segments pinnatisect, about 20 cm long, membranaceous, the ultimate segments oblong to oblong-ovate, caudate-acuminate, 5 to 9 cm long, nearly the same color on both surfaces or slightly paler beneath, the sinuses acute, extending almost or quite to the rachis. Sheaths of the peduncles membranaceous, brown when dry, the outer ones oblong-lanceolate, 2 to 3 cm long, the inner ones lanceolate up to 10 cm in length; peduncles slender, up to 10 cm in length. Spathes purple, about 15 cm long, thin, the tube broad, about 6 cm long, the lamina ovate, slightly acute-acuminate or merely acute, about 6 cm wide. Spadix slender, cylindric, a little shorter than the spathe, the pistillate part about 2.5 cm long, 1 cm wide, the staminate part contiguous, about 3 cm long and 8 mm wide, the appendage slender, continuous, verruculose, caudate, at the base 5 mm in diameter or less, gradually narrowed upward, the entire spadix about 14 cm long. Pistillate flowers: Ovary depressed, about 1 mm long, 1.5 mm wide, 1-celled, 1-ovuled; style slender, about 3 mm long; stigma ovoid, entire, somewhat oblique, about 1 mm long. Staminiate flowers crowded, mostly 2-androus, the anthers subglobose, 1 mm long, 1.5 mm wide, opening by two terminal slits.


A species growing in crevices of limestone ledges, quite different from any other known Philippine form. Apparently through its elongated styles
allied to both Amorphophallus longistilus Kurz, of the Andaman Islands, and to A. harmandii Engl. & Gehrm., of Cambodia, but differing from both in many characters. It is at once distinguished from the former by its much smaller spathes, and from the latter by its larger spathes and relatively much longer spadices.

**AMORPHOPHALLUS DECURRENS** (Blanco) Kunth Enum. 3 (1841) 581; Engl. in DC. Monog. Phan. 2 (1879) 319, Pflanzenreich 48 (1911) 108 — **AMORPHOPHALLUS CAMPAULATUS** (Roxb.) Blume!

Kunth's *Amorphophallus decurrens* was based on *Arum decurrens* Blanco Fl. Filip. (1837) 656, and is retained by Engler, in his recent monograph of the group, among the doubtful and imperfectly known species. In all characters Blanco's description applies very closely to Blume's species, which is very common and widely distributed in the settled areas throughout the Archipelago. There is no reason whatever for doubting that *Arum decurrens* Blanco, that is, *Amorphophallus decurrens* Kunth, is identical with the older *Amorphophallus campanulatus* (Roxb.) Blume.

**ERIOCAULONACEAE**

**ERIOCAULON** Linnaeus

**ERIOCAULON NIGRICEPS** sp. nov.

Planta dense caseipitosa, inflorescentiis exceptis glabra; caulis brevibus, crassis; folii numerosis, lanceolatis, usque ad 6 cm longis, basi brevissime vaginantibus; pedunculis numerosis, 5 ad 18 cm longis, gracilis, leviter tortis, 5-costatis; capitulis subglobosis, circiter 5 mm diametro, in siccate nigris, bracteis albidociliatis; floribus ♂ sepalis 3, connatis; petalis nullis vel 1 ciliato-fissis; antheris nigris; floribus ♀ exacte trimeris, sepalis oblongis vel oblanceolatis, breviter acuminatis, apice ciliatis.

A densely caseipitose plant, glabrous except the inflorescence. Stems stout, short. Leaves numerous, densely crowded, lanceolate or narrowly lanceolate, 2 to 6 cm long, 5 to 8 mm wide, about 10-nerved, much wider at the base than above, gradually narrowed and usually obtuse. Peduncles numerous, slender, up to 18 cm in length, 5-ribbed, slightly twisted. Heads subglobose, 4 to 5 mm in diameter, nearly black or somewhat grayish when dry, dense, the involucral bracts pale, oblong to obovate, truncate, about 2 mm long. Receptacle glabrous. Floral bracts dark-colored, oblong-oblanceolate to oblong-ovate, shortly acuminate, distinctly white-ciliate toward the apex on the back. Male flowers: Calyx about 1.5 cm long, dark-colored, spathelike, at first 3-toothed, the lobes eventually becoming free nearly or quite to the base, eglandular. Petals none, or one only and ciliate-cleft into several hyaline-jointed segments. Stamens 6; anthers black. Center of the flower with 3 minute, dark-colored sessile glands. Female flowers: Sepals 3, subequal, oblanceolate to oblong, 1.8 to
2 mm long, obtuse or acute, slightly ciliate at the apex, dark-colored, not glandular. Petals 3, hyaline, linear-ob lanceolate, about 1.5 mm long, slightly ciliate at the apex, not glandular. Ovary 3-celled; style-arms 3. Seeds minutely striate.


This species was based on Merrill 572, collected in the Island of Culion. As described by Ruhlman, one of the special characters by which the species is distinguished from allied forms is the absence of sepals in the female flowers. This character alone does not appear to be a valid one, for in the original collection, two sheets of which are in our herbarium, most of the heads have female flowers with two sepals, while other flowers are without them. The species, as interpreted by me, is the commonest and most widely distributed one in the Philippines, and appears to me to be very closely allied to, if not identical with, Eriocaulon truncatum Ham. I would refer to it the following specimens:


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Among the species of this genus credited to the Philippines by various authors, of which I have seen no specimens originating in the Archipelago, are the following:

Eriocaulon “longissimum” Nees; Usteri Beitr. Ken. Phil. Veg. (1905) 131, manifestly an error for E. longifolium Nees, as there is no such species as E. longissimum. I have specimens of E. longifolium Nees from Singapore (coll. Ridley), Labuan (coll. Merrill), Cochinchine (coll. Pierre), and the Caroline Islands, Yap (coll. Volkens 406). The species is certainly to be expected in the Philippines.


Eriocaulon truncatum Ham.; Naves Novis. App. (1882) 299; Ruhl. in Engl. Pflanzenreich 13 (1903) 107. The specimen cited by the latter author (Cumings 2862) was not from the Philippines, but from the Malay Peninsula. See E. merrilli above.


COMMELINACEAE

ANEILEMA R. Brown

ANEILEMA AZUREUM sp. nov. Tricarpellaria, Euaneilema.

Caespitosum, plus minusve pubescens praesertim inflorescentiis; foliis numerosis, anguste lanceolatis vel elongato-lanceolatis, usque ad 25 cm longis, 5 ad 10 mm latis, in siccitate dense minu- teque puncticulatis, laevis, acutis vel apiculato-acuminatis; floribus azureis, cymoso-paniculatis, inflorescentiis angustis, con- fertis, bracteis magnis, spathulatis, pubescentibus, plus minusve imbricatis; capsulis oblongo-ellipsoideis, trigonis, circiter 6 mm longis; seminibus angulatis, in quibus loculo 4, uniseriatis.

A tufted, distinctly pubescent plant 20 to 40 cm high, the roots fibrous, no tuberous ones present on the material examined. Leaves numerous, narrowly lanceolate to elongate-lanceolate, chartaceous, 12 to 25 cm long, 5 to 10 mm wide, when dry minutely and distinctly puncticulate, smooth, not scabrous, sparingly pubescent or nearly glabrous, base not narrowed, somewhat sheathing, apex acute or apiculate-acuminata. Scapes up to 40 cm in length, simple, leafless, more or less pubescent, the flower-bearing parts rather densely pubescent. Flowers deep blue, cymose, the inflorescence narrow. Bract subtending the first branch about 4 cm long, somewhat sheathing, leaflike, the upper ones smaller, more or less imbricate, pubescent, about 1.5 cm long, 7 mm wide, acuminate, sheathing, elliptic to oblong-elliptic; bracteoles sheathing, obovate when spread out, 3 to 4
mm long. Flowers numerous. Sepals oblong to elliptic-oblong, obtuse, 3-nerved, not glandular, externally pubescent, rather thin, 4 to 5 mm long, 1.5 to 2 mm wide. Petals thinly membranaceous, about as long as the sepals, finely nerved. Stamens 6, their filaments all bearded, three sterile and three perfect, bearing oblong, 1.5 mm long anthers. Capsule 3-angled, oblong-ellipsoid, about 6 mm long, 3 mm in diameter, 3-celled, shortly pointed. Seeds 1-seriate, 4 in each cell, angular, brown, 1 to 1.3 mm. long.

SEMERARA, Merrill 4134, July, 1905, common in open, wet grasslands a few meters above sea level.

A species very closely allied to the Indian Aneilema scapiflorum Wight, differing in its relatively longer, narrower leaves which are not at all scabrous, its distinctly pubescent inflorescence, and its more or less imbricate bracts.

ANEILEMA PLATYPHYLLUM sp. nov. Tricarpellaria, Euaneilema.

Species a praecedentia differt planta minoribus, foliis brevioribus latioribusque, usque ad 10 cm longis et 2.5 cm latis, inflorescentiis glabris, bracteis minoribus, non imbricatis, sepalis glanduloso-puncticulatis.

Like Aneilema azureum closely allied to the Indian Aneilema scapiflorum Wight, from which it differs in many characters. Tufted, the leaves comparatively few, from fibrous and tuberous roots, the tubers more or less fusiform, when dry up to 3 cm long and 6 mm in diameter. Leaves smooth, membranaceous or chartaceous, 4 to 8 in each rosette, oblong-ovate to ovate-lanceolate, 4 to 10 cm long, 1.5 to 2.5 cm wide, base not or but slightly narrowed, sheathing, apex acute or somewhat acuminate. Scapes 2 to 5 from each rosette, leafless, or with one much-reduced leaf, 12 to 20 cm high, the flowers cymosely arranged, pink or nearly white, the cymes narrow, comparatively few-flowered. Primary bracts oblong-ovate, sheathing, less than 1 cm long, acute or acuminate, the bracteoles triangular-ovate, 2 to 3 mm long. Sepals oblong-elliptic, 5 mm long, 2.2 mm wide, glandular-punctate with yellowish dots and short dashes, 3-nerved, obtuse. Petals thinly membranaceous, finely nerved, elliptic-obovate, rounded, about 5 mm long, 3.5 mm wide. Stamens 6, three sterile, three fertile, all bearded; anthers broadly elliptic, 1.5 mm long. Capsule elliptic, 3-angled, 3-celled, acute, 6 mm long, 3.5 mm in diameter. Seeds 1-seriate, 3 in each cell, superposed, brownish, angular, irregular, about 1.5 mm long.

Not as closely allied to *Aneilema scapiflorum* as is the preceding species, differing from both in its few, relatively much shorter and broader leaves, in its glandular-punctate sepals, and in its small bracts. *Loher 1840, 1939*, in the Kew Herbarium under *Aneilema scapiflorum* Wight, are both probably referable to *A. platyphyllum*.


*Commelina gigantea* Vahl Enum 2 (1806) 177.


Naves’s record for this species as a Philippine one has not previously been verified. Tropical Africa and Asia through Malaya to tropical Australia.

**JUNCACEAE**

**JUNCUS** Linnaeus


Not previously reported from the Philippines; warmer parts of the entire world.

This species was found scattered along the recently constructed bridle trail to Mount Tonglon, in the mossy forest, at an altitude of about 1,900 meters. It is undoubtedly an introduced plant here.

**LILIACEAE**

**SMILAX** Linnaeus

**SMILAX LOHERI** sp. nov. § *Eusmilax*.

Frutex scandens glaber, ramulis teretibus, aculeis sparsis tenueibus nectis vel curvatis 2 ad 5 mm longis armatis; foliis crasse coriaceis, late ovatis, 5-nervis, basi, late cordatis, apice abrupte acuminatis apiculatisque, 8 ad 12 cm longis, subtus glaucescentibus; racemis 1-umbellatis, pedunculis 4 ad 5 cm longis; floribus numerosis, sepalis 5 mm longis.

A scandent, glabrous vine, the branches slender, terete, armed with scattered, slender, straight or somewhat curved spines 2 to 5 mm in length. Leaves very broadly ovate, thickly coriaceous, 8 to 12 cm long, 7 to 10 cm wide, when dry slightly shining, the upper surface brownish, the lower glaucous or sub-glaucous, the base very broad, shallowly cordate, distinctly 5-nerved, the inner pair of nerves reaching the apex of the leaf, much more prominent than the outer pair, the reticulations rather distinct, the apex abruptly acuminate, the acumen about 8 mm long, apiculate; petiole about 1 cm long, inflated, the
tendrils slender, up to 15 cm in length. Inflorescence axillary, solitary, consisting of a single umbel, the floral branch less than 1.5 cm long, subtended by a coriaceous, ovate, acuminate bract about 8 mm in length which is split down the back, the floral branch bearing at its apex a very much reduced or sometimes aborted bud, and opposite to it a single oblong, obtuse, or retuse and apiculate bract about 5 mm in length, this bract subtending the solitary, slender, 4 cm long peduncle. Male flowers 40 to 50 in each umbel, their pedicels about 8 mm long, the subtending bracteoles ovate, 2 mm long or less. Sepals about 5 mm long, 1.5 mm wide, recurved, obtuse, cuculate. Petals as long as the sepals, 0.5 mm wide. Stamens 6, all fertile, their filaments about 3.5 mm long, the anthers 1.5 mm long. Female flowers and fruits not known.

**LUZON, Province of Rizal, Angilog, Loher 6986, April 15, 1906.**

A characteristic species, distinguishable by its short-petioled, thickly coriaceous, broadly ovate leaves which are abruptly acuminate and apiculate, the base very broad, cordate, and 5-nerved, the lower surface glaucous. Among the Philippine species it is probably most closely allied to *Smilax bracteata* Presl, but that species has an entirely different inflorescence and different leaves.

**SMILAX LUZONENSIS** Presl Rel. Haenk. 1 (1827) 131; Miq. Fl. Ind. Bat. 3 (1859) 566.

**LUZON, Haenke** (type in herb. Prag.). **MINDANAO, Lake Lanao, Camp Keithley, Mrs. Clemens 835, 905 bis, s. n.**

This species was described by Presl from a sterile specimen, no flowers or fruits being known. I have seen the type in the Prague Herbarium, and it seems to be matched by the specimens cited above, two of which are with male flowers, the other with very immature fruits. The specimens agree with Presl's description, so far as it goes, and with a carbon rubbing of typical leaves of the type, preserved in the herbarium of the Bureau of Science.

C. De Candolle\(^2\) reduces *Smilax luzonensis* Presl (1827), with doubt, to *Smilax helferi* C. DC. While the two species may be identical, Presl's specific name has a priority by many years, and should be adopted, at least for the Philippine form. Only by a careful comparison between Philippine specimens of *Smilax luzonensis* Presl, and authentic specimens of *S. helferi* C. DC., will it be possible to determine whether one or two species are represented.

*Smilax luzonensis* Presl has solitary male umbels which are 2 to 2.5 cm in diameter, each with from 20 to 30 flowers, the peduncles slender, axillary, 2.5 to 3 cm long, bracteate at the base, and with a small ovate bracteole at the lower one-fourth or below. The pedicels are about 8 mm long; the sepals are narrowly oblong, obtuse, 6 mm long, the petals as long as the sepals but much narrower. Anthers about one-fifth as long as the filaments. Female flowers and mature fruits unknown.

\(^2\) Monog. Phan. 1 (1878) 176.
ZINGIBERACEAE

ALPINIA Linnaeus

ALPINIA BRACHYANTHA sp. nov. § Hellenia.

Species A. pubiflora K. Schum. ut videtur affinis, differt floribus multo minoribus vix 1 cm longis, connectivo inappendiculato.

Simple, erect, nearly glabrous, except the pubescent inflorescence, apparently less than 1 m high. Sheaths rather loose, ciliate on their margins; ligule 8 to 10 mm long, oblong-ovoid, obtuse, margins ciliate. Leaves lanceolate or narrowly oblong-lanceolate, 22 to 30 cm long, 2.5 to 3.5 cm wide, subequally narrowed at both ends, subcoriaceous, glabrous, base cuneate, apex sharply acuminate. Panicle erect, about 20 cm long, the branches two or three, spreading-ascending, about 7 cm long, many-flowered, the rachis and pedicels softly pubescent with short, spreading hairs, the pedicels 2 to 3 mm long; bracteoles apparently small, very caducous (not seen). Ovary globose to ovoid-globose, 1 to 1.5 mm in diameter, purple when fresh, very densely ciliate-pilose. Calyx-tube about 7 mm long, subequally 3-toothed, glabrous, the teeth broadly ovate, obtuse, 1.5 mm long or less, ciliate at their apices. Corolla-tube 6 to 7 mm long, about 1 mm in diameter, light green, glabrous, the lobes oblong, somewhat cuculate, 4 to 5 mm long, 2.5 to 3 mm wide. Lip 3 mm long, glandular-punctate, twice cleft, the lateral lobes rounded, obovoid, twice as wide as the oblong, obtuse inner lobes, white marked with purple. Anther 3 mm long, the connective inappendiculate.


A species allied to Alpinia pubiflora K. Schum., but at once distinguished by its much smaller flowers and its inappendiculate anther-connective.

KAEMPFERIA Linnaeus

KAEMPFERIA PHILIPPINENSIS sp. nov. § Monolophus.

Planta erecta, saltem 50 cm alta, leviter hirsuta; foliis 9, lanceolatis, subcaudato-acuminatis, basi angustatis, acutis, vix vel breviter petiolatis, circiter 20 cm longis; spicis solitariis, paucifloris, in vaginis superioribus, corollae lobis inaequalibus, superioribus valde tubuloso-cucullatis.

A rather slender, erect plant at least 50 cm high, the stems 3 to 4 mm in diameter, the sheaths, leaves, and inflorescence with scattered, spreading, pale brown, ciliate-hirsute hairs.
Leaves 9 (or more), lanceolate, membranaceous, about 20 cm long, 3 to 3.5 cm wide, subequally narrowed to the slender, caudate-acuminate apex and to the acute base; sheaths rather loose or slightly inflated above, rather prominently ciliate-hirsute; petioles none or up to 5 mm in length. Spikes in the uppermost sheath, more or less included, short, few-flowered, only one or two flowers opening at a time, the maximum number apparently 4 or 5 in each spike, the bracts lanceolate, acuminate, about 2 mm long, 5 mm wide, hirsute. Calyx cylindric, about 12 mm long, punctate-glandular, as are the other parts of the flower, hirsute, very broadly and shortly 3-toothed. Corolla-tube slender, slightly enlarged upward, 16 mm long, sparingly hirsute, the lobes unequal, the upper one about 11 mm long, 4 mm wide in the flattened portion, slenderly 9-nerved, the apical 3 mm a cylindric, obtuse hood, the two lateral ones oblong, 7 mm long, 3 mm wide, 5-nerved, slightly cuculate at the apex; staminodes slender, lateral, attached to the margins of the lip near its base, about 2 mm long, 0.6 mm wide; lip not seen. Filament flat, glandular-punctate, 5 to 6 mm long, about 1 mm wide; anther-cells parallel, 3 mm long, the connective appendiculate, the appendage ovate, obtuse, more or less inflexed or curled when dry. Ovary villous, 3-celled, the cells with few axile ovules; style slender; stigma obconic, ciliate. Fruit not seen.

Luzon, Province of Laguna, Dahican River back of San Antonio, Bur. Sci. 14952 Ramos, June, 1912, in forests, flowers white.

The second species of the genus to be found in the Philippines, the only other one, K. galanga L., manifestly an introduced plant in the Archipelago. *Kaempferia philippinensis* Merr. manifestly belongs in the section *Monolophus*, and is very distinct from the other known species, although probably as closely allied to the Bornean *K. gracillima* K. Schum. as to any other species. The lip on the flowers available for study has been destroyed, and hence cannot be described until the plant is again collected.

**FAGACEAE**

**QUERCUS** Linnaeus

**QUERCUS ROBINSONII** sp. nov. § *Cyclobalanus*.

Arbor circiter 20 m alta, subtus foliis ramulisque dense ferrugineo-furfuraceis; foliis oblongo-ovatis ad oblongo-lanceolatis, coriaceis, integris, usque ad 12 cm longis, basi acutis, apice tenuiter subcaudato-acuminatis, nervis utrinque circiter 8, prominentibus; glandibus late ovoideis, glabris, circiter 1.3 cm longis latisque, apiculatis, cupulis circiter 8 mm altis, 1.6 cm diametro, ferrugineo-pubescentibus, truncatis, laminis numerosis, indistinctis, denticulis numerosis.
A tree about 20 m high, the younger parts and the leaves on the lower surface densely ferruginous-furfuraceous. Branches terete, dark-colored when dry, glabrous, sparingly lenticellate, the younger ones densely ferruginous-furfuraceous. Leaves alternate, oblong-ovate to oblong-lanceolate, coriaceous, 7 to 12 cm long, 2.5 to 5 cm wide, subequally narrowed to the acute base and to the slender subcaudate-acuminate apex, the acumen usually about 1 cm long, blunt, the upper surface furfuraceous in very young leaves, soon becoming quite glabrous, brownish-olivaceous when dry, shining, the lower surface paler than the upper, in extreme age glabrous or nearly so; lateral nerves about 8 on each side of the midrib, prominent on the lower surface; petioles 5 to 8 mm long. Male spikes up to 14 cm long, the flowers scattered below, rather crowded above. Glands broadly ovoid or conic-ovoid, glabrous, about 1.3 cm long and wide, apiculate. Cup thick, ferruginous-pubescent, broadly saucer-shaped, truncate, base thickened, about 8 mm high and 1.6 cm in diameter, the laminae numerous, indistinct, below scattered, above approximate, the teeth numerous, distinct, less than 1 mm long.

Luzon, Province of Laguna, Mount Maquiling, Bur. Sci. 17911 Brown (type), May, 1913, Bur. Sci. 17142 Robinson, December, 1912, in forests, altitude about 700 meters. Possibly referable here are Loher 6968, from Rizal Province (specimens with male flowers), and Bur. Sci. 9462 Robinson, from Infanta, Province of Tayabas, Luzon (glands pubescent).

The alliance of this species seems to be with Quercus caudatifolia Merr., from which it is at once distinguished by its differently shaped gland which is as wide as long. Among the extra-Philippine species it approaches Quercus sunaica Blume, but has much smaller fruits than our Philippine material so referred.

URTICACEAE

LAPORTEA Gaudichaud

LAPORTEA BRUNNEA sp. nov.

Frutex, inflorescentiiis exceptis glaber; foliis in siccate utrinque brunneis, nitidis, oblongis, usque ad 22 cm longis, subcoriaceis vel chartaceis, acute acuminatis, basi acutis, leviter 3-vel obscure 5-plinerviis, longe petioliatis, nervis lateralisus utrinque circiter 15; inflorescentiiis pilis paucis urentibus instructis, axillaribus, usque ad 5 cm longis, floribus 2 flavellatim dispositis.

A shrub 1 to 2 m high, glabrous except the slightly hairy inflorescence. Branches light gray, terete, wrinkled when dry. Leaves uniformly brown, of the same color on both surfaces and slightly shining when dry, the upper surface minutely verruculose, the lower smooth, chartaceous to subcoriaceous, brittle, oblong, 12 to 22 cm long, 4 to 7.5 cm wide, subequally narrowed to
the usually acute base and to the sharply acuminated apex, entire, the base somewhat 3- or obscurely 5-plinerved; lateral nerves about 15 on each side of the midrib, rather prominent, somewhat curved; petioles 3 to 6.5 cm long. Pistillate inflorescences axillary, with few short, stinging hairs, up to 5 cm in length, the branches few. Flowers flabellately disposed on the ultimate branchlets, the ultimate branchlets usually dichotomous, short, the achenes deflexed, ovoid, compressed, about 3 mm long and 2 mm wide, the styles reflexed, very slender, about 2 mm long.

Samar, Cauayan Valley, Bur. Sci. 17559 Ramos, March, 1914, on forested slopes, the flowers blue and white.

A species well characterized by its long-petioled leaves which are uniformly brown when dry, and which are quite glabrous, with no vestiges of stinging hairs; the only part of the dried plant that presents stinging hairs is the inflorescence. The alliance of the species is manifestly with Laportea luzonensis Warb., on account of its flabellately arranged pistillate flowers, although in all details it is entirely different from Warburg's species.

**LAPORTEA MONTICOLA** sp. nov.

Frutex vel arbor parva, glabra vel subglabra; foliis oblongis ad oblongo-lanceolatis, chartaceis vel subcoriaceis, integris, te-nuiter caudato-acuminatis, usque ad 10 cm longis; infructes-centiis axillaribus, 6 ad 8 cm longis, fructibus circiter 4 mm diametro haud flabellatis.

A shrub or small tree, glabrous, or with very few persistent hairs when dry, the branches slender, grayish, wrinkled, the internodes short, especially on the ultimate branchlets where they are usually less than 5 mm long. Leaves oblong to oblong-lanceolate, dark olivaceous when dry, slightly shining, thickly chartaceous to subcoriaceous, entire, 7 to 10 cm long, 2 to 3.5 cm wide, base obtuse to rounded, 3-nerved, apex very slenderly cau-date-acuminate, the acumen up to 2 cm in length, sharp, the upper surface rather densely white-puncticulate; lateral nerves about 6 on each side of the midrib, rather distinct, curved, anastomosing, the reticulations lax; petioles 1.5 to 2.4 cm long. Infructescences 6 to 8 cm long, axillary, the branches few, spreading, 2.5 cm long or less. Fruits white, fleshy, about 4 mm in diameter, the receptacle enlarged in fruit, the achenes inequilateral, compressed, about 2.5 mm long and 2 mm wide, but one or two on each ultimate branchlet.

**Luzon**, Subprovince of Ifugao, Mount Polis, Bur. Sci. 19765 McGregor, February 1, 1913, altitude not indicated, but apparently from the mossy forest.

A species somewhat resembling a small-leaved form of Laportea luzonensis Warb., but its fruits not flabellate. It is readily distinguished by its small leaves which are slenderly and prominently caudate-acuminate.
LAPORTEA TRIPLINervIA sp. nov.

Arbor parva, subtus foliis pilis longis sparsis urentibus in-
structis; foliis oblongis, chartaceis vel membranaceis, usque ad
18 cm longis, in siccitate viridis, utrinque subaequaliter angus-
tatis, basi acutis, triplinerviis, apice acuminatis, nervis utrinque
circiter 6; infructescentiis axillaribus, usque ad 6 cm longis, fruc-
tibus in siccitate nigris, capitulis globosis, 8 ad 10 mm diametro,
achenis numerosis.

A tree up to 13 m in height, the leaves with persistent, long,
stiff, scattered, stinging hairs on the lower surface. Branches
pale gray, terete, 4 to 6 mm in diameter. Leaves green when
dry, in general oblong, chartaceous or membranaceous, 10 to
18 cm long, 3 to 6.5 cm wide, entire, subequally narrowed
to the acute, 3-plinerved base and to the acuminate apex, the
upper surface rather densely white-puncticulate; lateral nerves
about 6 on each side of the midrib, rather prominent, curved;
petioles 2 to 4 cm long. Infrauctescences axillary, up to 6 cm
long, with few branches, the achenes arranged in dense globose
heads at the tips of the branchlets, up to 15 or more achenes in
each head, the heads black when dry, 8 to 10 mm in diameter.

LUZON, Province of Tayabas, Mount Pular, Bur. Sci. 19462 Ramos,
January 15, 1913, on forested slopes.

A species somewhat resembling Laportea luzonensis Warb., but with the
leaves constantly acute and 3-plinerved at the base, the stinging hairs
persistent on the lower surface, which sting even when dry, and with
an entirely different arrangement of its fruits, the achenes crowded into
dense, globose heads which are black when dry, not flabellately arranged.

PROTEACEAE

HElicia Loureiro

HELICIA LONGIFLORA sp. nov.

Arbor parva, circiter 8 m alta, glabra; foliis late oblongo-
oblancoceleatis, integris, usque ad 15 cm longis, breviter obtuse
acuminatis, basi acutis; racemis folia subaequantibus, paucifloris,
pedicellis in paribus connatis; floribus 2.5 cm longis.

A small tree, quite glabrous, or the racemes with few, scattered,
deciduous hairs, the branches rather stout, terete, brownish. Leaves
subcoriaceous, broadly oblong-oblancoceleate, 11 to 15 cm
long, 3.5 to 5.5 cm wide, entire, the apex rather shortly and
obtusely acuminate, sometimes falcate, the base gradually nar-
rowed to the short stout petiole, cuneate and sometimes a little
decurrent, upper surface olivaceous when dry, somewhat shin-
ing, the lower brownish, dull; lateral nerves prominent, about
10 on each side of the midrib, curved-ascending; petioles 5 to 8
mm long. Racemes about as long as the leaves, solitary, axillary, comparatively few-flowered. Pedicels in pairs, 4 mm long, united nearly to the middle; bracteoles deciduous (not seen). Perianth 2.5 cm long, rather slender. Anthers, including the prominent connective, 2 mm long. Hypogynous scales free or nearly so, coriaceous, ovate, 1 to 1.3 mm long.

Luzon, Province of Tayabas, Lucban (Mount Banajao), Whitford 982, October, 1904, margins of forests, altitude about 750 meters.

Characterized by its entire leaves and comparatively long flowers.

HELICIA INTEGRA sp. nov.

Arbor parva, glabra; foliis oblongo-lanceolatis vel oblongo-oblanceolatis, usque ad 14 cm longis, integerrimis, utrinque angustatis, apice acuminatis, basi cuneatis, brevissime petiolatis, chartaceis vel subcoriaceis; racemis folia subaequantibus, multifloris, axillaribus; floribus tenuibus, circiter 1.5 cm longis.

A small glabrous tree, or the racemes with very few, scattered, deciduous hairs. Branches terete, grayish-brown, smooth. Leaves oblong-lanceolate to oblong-oblanceolate, entire, 10 to 14 cm long, 2 to 5 cm wide, chartaceous or subcoriaceous, somewhat yellowish when dry, slightly shining, glabrous, narrowed at both ends, the apex shortly and usually sharply acuminate or acute, the base cuneate, narrowed into the very short petiole; lateral nerves 10 to 12 pairs, slender, distinct, the reticulations very slender; petioles stout, less than 3 mm long. Racemes solitary, axillary, about as long as the leaves, many-flowered. Flowers yellowish, in pairs, their pedicels in pairs, free to the rachis, about 3 mm long; bracteoles ovate, subpersistent, 1 mm long. Perianth very slender, about 0.5 mm in diameter, a little thicker at the base and apex, 1.6 cm long, the segments linear, spirally twisted in anthesis. Anthers, including the prominent connective, 1.2 mm long. Hypogynous scales free, oblong-ovate, obtuse, coriaceous, 1 mm long.


The species is characterized by its entire, nearly sessile leaves, and appears to be most closely allied to Helicia moluccana Blume.

POLYGONACEAE

POLYGONUM Linnaeus

POLYGONUM BENGUETENSE sp. nov. § Persicaria, Trigyna.

Eglandulosum, caulibus tenuibus, quadrangularibus; simplicibus vel supra leviter ramosis; ochreis cylindraceis, circiter 1 cm longis, truncatis, apice rigide ciliatis, ciliis 2 ad 3 mm longis; foliis oblongo- ad elliptico-ovatis, 1 ad 2.5 cm longis, acuminatis,
basi rotundatis vel subcordatis; racemis pedunculatis, oblongis vel cylindraceis, densis, usque ad 1 cm longis, pedunculis leviter capitato-glandulosis.

A slender, ascending, simple or very sparingly branched plant, nearly glabrous, the stems often decumbent below, 4-angled, 1 mm in diameter or less. Nodes elongated. Leaves scattered, oblong- to elliptic-ovate, chartaceous, entire, apex somewhat acuminate, base rounded or subcordate, 1 to 2.5 cm long, 7 to 12 mm wide; petioles 5 mm long or less, inserted at or near the base of the sheath, often scabrid; sheaths cylindric, split down one side, brown, membranaceous, about 1 cm long, apex truncate, the apical margin with erect, rigid, 2 to 3 mm long cilia, the base of the sheath often with few reflexed, spinelike cilia. Racemes few, short, dense, 1 cm long or less, oblong or cylindric, very loosely corymbose, the peduncles slender, sparingly capitate-glandular. Bracts oblong-ovate, margins and apex prominently ciliate, about 3 mm long. Calyx pink, 3 to 3.5 mm long, the pedicels short, the sepals oblong-obovate, obtuse. Stamens 6, with 6 alternating, small, perigynous scales. Style 3-cleft, short. Achene oblong-ovate, sharply 3-angled, about 3 mm long.


A species apparently belonging in the section Persicaria, but very different from the other species placed here.


Luzon, Benguet Subprovince, Baguio, Merrill 9698, May, 1914, a weed in gardens, recently introduced, altitude about 1,400 meters. Widely distributed in the north temperate zone, a native of Europe or Asia. It has not before been reported from the Philippines.

CARYOPHYLLACEAE

POLYCARPON Linnaeus

POLYCARPON INDICUM (Retz.) comb. nov.

Loeflingia indica Retz. Obs. 4 (1786) 38.

Pharnaceum depressum Linn. Mant. 2 (1771) 564, non Polycarpon depressum Nutt.

Polycarpae depressa DC. Prodr. 3 (1828) 357.


Polycarpone polyphyllum Blanco Fl. Filip. (1837) 53, ed. 2 (1845) 36, ed. 3, 1 (1877) 66.

This species has been credited to the Philippines by F.-Villar, who correctly, I think, reduced to Polycarpone loeflingiae Blanco's P. polyphyllum.
The species is apparently very rare in the Philippines, but although Blanco's specimens were from Pasig, near Manila, I have seen but a single Philippine specimen that I consider referable to the genus and species: LUZON, Province of Pampanga, Arayat, Merrill 1462, March, 1903, erroneously placed under Mollugo.

**RANUNCULACEAE**

**CLEMATIS** Linnaeus

**CLEMATIS LESCHENAUTLIANA** DC. var. **SUBGLABRIFOLIA** var. nov.

A typo differt foliolis glabris vel subglabris, subtus parcissime breviter hirsutis.


The typical form of the species, which is well represented in the Bureau of Science herbarium by a large series of specimens from Mountain Province, Luzon, has rather densely ciliate-hirsute leaves. In the variety above proposed the leaves are nearly glabrous; otherwise the form is very similar to typical *Clematis leschenaultiana* DC.

**MENISPERMACEAE**

**HYPSERPA** Miers


The status of Turczaninow's species has been doubtful, as from his description it is at once evident that the plant he described, having simple leaves, could not be a *Zanthoxylum*, as indicated by Perkins l. c. Doctor Perkins indicates that such a Province as "North Hows," cited by Turczaninow, does not exist in Luzon, and suggested that the plant may have come from Lord Howe's Island. Through the kindness of the director of the Botanical Institute of the University of Kharkoff, I have been able to examine Turczaninow's type which is preserved in the herbarium of that institution. The original label reads "Runner No. 2, Ilocos Norte, Island of Luzon, April, 1839, H. C.," with notes on the dissection of the flowers by Turczaninow. The plant is identical in all respects with *Cuming 1252*, localized by Cuming himself as from the Province of North Ilocos (= Ilocos Norte), which is *Hyposerpa cuspidata* Miers; the specimen in Turczaninow's herbarium, type of *Zanthoxylum? triplinerve* Turcz., is unquestionably a part of the same collection.

**CAPPARIDACEAE**

**CAPPARIS** Linnaeus

**CAPPARIS AFFINIS** sp. nov.

Species *C. sepiariae* affinis, differt foliis majoribus, usque ad 9 cm longis, coriaceis, nervis utrinque magis numerosis, utrinque circiter 8.
A scandent, armed shrub, apparently entirely glabrous. Branches pale greenish-yellow when dry, terete, stout, slightly zigzag, glabrous, or the younger ones very slightly pubescent. Leaves alternate, oblong, coriaceous, 8 to 9 cm long, 3 to 4 cm wide, pale yellowish-green when dry, brittle, the upper surface very smooth and strongly shining, the lower paler, dull, base rounded, apex retuse; lateral nerves about 8 on each side of the midrib, slender, indistinct, scarcely anastomosing, the reticulations obsolete or nearly so; petioles 5 to 7 mm long; spines stout, recurved, about 2 mm long. Inflorescence fascicled or umbellate, axillary, apparently few-flowered. Flowers not seen. Peduncles in fruit 3 mm long or less, each bearing from 2 to 4, long-pedicelled fruits, the pedicels about 1 cm long, the androgynophore as long as the peduncles. Fruit globose, about 8 mm in diameter when dry, the pericarp somewhat wrinkled, glabrous, pale, shining.

PALAWAN (Arricife Island, near the southern end of Palawan), Bur. Sci. 21583 Escritor, August 14, 1913.

A species with much the appearance of Capparis sepiaria Linn., but with much larger, quite glabrous, coriaceous, more numerously nervèd leaves.

CAPPARIS PALAWANENSIS sp. nov.

Frutex suberectus, 2 ad 3 m altus, partibus junioribus plus minusve pubescens, ramis ramulisque inermis vel subinermis; foliis oblongo-ovatis, usque ad 11 cm longis, acuminatis, basi rotundatis, nervis utrinque 10 ad 12; floribus subterminalibus, solitariis vel binis; fructibus longissime pedunculatis, ellipsoideis ad globoso-obovoideis, circiter 1.5 cm diametro, extus pubescentibus.

A suberect shrub, 2 to 3 m high, the branches somewhat drooping or subscandent, unarmed, or with only few, scattered, short spines. Branches terete, glabrous, dark-colored, the branchlets yellowish-olivaceous, terete, slender, rather densely pubescent with short hairs. Leaves alternate, oblong-ovate, 9 to 11 cm long, 3.5 to 4.5 cm wide, chartaceous, base broadly rounded, narrowed in the upper one-third to the rather sharply acuminate apex, pale olivaceous, rather dull, and glabrous or very slightly pubescent on the upper surface, the lower surface much paler, slightly pubescent on the midrib and nerves; lateral nerves 10 to 12 on each side of the midrib, spreading, anastomosing, the reticulations lax; petioles densely pubescent, 2 to 4 mm long. Flowers subterminal, in the uppermost axils, solitary or in pairs,
not superposed (not seen). Peduncles in fruit about 4 cm long, slender, the androgynophore about as long as the peduncle, somewhat thicker and slightly thickened upward, the fruit ellipsoid to globose-ovoid, about 1.5 cm in diameter, nearly black when ripe, the pericarp distinctly pubescent.

**CAPPARIS VENOSA** sp. nov.

Frutex scandens, floribus exceptis glaber, spinis brevissimis, vix 1 mm longis; foliiis oblongis vel elliptico-oblungis, chartaceis, usque ad 18 cm longis, acuminatis, basi acutis vel rotundatis, nervis utrinque circiter 7, prominentibus, anastomosantibus; floribus paucis, in racemis terminalibus dispositis, pedicellis in paribus seriatis dispositis supra nodis aculeatis sed defoliatis; petalis dense pubescentibus. A scandent shrub, glabrous except the flowers, the branches terete, straw-colored when dry, the ultimate ones 2 to 3 mm in diameter, armed with very short spines at the nodes, the spines less than 1 mm in length. Leaves oblong to elliptico-oblung, 15 to 18 cm long, 5.5 to 7.5 cm wide, chartaceous or subcoriaceous, pale when dry, shining, the lower surface decidedly paler than the upper, the apex acuminate, the base acute or rounded; lateral nerves prominent, distinctly impressed on the upper surface, projecting on the lower, about 7 on each side of the midrib, curved and distinctly anastomosing, the reticulations rather lax; petioles 5 to 8 mm long. Racemes terminal, few-flowered, the flowers in pairs, seriate above the leafless nodes, but each node with a pair of minute spines, scattered, the pedicels about 2 cm long. Sepals 8 mm long, oblong-elliptic or elliptic, concave, acute, glabrous or nearly so. Petals obovate to broadly oblong-ovate, rather densely pubescent, rounded, about 12 mm long, 8 mm wide. Stamens numerous, their filaments up to 2.5 cm long; anthers oblong, 1.3 mm long. Gynophore glabrous, 1.5 cm long, bearing the glabrous, narrowly ovoid, 3 to 4 mm long ovary.


A species probably as closely allied to *Capparis micracantha* DC. as to any other, but very different in many characters. The venation of the leaves and the inflorescence are characteristic.
NEPENTHES BRACHYCARPA sp. nov.

Alte scandens, partibus junioribus inflorescentiisque exceptis glabra; inflorescentiis racemosi, pedicellis brevibus, 1-floris; operculum ascidii intus planum; foliiis petiolatis, nervis longitudinalibus circiter 2 utrinque, tenuibus, obscurissimis, basi angustatis, longe in petiolo decurrento-alatis, leviter amplexicaulis, haud decurrentibus; capsulis brevibus, 6 ad 15 mm longis.

Scandent, 4 to 5 m high or more, glabrous except the dark brown pubescent very young parts and the racemes, the stems terete, brown, about 5 mm in diameter. Leaves alternate, spirally arranged, the lamina coriaceous, 12 to 14 cm long, 2 to 3 cm wide, brownish or olivaceous when dry, slightly shining, narrowed below and winging the 4 to 6 cm long petiole, the wings about 2 mm wide, about one-third amplexicaul at the base, apex acute or acuminate and extended as a long, slender tendril, the lateral longitudinal nerves at most 2 on each side of the midrib, very slender, obscure, or obsolete. Pitchers reddish, glabrous, or when young somewhat pubescent, about 9 cm long, 3 to 3.5 cm in diameter, cylindric-ventricose, dimorphous, those on young plants with two ventral wings which are about 5 mm wide and prominently lacerate-toothed, those on mature plants with the wings reduced to merely low ridges which are not all toothed, 0.5 mm wide and high, the base gradually narrowed into the tendril, the mouth oblique, 3 to 4 cm in diameter, ovate, dorsally produced into a short stalk, the peristome cylindric, equal, 2 to 3 mm in diameter, densely striate; operculum elliptic to elliptic-ovate, broadly rounded, base rounded or somewhat cordate, about 3.5 cm long, 2.5 cm wide, plane, not at all keeled or cristate, inside with numerous small, round glands. Racemes dark brown pubescent, the female ones in flower about 9 cm long and 1.5 cm wide, in fruit very long-peduncled, about 13 cm long and 3 cm wide, the peduncles up to 35 cm long. Pedicels 3 to 5 mm long, pubescent. Sepals elliptic, obtuse, 3 mm long, somewhat pubescent. Ovary narrowly ellipsoid, 3 mm long, densely ferruginous-pubescent. Capsules glabrous, oblong to lanceolate, 6 to 1.5 mm long.

Palawan, Silanga Peak, back of Silanga, Merrill 9588 (type), 9615, May 30, 1913.

The first specimen cited is with female flowers and mature, but old, fruits, while the second is a juvenile stage of what is apparently the same species, both being collected in the same place, on steep, dry, forested ridges at an altitude of from 250 to 400 meters.
The species is apparently most closely allied to *Nepenthes copelandii* Merr., of Mindanao, differing, however, in many characters. It resembles *Nepenthes alata* Blanco, at least the form I take to be a juvenile stage, but the type number has quite wingless pitchers. Good differential characters are its comparatively short capsules and its short-petioled flowers, together with its very obscurely nerved leaves, the lateral nerves, at times, being quite obsolete.

**ROSACEAE**

**ANGELESIA** Korthals


MINDANAO, Province of Surigao, *Piper 249*, April, 1911. SAMAR, Bur. Sci. 17431 Ramos, April, 1914, Phil. Pl. 1696 Ramos. PALAWAN, Phil. Pl. 1224 Merrill, Elmer. SIBUYAN, Elmer 12130, 12214, distributed as a new species of *Parinarium*.

I have examined the following extra-Philippine material: PENANG, Curtis 14a, 147, Ridley s. n. MALAY PENINSULA, Setul, Ridley 1503. BORNEO, Sarawak, Tabuan, Native collector 784 Bureau of Science.

I think that there can be no doubt as to the validity of Korthals’s genus, which is well figured by Boerlage and Koorders l. c. The species and genus were based on material collected in Borneo by Korthals, and as Boerlage and Koorders explain, were joined by Miquel 4 with *Diemenia racemosa* Korth. to form the genus *Trichocarya* Miq. Later Miquel himself 5 separated the two genera, which, as Boerlage and Koorders note, has been overlooked by later authors. Bentham and Hooker f. 6 retain Miquel’s *Trichocarya* with two species, and Focke 7 maintains the genus *Angelesia* with 2 or 3 species. *Trichocarya splendens* Miq., the type of the genus *Trichocarya*, is identical with *Angelesia splendens* Korth., but Miquel’s second species, *Trichocarya? racemosa* Miq. (*Diemenia racemosa* Korth.) is, according to Boerlage and Koorders, identical with the earlier *Parastemon urophyllus* A. DC.

The only synonym I have added to the list given by Boerlage and Koorders is *Parinarium nitidum* Hook. f., which is manifestly identical with Korthals’s species. Hooker cites in the original description “Malacca, Griffith, Maingay (Herb. Kew 619).-Distrib. Borneo;” King, among other specimens, cites “Griffith 2047/1;” while Boerlage and Koorders cite in their discussion Griffith 2047, and a part of their plate, the fruiting specimen, is drawn from Griffith’s specimen. Hooker himself indicated *Parinarium nitidum* as the type of an unnamed subgenus. King includes the species

4 Fl. Ind. Bat. 1 1 (1855) 358.
7 Engl. & Prantl Nat. Pflanzenfam. 3 2 (1888) 60.
in *Parinarium* with doubt, and expresses the opinion that, when mature fruits are known, a separate genus might be formed with advantage for the species, apparently not realizing that two generic names, *Angelesia* Korth. and *Trichocarya* Miq., had already been proposed for an identical species.

*Angelesia splendens* Korth. is represented by the following material: MALAY PENINSULA, Setul, Ridley 15043: Malacca, Griffith 2047, Maingay 619, Derry 189, 1180: Perak, King's collector 8599, 8680, 8711. PENANG, Curtis 14a, 147, 853, King's collector 1274, 1472, Ridley s. n. BORNEO, Sarawak, Native collector 734, Bureau of Science; southern Borneo, Korthals. SUMATRA, Koorders, and the Philippine material cited above.

**PARINARIUM** Aublet

**PARINARIUM VILLAMILII** sp. nov.

Arbor alta partibus junioribus inflorescentiisque exceptis glabra; foliis coriaceis, oblongis, acuminatis, usque ad 16 cm longis, nervis utrinque circiter 12, basi subitus 2-glandulosis, nervis reticulisque utrinque minute scaberulis, ramulis junioribus stipulisque longe adpressae ciliato-hirsutis, inflorescentiis axillarisibus, racemosis (vel paniculatis?), adpressa pubescentibus; fructibus ellipsoideis, 2.5 ad 3 cm longis.

A tree reaching a height of 27 m, glabrous except the inflorescence and the younger parts. Branchlets slender, terete, dark reddish-brown and somewhat glaucous, the very young ones appressed-ciliate-hirsute with long, rather pale hairs, similar hairs on the stipules, younger petioles, and near the base of the leaf on the midrib beneath in young leaves. Leaves oblong, coriaceous, pale when dry, 12 to 16 cm long, 4 to 8 cm wide, rather prominently acuminate, the acumen obtuse, base acute to nearly rounded, with two small glands on the lower surface near the junction with the petiole; lateral nerves about 12 on each side of the midrib, prominent on the lower surface, curved, anastomosing, these and the reticulations minutely scaberulous on both surfaces; petioles 5 mm long or less, at maturity quite glabrous; stipules oblong-lanceolate, acute or obtuse, about 1 cm long, with scattered, appressed, long, pale hairs. Racemes (or panicles?) axillary, appressed-pubescent, in fruit up to 9 cm in length. Fruit ellipsoid, brown, 2.5 to 3 cm long (immature), prominently verruculose, the pedicels stout, pubescent, about 5 mm long, the persistent sepals pubescent on both surfaces, the tube villous within, stamens apparently at least 30.


Among the Philippine species most closely allied to *Parinarium laurinum* A. Gray, but entirely different in vegetative characters.
PARINARIUM BICOLOR sp. nov.

Arbor circiter 10 m alta, subtus foliis ramulis inflorescentiisque dense albido- vel ferrugineo-villosis; foliis coriaceis, usque ad 7 cm longis, oblongo-ellipticis, basi acutis ad subrotundatis, apice breviter obtuse acuminatis, supra castaneis, nitidis, glabris, subtus albidis vel subferrugineis, densissime tomentosis villosisque, nervis utrinque circiter 15, prominentibus; inflorescentiis terminalibus confertis, dense multifloris, usque ad 4 cm diametro, bracteis bracteolisque numerosis; floribus circiter 4 mm longis, petalis sepalisque subaequilongis.

A tree about 10 m high, the younger parts and inflorescence densely ferruginous-villous, the lower surface of the leaves very densely white- or subferruginous-tomentose and more or less villous. Branches dark-colored, terete, glabrous, the younger ones ferruginous. Leaves alternate, coriaceous, oblong-elliptic, 4 to 7 cm long, 2 to 3 cm wide, base rounded to subacute, apex shortly and obscurely blunt-acuminate, the upper surface castaneous, glabrous and shining when dry, when young somewhat ferruginous-tomentose, the lower surface white or subferruginous; lateral nerves about 15 on each side of the midrib, very prominent on the lower surface, nearly straight; petioles densely ferruginous-villous, 3 mm long or less; stipules inequilateral, deciduous, oblong acuminate, up to 7 mm long, somewhat pubescent. Panicles terminal, dense, many-flowered, densely ferruginous-tomentose, up to 4 mm in diameter. Flowers yellowish-brown, their pedicels short, densely villous, the bracteoles oblong-ovate, acuminate, pubescent, concave, about 4 mm long. Calyx about 4 mm long, densely ferruginous-villous, the lobes 5, oblong, acuminate, 1.2 to 2 mm long. Petals membranaceous, glabrous, about 2 mm long, oblong-ovate. Calyx-tube densely villous within. Style densely villous below, glabrous or nearly so above. Fruit hard, irregular, dark brown, somewhat ovoid, about 3 cm long and 2.3 cm in diameter, apex rounded.

MINDANAO, Province of Surigao (Ginituan Island), For. Bur. 28022 Razon, October 6, 1914, on slopes, altitude about 30 meters.

A species entirely different from the other Philippine representatives of the genus, well characterized by its small leaves and its indumentum. Its alliance is with the Malayan Parinarium costatum Blume.

PARINARIUM CORYMBOSUM (Blume) Miq. Fl. Ind. Bat. 1 1 (1855) 356.

Marranthes corymbosa Blume Bijdr. (1825) 89.
The species is very widely distributed in the Philippines, and is represented in the herbarium of the Bureau of Science by about 60 specimens, from all parts of the Archipelago from northern Luzon to southern Mindanao. What is manifestly the oldest specific name is here adopted, for Blume's species was reduced to Parinarium griffithianum Benth. by Koorders and Valetan, which reduction is apparently correct. Blume's name, being by far the oldest one, must be adopted. The species is a widely distributed one, extending from the Andaman Islands through Sumatra, Borneo, and Java to New Guinea and northern Australia.


*Parinarium scabrum* Merr. in Philip. For. Bureau Bull. 1 (1903) 22, non Hassk.


*Parinarium racemosum* Merr. in Govt. Lab. Publ. (Philip.) 17 (October, 1904) 19, non Vidal.


There appears to be no doubt as to the specific identity of all the Philippine material cited above, and equally as little doubt as to the identity of the Philippine form with *Parinarium laurinum* A. Gray. The type of *Parinarium laurinum* was from the Samoan Islands, and is well figured and illustrated by Gray. The species is also represented in the herbarium of the Bureau of Science by Vaupel 237 from Samoa (distributed as *Parinarium insularum* A. Gray), a specimen that agrees perfectly with the original description and plate of *Parinarium laurinum* A. Gray, but not with *P. insularum* A. Gray. This specimen in all essential characters also agrees with the Philippine material.

*Parinarium laurinum* A. Gray is known from the Samoan, Fiji, Solomon, and Admiralty Islands, and in consideration of the general character of the Polynesian flora, its discovery in the Philippines is not at all surprising. A considerable number of species are known only from the Philippines and Polynesia, and a still greater number are represented in the two regions by very closely allied forms. In a collection of plants made in Samoa by Vaupel, which I have examined carefully, the similarity between the
constituents of the Samoan and Philippine flora is so very striking that Vaupel’s entire collection might almost as well have been made at some point in the Philippines; the percentage of difference as to species is no greater between Vaupel’s Samoan collection and the general run of the Philippine flora than is noted in current collections made in botanically unexplored parts of the Philippines as compared with the known flora of the Archipelago.

K. Schumann and Lauterbach note that oil produced by the fruits is used in the Solomon Islands for caulkimg the seams of boats; in the Philippines it is used by the natives of Agusan Valley, Mindanao, for water-proofing bamboo and rattan baskets. The following note was supplied by Dr. M. L. Miller, of the division of ethnology, Bureau of Science, and communicated by him with botanical specimens: “The fruit of the tabon-tabon tree, when mature, is full of a yellowish-white pulp, that has about the hardness of a camote (sweet potato). On being rubbed over a rough surface, such as a rattan plaiting, it fills the interstices, assuming a chocolate color and drying within an hour to a hardness that does not crack under a torrid sun. The coating of tabon-tabon on baskets, etc., is frequently darkened in color with charcoal.”

Native names: tambon-tambon (Masbate); batobon (Palawan); tabun-tabun (Albay); tabon-tabon (Surgiao, Agusan).

As to nomenclature, the oldest valid specific name applied to the Philippine form is Parinarium mindanaense Perk., the type of which I have examined in the Berlin herbarium. Parinarium racemosum Merr., published a few months later, and during the same year, is invalidated by P. racemosum Vidal. (1880); P. curranii Merr. was proposed as a new name for P. racemosum Merr., non Vidal.

**PYGEUM** Gaertner

**PYGEUM EUPHLEBIUM** sp. nov.

Arbor 10 m alta, subitus foliis ad costa ramulis inflorescentiisque ferrugineo-villosis; foliis oblongis, coriaceis, usque ad 10 cm longis, integris, acuminatis, basi subacute ad rotundatis, nervis utrinque 8 ad 10, supra impressis, subitus valde prominentibus, reticulis laxis, obscuris; racemis spiciformibus, brevibus, fasciculatis, 1 ad 1.5 cm longis, bracteolis deciduis, fructibus junioribus anguste ovoideis, plus minusve ferrugineo-villosis.

A tree about 10 m high, the young branches, inflorescence, petioles, and the leaves along the midrib on the lower surface rather prominently ferruginous-villous. Branches slender, terre, dark brownish-purple, glabrous. Leaves oblong, coriaceous, 7 to 10 cm long, 2 to 4 cm wide, the upper surface shining, brownish-olivaceous, the lower paler, brownish, the apex shortly and sharply acuminate, the base subacute to rounded, with one or two plane, dark-colored, small glands evident on the lower surface near the base; lateral nerves impressed on the upper surface, very prominent on the lower surface, 8 to 10 on each
side of the midrib, curved upward near the margins, scarcely anastomosing, the reticulations lax, obscure; petioles 7 to 10 mm long. Racemes short, ferruginous-villous, fascicled, spikelike, 1 to 1.5 cm long, usually two or three in a fascicle in the axils of leaves or of fallen leaves, the bracteoles small, deciduous; young fruit narrowly ovoid, 5 mm long, ferruginous-villous with scattered hairs, the rather slender style persistent.


A species allied to Pygeum merrillianum Koehne, but entirely different from that form, well characterized by its ferruginous-villous, short, fascicled, spikelike racemes, its pubescent young fruit, indicating a pubescent ovary, and its very prominently nerved leaves.

PYGEUM MONTICOLUM sp. nov.

Arbor circiter 10 m alta, partibus junioribus ferrugineo-pubescentibus; folii crasse coriaceis, oblongis, usque ad 10 cm longis, utrinque subaequaliter angustatis, apice acuminatis, basi acutis, eglandulosis; nervis utrinque circiter 8, subtus prominently ovary, and its very prominently nerved leaves.

A species best characterized by its thickly coriaceous, eglandular leaves and its very large fruits.
cm longis, dense fulvo-pilosis; floribus in anthesis 1 ad 1.5 cm diametro.

A small tree about 8 m high, glabrous except the inflorescence. Branches brown, smooth, slender, terete, the ultimate ones 2 to 3 mm in diameter. Leaves elliptic or elliptic-ovate, chartaceous, brown when dry, the lower surface paler than the upper, somewhat shining, about 20 cm long, 10 cm wide, the apex rather broadly acuminate, the acumen blunt, the base rounded or subacute, sometimes a little decurrent, supplied at the junction with the petiole with a pair of very prominent oblong glands which are open on the lower surface, slightly projecting on the upper one; lateral nerves about 10 pairs, rather prominent; petioles 2 cm long. Racemes axillary, 6 to 9 cm long, rather densely pubescent with pale fulvous hairs; bracteoles oblong-lanceolate, acuminate, pubescent, 3.5 mm long, deciduous; pedicels about 2 mm long. Flowers white, in anthesis 1 to 1.5 cm in diameter. Calyx-tube funnel-shaped, 3 mm long, 4 mm in diameter at the throat, the lobes 6, ovate-lanceolate, somewhat acuminate, pubescent, 2 to 2.5 mm long. Petals 6, suborbicular to orbicular-ovate, 2 mm long, very densely pubescent on both surfaces. Stamens indefinite, the filaments 2 to 6 mm long. Ovary glabrous, ovoid; style 5 mm long.

LUZON, Province of Laguna, Dahican River back of San Antonio, Bur. Sci. 14923 Ramos, June, 1912.

A distinct species, well characterized by its unusually large leaves with their very prominent basal glands, and by its flowers which are considerably larger than those of any other known Philippine species.

LEGUMINOSAE

ORMOSIA Jack

ORMOSIA VILLAMILII sp. nov. § Amacrotropis.

Arbor circiter 25 m alta, glabra, inflorescentiis ignotis; foliis imparipinnatis, circiter 25 cm longis, foliolis circiter 7, alternis vel inferioribus suboppositis, chartaceis, nitidis, oblongis, usque ad 11 cm longis, obtuse acuminatis, basi rotundatis; leguminibus anguste oblongis, tenuibus, 11 cm longis, 2.5 ad 3 cm latis, seminibus 3 vel 4.

A tree about 25 m in height, quite glabrous so far as the material shows (inflorescence not seen). Branches slender, brownish, shining, terete, lenticellate. Leaves alternate, about 25 cm long, the rachis and petiole dark brown or nearly black when dry; leaflets usually 7, alternate, or the lower ones subopposite,
shining, mostly oblong, the lower surface a little paler than the upper one, 6 to 11 cm long, 3 to 4.5 cm wide, the base rounded, the apex blunt-acuminate, the acumen distinctly retuse; lateral nerves 5 to 7 on each side of the midrib, slender, not prominent; petals about 11 cm long, 2.5 to 3 cm wide, acute or acuminate, base decurrent into a short stipe, the margins narrowly keeled, apparently tardily dehiscent, containing three or four seeds.


There is some doubt as to the correctness of referring the species to *Ormosia* in the absence of flowers, but it is probably correct, and probably referable to the section *Amacrotropus*. Its Moro name, *bahay*, is also significant, for in other parts of the Archipelago this is the common name of *Ormosia calavensis* Aznola. The seeds, in the specimens available, were destroyed by insects before the time of collection.

**SINDORA** Miquel

**SINDORA INERMIS** sp. nov.

Arbor alta, partibus junioribus leviter pubescentibus; foliolis 6, chartaceis vel subcoriaceis, usque ad 12 cm longis, subellipticis, breviter obtuse acuminatis, basi subacutis ad rotundatis aliquis inaequilateralibus; stipulis late acinaciformibus, 2 ad 2.5 cm longis; leguminibus compressis, inermis, inaequilateraliter subellipticis, circiter 7 cm longis et 5 cm latis, brevissime apiculatis.

A tall tree, the younger parts sparingly pubescent, otherwise glabrous (inflorescence not seen). Branches slender, terete, brown. Leaves about 25 cm long, each with 6 leaflets, the leaflets chartaceous to subcoriaceous, subelliptic, somewhat shining, brownish-olivaceous, 8 to 12 cm long, 5.5 to 6.5 cm wide, some of them more or less inequilateral, apex shortly and obtusely acuminate, base subacute to rounded; lateral nerves slender, 15 or more on each side of the midrib, both surfaces rather distinctly and densely subfoveolate- reticulate; stipules broadly scimitar-shaped, falcate, coriaceous, 2 to 2.5 cm long, shortly acuminate. Flowers not seen. Fruits compressed, somewhat inequilateral, about 7 cm long, 5 cm wide, brown, glabrous, with a short excentric apiculus at the apex, the valves unarmed, thickly coriaceous.

**MINDANAO**, District of Cotabato, Sapu, Sarangani Bay, *For. Bur. 23054 Ferraris*, October 3, 1914, growing at sea level near the mangrove, locally known as *gayugalo*, oil-producing like *Sindora supa*. A sterile specimen,
For. Bur. 23039 Ferraris from the same locality, dry slopes, altitude about 50 meters, probably represents the same species.

The species is decidedly similar to Sindora supa Merr. in its vegetative characters, but differs in having its pods entirely unarmed.

BURSERACEAE

CANARIUM Linnaeus

CANARIUM CAUDATIFOLIUM sp. nov.

Arbor glabra (floribus ignotis), circiter 10 m alta; foliis circiter 70 cm longis, foliolis 11, subcoriaceis, oblongis ad oblongo-lanceolatis, integris, usque ad 20 cm longis, apice caudato-acuminatis, basi acutis, plus minusve inaequilateralibus, in siccitate pallidis nitidis, nervis utrinque circiter 15, patulis, prominentibus; infructescentiis 22 cm longis, cymosis, longe pedunculatis; fructibus oblongo-ovoideis vel oblongis, haud angulatis, inaequaliteribus, 4 cm longis, obtusis, 1-locellatis, pericarpio crustaceo, in siccitate valde rugoso.

A glabrous tree (flowers unknown), about 10 m high, the branches and branchlets, petioles, petiolules, axis, and branches of the infructescence reddish-brown, with numerous small lenticels. Ultimate branches subterete, about 1 cm in diameter, longitudinally wrinkled when dry. Leaves alternate, about 70 cm long; leaflets 11, oblong to oblong-lanceolate, 15 to 22 cm long, 5.5 to 7 cm wide, entire, subcoriaceous, the apex prominently caudate-acuminate, the acumen 1.5 to 2 cm long, slender, blunt, the base acute or subacute, somewhat inequilateral, the upper surface pale and shining when dry, the lower a little browner than the upper; lateral nerves about 15 on each side of the midrib, prominent, spreading, somewhat curved upward, anastomosing, the reticulations lax; petiolules about 2 cm long. Infructescence axillary, about 22 cm long, cymose, the peduncles at least 12 cm long, above somewhat dichotomously branched, the pedicels about 1.5 cm long. Fruits oblong to oblong-ovoid, subterete, not at all angled, inequilateral, about 4 cm long, 1.6 cm wide, base rounded, apex obtuse, 1-celled, the pericarp crustaceous, yellowish, and prominently wrinkled when dry.

Mindanao, Province of Surigao, Ilaya Mainit, For. Bur. 22827 Ponce, August 16, 1914, on semiopen slopes, altitude about 15 meters, locally known as pilihanay.

A species well characterized by its rather large, prominently caudate-acuminate, entire leaflets, its cymose infructescence, and its subterete, inequilateral, rather large fruits, the pericarp thin, crustaceous, and prominently wrinkled when dry. Its alliance is apparently with Canarium nitens Merr., although it is entirely different from that species.
POLYGALACEAE

XANTHOPHYLLUM Roxburgh

XANTHOPHYLLUM PSEUDOSTIPULACEUM sp. nov.

Arbor circiter 10 m alta, inflorescentiis exceptis glabra; foliiis coriaceis, oblongis vel oblongo-ovatis, usque ad 7 cm longis, basi acutis, apice obtusis ad obtuse acuminatis, subus pallidis, nervis vix prominentibus, axillis petiolorum squamis binis oblongis coriaceis 5 ad 7 mm longis instructis; racemis puberulis, nodis valde incrassatis; fructibus globosis, 1.5 cm diametro.

A shrub or small tree, glabrous throughout. Branches terete, rather stout, somewhat wrinkled when dry, pale gray. Leaves
coriaceous, oblong to narrowly oblong-elliptic, shining when dry, 5 to 7 cm long, 1.5 to 2.8 cm wide, entire or sometimes obscurely and distantly subcrenulate, the apex acute, slightly acuminate, or blunt, the base usually somewhat decurrent-acuminate; nerves about 6 on each side of the midrib, obsolete above, spreading, anastomosing, the reticulations very few, lax; petioles 5 to 10 mm long. Pistillate flowers axillary, fascicled, two to six in each axil, the pedicels about 4 mm long, each with a pair of ovate, acuminate bracteoles at the lower one-fourth or one-third. Flowers 4-merous. Calyx-lobes about 1.5 mm wide, 1 mm long, rounded. Petals free, 3 to 3.5 mm long, about 2 mm wide, oblong-ovate, rounded. Staminodes about 2 mm long. Ovary rhomboid-ovoid, 4-celled; stigma large, sessile, 1.5 mm in diameter. Very immature fruit somewhat angled, wrinkled, 4 mm long, 4-celled.


A species apparently allied to Ilex sumatrana Loesener, but quite different from that form.

Ilex subcaudata sp. nov. § Thrysopinus, Indico-Malaiaceae.

Frutex vel arbor parvus, glaber; foliis ovato-ellipticis, usque ad 7 cm longis, integris, subcoriaceis, siccitate nitidis, breviter petiolatis, utrinque acuminati, apice subcaudatis, acuminibus obtusis, circiter 1 cm longis; racemis § axillaribus, solitariis vel binis, quam folia paulo brevioribus; floribus 4-, rariter 5-meris.

An erect, glabrous shrub or small tree. Branches rather slender, terete, wrinkled when dry, reddish-brown or grayish, not lenticellate. Leaves scattered, the internodes 1 to 3.5 cm long, ovate-elliptic, subcoriaceous, shining when dry, not punctate or glandular, somewhat pale, 5 to 7 cm long, 2 to 3.5 cm wide, entire, the apex rather abruptly subcaudate-acuminate, the acumen about 1 cm long, blunt, straight or somewhat falcate, the base somewhat acuminate, the margins not, or very slightly, recurved; nerves about 6 on each side of the midrib, slender, not prominent, ascending, anastomosing, the reticulations lax; petioles 3 to 4 mm long; stipules, if present, very early deciduous. Staminate racemes solitary or in pairs in the leaf-axils, 3 to 5 cm long, each with from 10 to 20, slenderly pedicelled flowers, the pedicels 4 to 5 cm long, each subtended by a small, ovate, obtuse bracteole less than 1 mm long. Flowers 4-, rarely 5-merous. Calyx-lobes ovate, obtuse, 0.5 to 0.8 mm long. Corolla-tube 1 mm long, the lobes oblong-ovate, obtuse, 1.5 mm long. Anthers
0.8 mm long. Ovary rudimentary. Pistillate flowers and fruits unknown.


A species probably as closely allied to Ilex spicata Bl. as to any other species, but abundantly distinct.

**Ilex pachyphylla** sp. nov. § **Byronia**, **Eubyronia**.

Species *I. cymosae* affinis, differt foliis crassissime coriaceis, apice late rotundatis vel obtusis retusisque, vix acuminatis, floribus majoribus, ovario 4- vel 5-locellato.

A tree about 10 m high, glabrous except the somewhat pubescent inflorescence. Branches terete, stout, dark-colored. Leaves very thickly coriaceous, elliptic to obovate-elliptic, 5 to 10 cm long, 2.5 to 6 cm wide, entire, the apex broadly rounded to obtuse, never acuminate, the base somewhat narrowed, acute or a little decurrent-acuminate, the margins strongly revolute, the upper surface olivaceous when dry, somewhat shining, the lower shining, much paler; lateral nerves 7 or 8 on each side of the midrib, slender, not prominent, the reticulations obsolete or nearly so; petioles 1 to 1.5 cm long, dark reddish-brown. Inflorescence cymose, sparingly cinereous-pubescent, the cymes in the upper axils pseudo-terminal, many-flowered, 2 to 5 cm long and wide. Flowers white, 5-merous, the pedicels and calyx somewhat puberulent, the calyx-lobes orbiculate-ovate, about 1.5 mm long, somewhat serrate-lacerate. Petals 5, oblong to oblong-ovate, rounded, about 3 mm long. Ovary 4- or 5-celled, glabrous, oblong, narrowed upward. Young fruit narrowly ovoid.

Luzon, Province of Tayabas, Mount Binuang, back of Infanta, Bur. Sci.

**Ilex brunnea** sp. nov. § **Thrysoprinus**, **Indico-Malaicae**.

Frutex ut videtur epiphyticus, glaber, ramis ramulisque pal-lidis; foliis alternis, integris, coriaceis, oblongo-ovatis ad elliptico-lanceolatis, utrinque acuminatis vel basi acutis, usque ad 5 cm longis, petiolatis, in siccitate nitidis, bruneis, nervis laterali-bus utrinque circiter 6, tenuibus, indistinctis; inflorescentiis 5 axillaribus, solitariis, racemosis, racemis numerosis, multifloris, 2 ad 4 cm longis; floribus 4- vel 5-meris, petalis 2 mm longis.

Apparently an epiphytic shrub, quite glabrous or the racemes very slightly and obscurely pubescent. Branches pale gray, terete, slightly wrinkled when dry, the branchlets similar, somewhat angled, 1 to 1.2 mm thick. Leaves alternate, 3 to 5 cm
long, 1.4 to 3 cm wide, oblong-ovate to elliptic-lanceolate, about equally narrowed to the somewhat blunt-acuminate apex and to the acute or somewhat acuminate base, entire, coriaceous, when dry strongly shining on the upper surface, a little paler on the lower surface, uniformly dark brown, the lower surface very minutely, densely, and obscurely punculate, and with few, scattered, larger, dark glands; lateral nerves about 6 on each side of the midrib, very slender, obscure, anastomosing, the reticulations obsolete or nearly so; petioles about 5 mm long. Male racemes axillary, solitary, rarely 2 in an axil, numerous, 2 to 4 cm long, many-flowered, glabrous or very obscurely and sparingly pubescent, the flowers sometimes solitary at the nodes of the racemes, more often in fascicles of from 2 to 6, their pedicels slender, up to 5 mm long, the bracteoles narrowly ovate, 0.5 mm long. Flowers white, 4- and 5-merous in the same raceme. Calyx glabrous, about 2.5 mm in diameter, the lobes broadly elliptic-ovate to suborbicular, broadly rounded, 0.5 mm long. Petals narrowly oblong, 2 mm long, rounded or obtuse, glabrous. Filaments 2 mm long; anthers somewhat ovoid, 0.8 mm long.


Said by the collector to grow on trees at the summit of the mountain. Most closely allied to Ilex halconensis Merr., from which it differs in its smaller, obscurely nerved, brown leaves, more numerous racemes, and smaller flowers.

CELASTRACEAE

MICROTROPIS Wallich

MICROTROPIS PLATYPHYLLA sp. nov.

Arbor glabra; foliis coriaceis, in siccitate pallidis, usque ad 20 cm longis, petiolaris, breviter acuminatis, basi decurrent-acuminatis, nervis utrinque 10 ad 12; cymis axillarisbus, extra-axillarisbusque, pedunculatis, usque ad 2.5 cm longis, multifloris, floribus 5-meris, sessilibus, capitato confertis; capsulis ellipsoidis, acutis vel apiculato-acuminatis, circiter 1.5 cm longis.

Apparently a tree, quite glabrous. Branches terete, reddish-brown or pale when dry, the tips of the branchlets somewhat compressed. Leaves large, coriaceous, pale, and somewhat shining when dry, the lower surface somewhat brownish, 12 to 20 cm long, 5.5 to 12 cm wide, subequally narrowed at both ends, elliptic-ovate, apex shortly and sharply acuminate, base decurrent-acuminate; lateral nerves 10 to 12 on each side of the midrib, slender, anastomosing, the reticulations rather close, fine, distinct; petioles stout, 1.5 to 2.5 cm long. Cymes axillary and
extra-axillary, peduncled, mostly 3-branched, up to 2.5 cm long, each subtended by several, coriaceous, linear bracts 2 to 5 mm in length. Flowers numerous, 5-merous, capitate at the tips of the branches, the heads up to 7 mm in diameter. Sepals obovate-orbicular, concave, externally prominently wrinkled-reticulate, about 2 mm in diameter, glabrous except the somewhat furfuraceous-incised margins. Corolla about 3.5 mm long, the tube short, the lobes elliptic-obovate, rounded, about 2 mm long, glabrous; filaments 1 mm long; anthers about 0.5 mm long. Ovary brown, glabrous, 2 mm in length. Capsule apparently somewhat fleshy when fresh, ellipsoid, about 1.5 cm long, 2-valved, the pericarp thickly coriaceous, apex acute or apiculate-acuminate; seed solitary, about 1 cm long, brown, and much wrinkled when dry.


A species readily recognizable by its unusually large leaves.

EUONYMUS Linnaeus

EUONYMUS OLIGANTHUS sp. nov.

Arbor glabra circiter 8 m alta; foliis chartaceis ad subcoriaceis, oblongo-oblanceolatis vel oblongo-ellipticis ad obovatis, usque ad 10 cm longis, pallidis, nitidis, sursum plus minusve serrato-crenulatis, utrinque subaequaliter angustatis, basi cuneatis, apicis breviter obtuse acuminatis, nervis utrinque circiter 6, tenuibus; cymis axillaris, tenuibus, longe pedunculatis, usque ad 9 cm longis, dichotomis, paucifloris; fructibus obovoideis, circiter 6 mm longis, vix sulcatis, laevis.

A glabrous tree about 8 m high, the branches pale yellowish-green, slender, terete. Leaves opposite, chartaceous to subcoriaceous, pale yellowish-green on both surfaces when dry, shining, oblong-elliptic to oblong-oblanceolate or obovate, 6 to 10 cm long, 2 to 4.5 cm wide, subequally narrowed to the cuneate base and to the shortly broad-acuminate apex, the upper part distinctly serrate-crenulate with small distant teeth, below entire; lateral nerves about 6 on each side of the midrib, slender, ascending, anastomosing, the reticulations lax, obscure; petioles 4 to 7 mm long. Cymes axillary, slender, few-flowered, dichotomous, in fruit up to 9 cm long. Flowers mostly in groups of threes at the tips of the branchlets, the very young buds obovoid, sepals and petals more or less ciliate, the latter at maturity possibly lacerate. Mature fruits crimson, smooth, obovate when dry, about 6 mm long, somewhat apiculate by the persistent style, not or very obscurely longitudinally sulcate when dry, when
fresh not at all so, the persistent calyx thickly coriaceous, 4 to 5
mm in diameter, the lobes reniform, 2 mm long, about 3 mm wide, glabrous.

Luzon, Benguet Subprovince, Baguio, Merrill 9644, May, 1914, in
thickets, limestone region, Sablan trail, altitude about 1,300 meters.
A species allied to Euonymus viburnifolius (Juss.) Merr. (E. philip-
pinensis Merr.), differing in its smaller leaves, slender, elongated, very
few-flowered cymes, and smaller fruits which are not sulcate or lobed.

**GLYPHTOPETALUM** Thwaites

**GLYPHTOPETALUM LOHERI** sp. nov.

Frutex vel arbor glabra; foliis subcoriaceis, ellipticis ad ellip-
tico-ovatis, integris, breviter petiolatis, usque ad 10 cm longis, in
siccitate pallidis, acuminatis, basi acutis, nervis utrinque 5 vel
6, tenuibus, obscure, reticulis subobsoletis; cymis axillaribus,
brevibus, paucifloris; fructibus globosis, 6 ad 10 mm diametro, 1-
ad 4-locellatis.

A glabrous shrub or small tree, the branches terete, reddish-
brown, the younger ones pale straw-colored. Leaves rather un-
equal in size, opposite, subcoriaceous, pale when dry, elliptic to
ovate-elliptic, 6 to 10 cm long, 3 to 6 cm wide, subequally nar-
rowed to the acute base and to the sharply acuminate apex, shin-
ing, entire; lateral nerves 5 or 6 on each side of the midrib,
slender, obscure, the reticulations nearly obsolete; petioles 3 to 4
mm long. Cymes axillary, short, the peduncles 1 cm long or less,
unbranched or with two very short branchlets. Flowers ap-
parently sessile, crowded, few. Fruits globose, 6 to 10 mm in
diameter, not sulcate, 1- to 4-celled, 1- to 4-seeded, the pericarp
pale when dry, thickly coriaceous; seeds brown, about 7 mm
long, the apical one-third surrounded by a thin, membranaceous,
brittle, brown aril. Persistent sepals coriaceous, reniform, 4, 
entire, 2 to 3 mm wide.

Luzon, Province of Rizal, Montalban, Loher 5765 (type), 5796, February
and December, 1904.
A species characterized by its pale, obscurely nerved leaves, its nearly
obsolete reticulations, and its globose, not sulcate fruits.

**GLYPHTOPETALUM MARIVELENSE** sp. nov.

Arbor parva, glabra, 3 ad 7 m alta; foliis oblongis ad oblongo-
lanceolatis, chartaceis ad subcoriaceis, usque ad 13 cm longis,
in siccitate pallidis, utrinque aequaliter angustatis, basi acutis,
apice acuminatis, margine crenulato-serrulatis, nervis utrinque
6 vel 7, tenuibus, laxe anastomosantibus, reticulis distinctis,
laxis; inflorescentiis axillaribus, tenuibus, usque ad 10 cm longis,
plerumque breviter furcatis, ut videtur paucifloris; fructibus de-
presso-globosis, circiter 1.5 cm diametro, in siccitate brunneis, rugosis, 3- vel 4-locellatis, sepalis 4, persistentibus integris.

A shrub or small tree 3 to 7 m high, quite glabrous. Branches terete, slender, straw-colored or yellowish-green. Leaves opposite, chartaceous to subcoriaceous, oblong to oblong-lanceolate, pale and shining when dry, 7 to 13 cm long, 2.5 to 4.5 cm wide, subequally narrowed to the acute base and the shortly acuminate apex, the margins distinctly crenulate-serrate, the midrib very prominent; lateral nerves 6 or 7 on each side of the midrib, slender, laxly anastomosing, the reticulations slender, lax; petals about 5 mm long. Inflorescence axillary, solitary, slender, usually forked near the apex, apparently few-flowered, up to 10 cm long in fruit, the bracts in pairs, lanceolate, acuminate, about 1.5 mm long. Flowers 4-merous. Fruits depressed-globose, brown when mature, about 1.5 cm in diameter, 3- or 4-celled, the pericarp coriaceous, wrinkled. Seeds 1 in each cell, attached near the apex of the cell, brown, about 8 mm long, the upper one-third surrounded by a thin brown aril.

Luzon, Province of Bataan, Mount Mariveles, Elmer 6644 (type), November, 1904, Whitford s. n., For. Bur. 2639 Meyer, February, 1905 (the two latter with mature fruits): Province of Tayabas, For. Bur. 10806 Curran, April, 1908. From this can scarcely be distinguished For. Bur. 6457 Everett, from Cebu, February, 1907, and this specimen probably represents a form of the same species. In forests, altitude about 800 meters.

Duplicates of some of the above specimens were studied by me in the Kew Herbarium in December, 1907, and the memorandum then made was attached to one of the sheets in the herbarium of the Bureau of Science to the effect that the material represented a new species of Euonymus; later Mr. Elmer added the specific name marivelensis (sub. Euonymus) to our specimen of his No. 6644. A further study of the material leads me to consider that the species should be treated under the genus Glyptopetalum.

Var. Euphlebium var. nov.

A typo differt foliis valde nervosis, nervis, lateralibus reticulisque primariis subitus admodum prominentibus.

Luzon, Province of Zambales, Mount Tapulao, For. Bur. 8108 Curran & Merritt, December 15, 1907, in forests, altitude 100 to 1,400 meters.

ICACINACEAE

Phytocrene Wallich

Phytocrene Obovoidea sp. nov.

Frutex alte scandens; foliis ovatis, coriaceis, glabris, in siccitate pallidis, usque ad 16 cm longis, acuminatis, integris, basi cordatis, 5-nervis, nervis lateralibus utrinque 3 vel 4, subitus valde prominentibus; caputulis ♂ binis, pedunculatis, globosis, circiter 2 cm
diametro, floribus 4-meris, sub fructu globosis, circiter 10 cm diametro, fructibus obovoideis vel oblongo-obovoideis, circiter 3.5 cm longis, apice abrupte rotundatis, depressis, abrupte brevissime apiculatis, densissime retrorse hirsutis.

A scandent shrub apparently of large size, the fruit-bearing branches up to 1.5 cm in diameter, pale brownish, prominently wrinkled when dry. Leaves ovate, coriaceous, pale, 12 to 16 cm long, 7 to 10 cm wide, entire, the upper surface glabrous, shining, the lower surface paler, glabrous, apex acuminate, base prominently cordate; basal nerves 5, the lateral ones about 4 pairs (or 3 above the base), very prominent, looped-anastomosing near the margins, the reticulations very distinct; petioles 5 to 7 cm long, very slightly hirsute. Female heads, just after anthesis, in pairs, apparently from the axils of fallen leaves, brown, globose, about 2 cm in diameter, their peduncles brown-hirsute, up to 4 cm in length. Flowers 4-merous, the calyx 4 to 5 mm long, lobes broadly ovate, acute or somewhat acuminate, up to 1.5 mm long, externally densely appressed-hirsute. Ovaries densely hirsute, when slightly developed (6 to 8 mm long) distinctly 3- or 4-toothed at the apex, the base narrowed. Heads in fruit (immature) globose, 8 to 10 cm in diameter, brown, the drupes very numerous, obovoid to oblong-obovoid, about 3.5 cm long, the apex up to 2 cm in diameter, angular by mutual pressure, gradually narrowed from the apex to the base, the apex itself abruptly rounded, usually distinctly depressed, and with a short, stout, blunt apiculus 2 mm long or less, all parts very densely hirsute with stiff, brown, appressed, reflexed hairs.


This species is manifestly allied to Phytocrene blancoi (Azaola) Merr., which in turn is doubtfully distinct from Phytocrene macrophylla Blume; it differs, however, in its leaves being glabrous beneath, and in its entirely differently shaped drupes which are not gradually narrowed upward to the tip, but are obovoid or oblong-obovoid, abruptly rounded and depressed, gradually narrowed from the apex to the base. In the shape of its drupes it is equally distinct from Phytocrene dasycarpa Miq.

TILIACEAE

COLUMBIA Persoon

COLUMBIA SUBINTEGRA sp. nov.

Arbor circiter 35 m alta, inflorescentiis exceptis glabra; foliis ovatis ad oblongo-ovatis, coriaceis, usque ad 17 cm longis, utrinque glabris, nitidis, concoloribusque, integris vel leviter undulatis, aequilateralibus, basi late rotundatis, apice acuminatis; paniculis terminalibus, pyramidatis, pubescentibus; fructibus 2 cm diametro, suborbicularis, 5-alatis.
A tree about 35 m high, glabrous except the inflorescence. Branches slender, terete, brownish. Leaves coriaceous, equilateral, ovate to oblong-ovate, 14 to 17 cm long, 7 to 10 cm wide, of the same color, brownish and shining on both surfaces, entirely glabrous, the base broadly rounded, the apex acuminate, the margins entire or somewhat undulate, or even obscurely undulate-toothed in the upper part; nerves 6 on each side of the midrib, prominent, the reticulations slender, but distinct; petioles 2 to 2.5 cm long. Panicles terminal, pyramidal, uniformly pubescent, about 25 cm long, the branches scattered, the lower ones 10 cm long. Flowers not seen. Fruit orbicular in outline (lateral view), 2 cm in diameter, slightly pubescent or becoming glabrous, somewhat retuse at both base and apex, equally 5-winged, the wings about 8 mm wide.

MINDANAO, District of Zamboanga, Talisay, For. Bur. 13776 Foxworthy, DeMesa, & Villamil, June 18, 1912, in forests, altitude about 20 meters.

The species is locally known as malacayan a name applied also to other unrelated species, and is allied to Columbia longipetiolata Merr. of Luzon, from which it differs in its entire or nearly entire leaves. The fruit is red when fresh, the bark very tough and stringy as in other species of the genus, and the wood has a slightly pungent odor.

THEACEAE

TERNSTROEMIA


This species is widely distributed, extending from Japan and China to the mountains of India, Ceylon, and Sumatra. The Philippine material, while variable, agrees rather closely in all essential characters with specimens from Japan, Ceylon, and China. The species described by Mr. Elmer as Adinandra coriacea is a typical Ternstroemia in all respects.

GUTTIFERAE

CALOPHYLLUM Linnaeus

CALOPHYLLUM FERRUGINEUM sp. nov. § Inophyllum.

Arbor alta, ramis ramulisque crassis, partibus junioribus inflorescentiisque dense ferrugineo-pubescentibus; foliis crassissime coriaceis, oblongis, usque ad 10 cm longis, in siccitate pallidis, nitidis, basi acutis, apice obtusis ad obscure acuminatis, subitus
leviter ferrugineo-pubescentibus; inflorescentiis terminalibus, paniculatis, circiter 15 cm longis, bracteolis oblongo-ovatis ad lanceolatis, 1.5 ad 2 cm longis, deciduis; sepalis 4; petalis 6.

A tall tree with stout branches, the ultimate branchlets stout, ferruginous-pubescent, 4 to 5 mm in diameter, reddish-brown. Leaves thickly coriaceous, mostly oblong, about 10 cm long, 4 to 5 cm wide, base acute, the apex obscurely acuminate, obtuse or sometimes rounded, pale when dry, the upper surface shining, the lower more brownish-yellow and, at least when young, sparingly ferruginous-pubescent; nerves spreading, rather distinct, about 16 to a centimeter; petioles dark brown, pubescent, about 1.5 cm long. Inflorescence a terminal panicle, all parts very densely ferruginous-pubescent, in nearly mature bud up to 15 cm long, many-flowered, bipinnately paniculate, each flower subtended by a very thick, densely pubescent, deciduous, oblong-oblanceolate to oblong-ovate bracteole 1.5 to 2 cm in length, the pedicels about 1 cm long. Sepals 4, densely pubescent, concave, the two outer ones about 10 mm long and 8 mm wide, the two inner ones orbicular, about 1 cm in diameter. Petals 6, in bud suborbicular, very slightly pubescent. Stamens very numerous. Ovary glabrous.


For the genus a rather characteristic species. It is apparently allied to Calophyllum blancoanum Pl. & Tr., from which it differs in its very densely ferruginous-pubescent inflorescence, younger branches, and to a less degree the lower surfaces of its leaves, in its prominent bracteoles which are up to 2 cm in length, and in its thickly coriaceous, more coarsely nerved, rather differently shaped leaves.

Garcinia Linnaeus


Palawan, near Taytay, Merrill 9387, May, 1913, in bamboo thickets at about sea level. Probably referable here is a single specimen from the Province of Camarines, Luzon, For. Bur. 21750 Fischer, but this specimen has leaves 65 cm long and 25 cm wide, the base broadly rounded and distinctly cordate.

The species is new to the Philippines. Perak, Singapore (Ridley 5966!), Malacca, and Sumatra.

Ochrocarpus Thouars

Ochrocarpus Ramiflorus sp. nov.

Arbor parva, glabra; foliis oppositis, oblongis, subcoriaceis, usque ad 25 cm longis, in siccitate pallidis, basi acutis ad rotun-
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datis, apice acutis vel breviter acuminatis, utrinque obscure foveolatis, subtus plus minusve glandulosis, nervis primariis utrinque 16 ad 20, tenuibus, quam secundariis reticulisque vix magis distinctioribus; floribus in ramis fasciculatis, pedunculis sub fructu 3 ad 4 cm longis.

A small tree about 5 m high, quite glabrous. Branches terete, pale, the younger ones brownish-yellow or yellow, somewhat compressed or angled, wrinkled when dry. Leaves opposite, oblong, subcoriaceous, 15 to 25 cm long, 6 to 9 cm wide, base rounded to acute, apex acute or shortly acuminate, margins recurved, both surfaces pale when dry, shallowly foveolate, the foveolae on the lower surface often glandular; primary lateral nerves very slender, obscure, 16 to 20 on each side of the mid-rib, scarcely more distinct than are the secondary nerves and the reticulations; petioles wrinkled, 1.5 to 2 cm long. Flowers fascicled on the branches below the leaves, the subpersistent petals oblong, about 5 mm long, the stamens very numerous, about 6 mm long. Young fruits subglobose, about 1.5 cm in diameter, much wrinkled when dry, brownish, apparently when mature 1-celled and 1-seeded, when young at least 2-celled.

Luzon, Province of Camarines, Madadagat River, For. Bur. 22795 Tabat, August 5, 1913, on the banks of the river.

The first representative of the genus to be found in the Philippines, Ochrocarpus pentapetalus F.-Vill., based on Tovomita pentapetala Blanco being a Calophyllum and a synonym of C. amplexicaule Choisy. Ochrocarpus ramiflorus appears to be most closely allied to O. siamensis T. Anders. from which it differs in its acute or acuminate, fewer nervd leaves and longer pedicels.

FLACOURTIACEAE

HOMALIUM Jacquin

HOMALIUM OBLONGIFOLIUM sp. nov. § Myriantheia.

Arbor circiter 35 m alta, inflorescentiis exceptis glabra; foliis oblongis, usque ad 30 cm longis, coriaceis, nitidis, breviter acuminatis, nervis utrinque circiter 15; paniculis amplis, folia subaequantibus, axillaribus subterminalibusque, pubescentibus; floribus 7-meris, sepalis quam petalis subduplo longioribus; staminibus 21.

A tree 35 to 40 m high, glabrous except the inflorescence. Branches terete, lenticellate, dark-colored when dry. Leaves oblong, 20 to 30 cm long, 7 to 11 cm wide, entire, coriaceous, shining, the lower surface a little paler than the upper when dry, entire, shortly acuminate, base acute; lateral nerves about
15 on each side of the midrib, slender, distinct, anastomosing; petioles 1.5 to 2 cm long. Panicles axillary and subterminal, ample, many-flowered, open, about as long as the leaves, branched from the base, the lower branches sometimes 25 cm in length, all parts rather densely gray-pubescent. Perianth-tube funnell-shaped, 4 mm long, somewhat hirsute. Sepals 7, when fully grown 6 to 7 mm long, about 1.8 mm wide, obtuse, pubescent, oblong-oblancoolate. Petals 7, oblong, obtuse, pubescent, about 4 mm long. Stamens 21, in groups of three each opposite the petals; filaments filiform, 2.5 to 3 mm long, very slightly pubescent; anthers 0.3 mm long. Ovary densely hirsute, the styles 1 to 1.5 mm long.


A species most closely allied to Homalium luzoniense F.-Vill., but well characterized by its oblong entire leaves.

The specimen collected by Klemme consists of leaves only, taken from sprouts. One leaf is entire, 40 cm long and 14 cm wide, while the other, a more juvenile form, is 40 cm long and 20 cm wide, the margins being distinctly undulate-toothed.

**SCOLOPIA** Schreb.

Most of the recently collected Philippine material of the genus Scolopia has been referred to Scolopia crenata Clos, and to S. luzonensis (Presl) Warb. While Briquet's paper on the genus has been known to me for some years, it has only recently become available. Following Briquet in his interpretation of the group of species closely allied to Scolopia crenata Clos, in which he is doubtless correct, the known Philippine forms may be disposed of as follows:


*Dasianthera luzonensis* Presl Rel. Haenk. 2 (1835) 90, t. 66.
*Banara racemosa* Blanco Fl. Filip. (1837) 425.
*Flacourtia corollata* Blanco l. c. ed. 2 (1845) 559.
*Phoberos* sp. Turcz. in Bull. Soc. Nat. Mosc. 27 (1854) 333.

This species is common and widely distributed in the Philippines, and to it should be referred most of the Philippine material distributed from the Bureau of Science as *Scolopia crenata* Clos and as *S. luzonensis* Warb. It is well characterized by its ciliate anther-appendages.

I think it probable that *Banara brevifolia* Blanco Fl. Filip. (1837) 426 = *Flacourtia parvifolia* Blanco Fl. Filip. ed. 2 (1845) 560 should also be referred here. Blanco’s description is altogether too short and incomplete properly to determine the plant he had in mind, and of which he saw no flowers. F.-Villar has reduced it to *Scolopia dasyanthera* Benn., which, if correct, would place it under *Scolopia luzonensis* Warb., for Bennett’s designation is only a new name for the plant originally described by Presl as *Desiantanera luzonensis*. This fact I overlooked at the time I worked over the determinations of Blanco’s species, which accounts for my statement that *Scolopia dasyanthera* Benn. was a species unknown from the Philippines.

Just how constant are the characters selected by Briquet in distinguishing the closely allied forms that have, for the most part, been reduced at one time or another to form a comprehensive species, *Scolopia crenata* Clos, remains to be seen. In our rich Philippine collections evidences of intergrading forms occur, that to a greater or less degree invalidate the key characters adopted by Warburg and by Briquet in distinguishing the sections *Adenoscolopia* and *Sphenoscolopia*. Elmer 5625, 6363, from Benguet Subprovince, Luzon, and *Bur. Sci. 10376 McGregor*, from Polillo, are in all essential characters typical *Scolopia luzonensis* Warb., and have the peculiar ciliate anthers of that species; yet all three specimens have glands at the apices of their petioles, or on the leaf margins near the insertion of the petioles which would place them in the section *Adenoscolopia*, and as a result necessitate the description of the form as a new species. In my mind there is absolutely no doubt but that all three sheets are fairly typical *Scolopia luzonensis* Warb., a species manifestly belonging in the section *Sphenoscolopia*.


*Phoberos saevus* Hance in Walp. Ann. 3 (1853) 825.


This species is very similar to *Scolopia luzonensis* Warb., but is distinguished by its entirely glabrous anthers. The following material is apparently referable to it:


I have seen no specimen of *Cuming 1061*, cited by Clos, but the above specimens agree with Hongkong material and with the descriptions available. *Scolopia lanceolata* Clos is based on *Phoberos lanceolata* W. & A. Prodr. (1884) 30, and is an older name than that proposed by Hance and accepted by Briquet. The type of *Phoberos lanceolata* W. & A. was from India, and the species is, presumably, different from the Philippine form.

*Govt. Lab. Publ. (Philip.) 27 (1905) 18.*
FLACOURTIA Commerson


Hisingera grandifolia Turcz. in Bull. Soc. Nat. Mosc. 27 2 (1854) 332. 

This species is widely distributed in the Philippines, and is somewhat variable in its vegetative characters. In general the leaves of the Philippine form average considerably larger than in our rather comprehensive set of Malayan forms, but there appears to be no specific difference. The species is very similar in vegetative characters to Flacourtia inermis Roxb., with which the Philippine specimens have been confused. As indicated in the original description, as later noted by King, and as shown in our Malayan specimens, Flacourtia inermis has perfect flowers, while F. rukam has dioecious flowers. I refer to Flacourtia rukam the following Philippine material:


CASEARIA Jacquin

CASEARIA PHILIPPINENSIS sp. nov.

Frutex circiter 3 m altus, subtus foliis ramulis floribusque molliter pubescentibus; foliiis integris, oblongis ad oblongo-lanceolatis, usque ad 29 cm longis, in siccitate brunneis, acuminatis, basi acutis, breviter petiolatis, nervis utrinque circiter 12; floribus paucis, fasciculatis, sepalis circiter 4.5 mm longis; staminodeis planis, sursum dense villosis.

A shrub about 3 m high, the branchlets, flowers, and lower surface of the leaves rather densely and softly pubescent; branches rather slender, terete, brown. Leaves alternate, entire, oblong to oblong-lanceolate, firmly chartaceous or subcoriaceous, 20 to 29 cm long, 7 to 10 cm wide, brown when dry, the upper surface glabrous, shining, the lower softly brown-pubescent, the apex acuminate, base acute; lateral nerves about 12 on each side of the midrib, somewhat curved-ascending, prominent; petioles stout, 5 mm long or less. Flowers yellowish, axillary, few, subsolitary or somewhat fascicled, shortly pedicelled. Sepals broadly ovate to elliptic-ovate, rounded, pubescent, 4 to 5 mm long. Stamens 10, the free parts of the filaments glabrous, about 1 mm long, slender, the lower 1.5 mm, entirely united with the
staminodes, glabrous; anthers about 1 mm long; staminodes flattened, about 1.4 mm long, the upper part densely villous. Ovary ovoid, about 3 mm long, with very few, scattered, short hairs; style short; stigma capitate.

LUZON, Province of Cagayan, Claveria, Bur. Sci. 7364 Ramos (type), March, 1909, in forests. SAMAR, Phil. Pl. 1644 Ramos, April, 1914, as Rinorea.
A species well characterized by its comparatively large, entire leaves, which are brown when dry, glabrous and shining on the upper surface and softly pubescent on the lower surface; it does not appear to be closely allied to any other Philippine species.

PASSIFLORACEAE

ADENIA Forskål

ADENIA LONGIFOLIA sp. nov.
Scandens, glabra; foliis oblongis, membranaceis, 20 ad 25 cm longis, basi acutis vel leviter acuminatis, biglandulosis, vix auriculatis, apice breviter acute acuminatis, margine distantre repando-denticulatis, nervis utrinque circiter 10; cymis pedunculatis, paucifloris, floribus, 4-meris, alabastro clavato, circiter 1 cm longo.
A scandent, herbaceous, glabrous vine, or the stems somewhat woody, firm, striate and pale when dry, 3 mm in diameter. Leaves oblong, membranaceous, 20 to 25 cm long, 8 to 10 cm wide, shining, somewhat olivaceous on the upper surface, the lower surface a little paler, base acute or somewhat decurrent-acuminate, 2-glandular, the glands prominent on the lower surface, not auricled, apex shortly and sharply acuminate, margin distinctly repand-denticulate; lateral nerves about 10 on each side of the midrib, distinct, anastomosing, the reticulations lax; petioles about 4 cm long. Peduncles solitary, axillary, up to 6 cm long, the cymes few-flowered. Staminate flowers greenish or nearly white, the fully mature buds clavate, about 1 cm long, the lobes 4, ovate, short. Stamens 4, narrowly oblong, about 3.5 mm long. Pistillate flowers and fruits not seen.
Basilan, Bur. Sci. 15495 Reillo, August, 1912.
A species well characterized by its oblong, thin, repand-denticulate leaves, which are acute or decurrent-acuminate at the base but not auriculate.

ADENIA PALMATIFOLIA sp. nov.
Scandens, glabra; foliis profunde palmato-5-lobatis, basi prominente subauriculato-glandulosis, lobis lanceolatis, rectis vel leviter falcatis, acuminatis, integris, usque ad 20 cm longis, 1.5 ad 2.5 cm latis; pedunculo elongato; fructibus (immaturis) circiter 6 cm longis, nitidis, ut videtur obovoideis.
A scandent, glabrous, herbaceous vine, the branches pale, striate, terete, 2 to 3 mm thick. Leaves chartaceous or subcoriaceous, pale when dry, slightly shining and of the same color on both surfaces, the base very broadly truncate or abruptly acute, subauriculate-glandular, 3- or obscurely 5-plinervced, the lamina up to 23 cm long, subreniform in outline, very deeply palmately 5-lobed, the lobes lanceolate, straight or somewhat falcate, entire, sharply acuminate, 8 to 20 cm long, 1.5 to 2.5 cm wide, the sinuses obtuse or acute, each with a prominent gland on the lower surface of the leaf, each lobe with a prominent midrib, the nerves slender, distinct, spreading at right angles, anastomosing; petioles 2.5 to 4 cm long. Peduncles up to 15 cm long, the tendril part short. Flowers not seen. Immature fruits apparently obovoid, about 6 cm long, shining, yellowish-brown when dry, the pericarp thin, brittle.

Luzon, Subprovince of Benguet, Sablan, Elmer 6262, April, 1904 (type), Bur. Sci. 12577 Fénix, December, 1910, in forests and thickets.

The specimens, or at least those of the last number cited, were distributed as Modecca parviflora Blanco, but that species is described as having 3-lobed leaves, while the present form has constantly 5-lobed leaves. It is suspected that Modecca triloba Blanco and M. parviflora Blanco are the same species, and moreover that they are only forms of Adenia coccinea (Blanco) Merr. (Modecca coccinea Blanco). There are several specimens in the herbarium of the Bureau of Science that present entire ovate leaves on the same branches with prominently 3-lobed ones. Modecca saponaria Blanco is a species of Momordica, and does not belong to the Passifloraceae. Adenia palmatifolia is well characterized by its deeply palmately 5-lobed leaves and its narrow, straight or falcate lobes.

**ADENIA CRASSA** sp. nov.

Scandens, glabra; foliis integris, ovatis, circiter 10 cm longis, basi late rotundatis, cordatis, auriculatis, apice acute acuminatis, chartaceis vel submembranaceis; fructibus ellipsoideis vel ovoideis, circiter 8 cm longis, pericarpio crassissimo; seminibus inaequilateraliter obovatis, compressis, foveolatis, 8 mm longis.

A scandent, glabrous, apparently herbaceous vine, the stems slender, pale, striate, terete. Leaves ovate, chartaceous or submembranaceous, 8 to 10 cm long, 5 to 7 cm wide, entire, base broadly rounded, prominently cordate, and biauriculate, the apex rather slenderly and sharply acuminate, both surfaces somewhat shining, the lower a little paler then the upper; base 5-nerved or somewhat 5-plinerved, the lateral nerves above the base one or two pairs, distinct, reticulations lax; petioles 1.5 to 2.5 cm long; peduncles axillary, solitary, slender, about 3 cm long, the cymes apparently few-flowered, the tendril-parts short. Flowers unknown. Fruit when fully mature about 8 cm long,
ellipsoid or ovoid, smooth, pale, shining, splitting into 3 valves, the pericarp very firm, about 2 mm thick; seeds numerous, compressed, inequilateral, about 8 mm long, pale, prominently pitted, base acute, apex somewhat oblique, their funicles up to 2 cm in length.

**BASILAN, Bur. Sci. 15419 Reillo, August, 1912.**

In vegetative characters somewhat similar to our common *Adenia coccinea* (Blanco) Merr., but in this species the pericarp of the mature fruit is very thin, almost membranaceous.

**THYMELAEACEAE**

**WIKSTROEMIA POLYANTHA** sp. nov.

A shrub or small tree, nearly glabrous, the branches terete, reddish-brown, glabrous, the branchlets obscurely puberulent, the younger ones with very short, appressed, cinereous hairs, somewhat angled or compressed. Leaves ovate to oblong-ovate, glabrous, brownish when dry, shining on both surfaces, the lower surface a little paler than the upper, the apex acute or very obscurely acuminate, the base broadly rounded, often obscurely cordate; nerves slender, about 8 on each side of the midrib, obscurely anastomosing; petioles reddish-brown, obscurely puberulent, 2 mm long or less. Racemes terminal or in the uppermost axils, appressed-hirsute, 2 to 3 cm long, many-flowered, the entire lower part thickly covered with the persistent pedicels of fallen flowers, the buds and open flowers crowded at the apices, the pedicels sparingly appressed-hirsute, stout, less than 1 mm long. Perianth cylindric, yellow, 10 to 11 mm long, about 1.5 mm in diameter, glabrous outside, or with very few scattered hairs in the upper part, the two outer lobes orbicular-elliptic, broadly rounded, 2.2 mm long, the two inner ones somewhat shorter and narrower. Stamens 8, 4 inserted at about the middle of the tube, 4 inserted near the apex, included; anthers narrowly oblong, 1.5 mm long. Ovary narrowly oblong, cylindric, 2.5 mm long, villous at the apex, glabrous below; style slender, about 1 mm long; stigma globose, 0.5 mm in diameter.
Fruit narrowly ovoid, fleshy, red, about 8 mm long, sparingly villous near the apex, otherwise entirely glabrous.

LUZON, Province of Rizal, near the summit of Mount Susung Dalaga, *Burm. Sci. 1924* Reillo, December 9, 1913.

A very characteristic species, quite distinct from the other Philippine forms in its many-flowered, somewhat elongated racemes, the rachises of which are rather densely covered with the short, persistent, stout pedicels.

**RHIZOPHORACEAE**

**GYNOTROCHES** Blume

**GYNOTROCHES PUBERULA** sp. nov.

Arbor parva, ramulis junioribus, subitus foliis stipulisque plus minusve puberulis vel breviter pubescentibus; folii oblongis, subcoriaceis, integris, acuminatis, basi acutis, usque ad 15 cm longis, nervis utrinque circiter 7, curvato-adscendentibus; fructibus axillaribus, fasciculatis, pedicellatis, ovoideis, circiter 4 mm longis.

A species very similar to *Gynotroches axillaris* Blume, differing chiefly in its indumentum. Branches slender, terete, brownish-red, somewhat compressed at the nodes, glabrous, the young branchlets puberulent. Leaves subcoriaceous, oblong, 10 to 15 cm long, 3 to 6 cm wide, pale or brownish when dry, shining, the base acute, the apex rather prominently acuminate, the upper surface quite glabrous, the lower distinctly puberulent or short-pubescent especially on the midrib and lateral nerves; lateral nerves about 7 on each side of the midrib, rather prominent, curved-ascending; petioles about 8 mm long, puberulent; stipules linear-lanceolate, 1.2 cm long, puberulent, deciduous. Fruits numerous, axillary, fascicled, red when mature, ovoid, about 4 mm long, the pedicels jointed at about the middle, about as long as the fruits, the persistent sepals ovate, acute, 1.5 mm long.


Very similar to and manifestly closely allied to *Gynotroches axillaris* Blume, from which it differs chiefly in its puberulent indumentum on the young branchlets, petioles, stipules, and lower surface of its leaves.

**ARALIACEAE**

**BOERLAGIODENDRON** Harms

**BOERLAGIODENDRON DIVERSIFOLIUM** sp. nov.

Frutex 2 ad 3 m altus, inflorescentiis exceptis glaber; foliiis coriaceis, valde diversis, majoribus usque ad 35 cm longis, usque ad $\frac{1}{2}$ vel $\frac{2}{3}$ palmatim 3- vel 5-lobatis, superioribus minoribus, ellipticis ad oblongo-ovatis, 15 ad 30 cm longis, margine grosse
irregulariter serratis; inflorescentiis terminalibus, plus minusve ferrugineo-furfuraceo-villosis vel hirsutis; floribus numerosis, 5-meris.

A shrub 2 to 3 m high, glabrous except the inflorescence, the branches terete, gray, 1 to 1.5 cm in diameter. Leaves crowded at the apices of the branches or of the simple (?) stem, coriaceous, exceedingly variable in form; larger leaves palmately 3- or 5-lobed, up to 35 cm long, the lobes reaching to the middle or lower two-thirds of the leaf, 5 to 11 cm wide, acuminate, coarsely and irregularly serrate, the sinuses rounded; other leaves on the same branchlets not at all lobed, elliptic to oblong-ovate, acuminate, coarsely and irregularly serrate; 15 to 30 cm long, 7 to 17 cm wide, the nerves prominent, more or less ascending; petioles 5 to 25 cm long, base with several crestlike ridges. Inflorescence terminal, crowded, furfuraceous-villos or hirsute with few to many short, brown hairs, the primary branches numerous, 2 to 3 cm long, each subtended by lanceolate, furfuraceous, and somewhat pectinate-ciliate bracts 2 to 2.5 cm long; central sterile head 1 to 2 cm in diameter, sessile or very shortly peduncled, the sterile fruits globose, fleshy, glabrous, purple when fresh, black when dry, 3 to 5 mm in diameter, the pedicels about as long as the fruits; each primary branch with two lateral branches bearing globose heads of perfect flowers, these lateral branches 2 to 3 cm long, the heads globose, dense, about 1.5 cm in diameter. Flowers many, densely disposed, 5-merous, yellowish, their pedicels stout, somewhat pubescent, 2 mm long. Calyx 2 mm long and wide, glabrous, truncate. Corolla 3.5 to 4 mm long, with 5, ovate, acute or obtuse, 1 to 1.2 mm long teeth; filaments 4 to 5 mm long; anthers about 1.7 mm long. Ovary 5-celled. Bracteoles numerous, brown-hirsute, broadly ovate, obtuse, 2 to 2.5 mm long. Entire inflorescence up to 15 cm in diameter.


A species characterized by its exceedingly variable leaves, these small to large, and entire to deeply 5-lobed. The variation somewhat parallels that of Boerlagiodendron heterophyllum Merr., but the species are very different from each other.

MYRSINACEAE

ARDISIA Swartz

ARDISIA ZAMBALENSIS nom. nov.

The above new name is necessary for this species as the one previously selected was preoccupied.

ARDISIA KEITHLEYI nom. nov.

Ardisia oblongifolia Merr. in Philip. Journ. Sci. 5 (1910) Bot. 219, non King & Gamble, 1905.

Dedicated to Lieutenant Keithley in whose honor Camp Keithley was named. The new name is necessary as the original specific name was preoccupied.

EBENACEAE

DIOXYROS Linnaeus

DIOXYROS ALVAREZII sp. nov.

Arbor circiter 15 m alta, glabra vel subglabra, ramulis tenuibus, leviter puberulis vel subglabris; foliis chartaceis, oblongo-ellipticis ad oblongis, usque ad 16 cm longis, utrinque subequaliter angustatis, basi acutis, eglandulosis, apice acutis vel obscure acuminitatis, nitidis, pallidis, nervis utrinque 5 vel 6, tenuibus, prominentibus, reticulis laxis; floribus axillaribus, ut videtur solitariis vel binis, pedicellatis 4-meris; fructibus depresso-globosis, junioribus 1.3 cm diametro, pubescentibus, 8-locellatis, calycibus persistentibus, coriaceis, tubo circiter 1.5 cm diametro, lobis late ovatis, 1.5 cm longis, reflexis.

A tree about 15 m high, nearly glabrous except the fruits (flowers unknown). Branches terete, very slender, the branchlets sometimes minutely puberulent. Leaves chartaceous, pale when dry, oblong-elliptic to oblong, 10 to 16 cm long, 4 to 7 cm wide, shining, subequally narrowed to the acute, eglandular base and to the acute or somewhat acuminate apex; lateral nerves 5 or 6 on each side of the midrib, distinct, slender, rather prominent, anastomosing, the reticulations lax; petioles 6 to 8 mm long. Flowers 4-merous, axillary, apparently solitary or in pairs, the pedicels, in fruit, minutely puberulent, 1.5 cm long or less. Young fruits depressed-globose, about 1.3 cm in diameter, grayish-pubescent with short, appressed hairs, apiculate; persistent calyx large and prominent, thickly chartaceous, externally more or less puberulent, the tube very shallow, up to 1.5 cm in diameter, 4-angled, the angles rather sharp, the lobes sharply reflexed, broadly ovate, obtuse, up to 1.5 cm long, more or less plicate when dry; fruit 8-celled.


A species well characterized by its chartaceous, distinctly but rather prominently nerved leaves, and especially by its prominent, accrescent, persistent, reflexed calyx which in young fruit is sharply 4-angled.
Diospyros Poncei sp. nov.

Arbor circiter 9 m alta, ramulis junioribus dense adpressae subferrugineo-hirsutis, foliis junioribus subitus obscure adpressae pubescentibus, fructibus subglobose, extus densissime ferruginoso-hirsutis, junioribus circiter 2 cm diametro; foliis oblongis ad oblongo-lanceolatis, coriaceis, usque ad 9 cm longis, in siccitate pallidis, nitidis, utrinque subaequaliter angustatis, basi acutis, apice acutis vel breviter acuminatis, nervis lateralibus obscuris; sepalis persistentibus, orbiculari-ovatis, circiter 6 mm diametro, adpressae hirsutis.

A tree about 9 m high, the branches terete, glabrous, wrinkled, dark gray, the younger ones reddish-brown, smooth, the growing parts densely appressed ferruginous-hirsute. Leaves coriaceous, oblong to oblong-lanceolate, 6 to 9 cm long, 1.4 to 2.8 cm wide, subequally narrowed to the acute base and to the acute or somewhat acuminate apex, eglandular, the upper surface pale olivaceous when dry, shining, glabrous, or the midrib in the lower part somewhat appressed-pubescent with pale, shining hairs, the lower surface paler than the upper, when young sparingly appressed-pubescent with pale hairs, when mature quite glabrous; lateral nerves slender, obscure, ascending, the primary ones about 12 on each side of the midrib, scarcely more distinct than are the secondary ones and the reticulations; petioles 5 mm long or less, appressed-hirsute when young, becoming glabrous in age. Flowers not seen. Fruits globose, the young ones about 2 cm in diameter, axillary, sessile or subsessile, solitary, the pericarp very densely hirsute with ferruginous or fulvous hairs. Sepals persistent, plane, coriaceous, orbicular-ovate, about 6 mm in diameter, rounded, outside rather densely appressed-hirsute with pale or ferruginous hairs.

Mindanao, Province of Surigao, Combot, For. Bur. 22842 Ponce, August 28, 1914, on semiopen slopes, altitude about 15 meters, locally known as ituman.

A species in many characters resembling the common Diospyros discolor Willd., and probably belonging in the same section as Willdenow's species. It differs remarkably, however, in its very much smaller, entirely differently shaped leaves which are quite glabrous on both surfaces when mature.

Diospyros Camarinensis sp. nov.

Arbor circiter 25 m alta, floribus exceptis glabra; foliis chartaceis, oblongis, usque ad 27 cm longis, breviter acuminatis, basi acutis vel subacutis, in siccitate nitidis, nigricientibus, nervis utrinque 12 ad 14, subitus distinctis, reticulis laxis; floribus axillaribus, fasciculatis, 4-meris, extus pubescentibus, calycis lobis erectis, acuminatis, corolla inflata; ovario 8-loculare; fructibus
globosis vel depresso-globosis, circiter 3 cm diametro, in siccatitate nigris, nitidis, glabris, seminibus 7 vel 8.

A tree about 25 m in height, quite glabrous except the flowers, the branches slender, terete, dark-colored, the branchlets and petioles black when dry. Leaves chartaceous, dark-colored or somewhat blackish when dry, shining, 14 to 27 cm long, 5 to 9 cm wide, of about the same color on both surfaces, the apex shortly acuminate, base acute to subacute, usually with a pair of distinct glands near the junction with the petiole; lateral nerves 12 to 14 on each side of the midrib, slender, distinct, anastomosing, the reticulations rather lax, distinct; petioles 1 to 1.5 cm long. Flowers axillary, fascicled, 4-merous, few in each fascicle, some in the axils of leaves, some in the axils of fallen leaves, each subtended by one or two pairs of broadly ovate, pubescent bracts 2 mm long or less. Calyx about 8 mm long and 7 mm in diameter, pubescent externally, black when dry, the lobes broadly ovate, acuminate, erect, about 4 mm long, 4 to 4.5 mm wide at the base. Corolla-tube 8 to 9 mm long, inflated, about 7 mm in diameter, much narrowed toward the throat, rather densely pubescent with short, grayish-brown hairs, the lobes 4, spreading, narrowly oblong, somewhat falcate, acute, thickly coriaceous, about 9 mm long, 5 mm wide. Stamens about 20, mostly in pairs, 2-seriate, the filaments of each pair more or less united; anthers narrowly lanceolate, acuminate, 3.5 to 5.5 mm long. Ovary ovoid, pubescent, about 4 mm in diameter, 8-celled; style stout, pubescent, widened below, about as long as the ovary, the stigma irregularly lacerate. Fruit globose or depressed-globose, yellow to red when mature, black and shining when dry, about 3 cm in diameter, the persistent calyx black, coriaceous, glabrous or nearly so, nearly square in outline, about 1.5 cm broad, shallow. Seeds 7 or 9, somewhat flattened, about 13 cm long, 7 mm wide, rounded at both ends, smooth, black, shining, the albumen smooth.

Luzon, Province of Camarines, For. Bur. 21443 (type) 21705, 22631 Alvarez, April and May, 1914, March, 1912, from Mount Calinigan, Mount Labo, and Lanot River, in forests, 100 to 500 meters.

The species is perhaps as closely allied to Diospyros maritima Blume as any other species, but with entirely different, much thinner, fewer nerves and different flowers and fruits.

MIMUSOPS Linnaeus

MIMUSOPS CALOPHYLLOIDES sp. nov.

Arbor circiter 18 m alta, floribus exceptis glaberrima; foliis oblongo-obovatis, subcoriaceis, usque ad 12 cm longis, obtusis ad rotundatis, basi acutis, nitidis, nervis lateralibus numerosissimis, densis, distinctis, margine recurvatis, venis marginalibus dis-
tinctis; floribus 6-meris, sepalis puberulis circiter 5 mm longis, exterioribus quam interioribus bis latoribus; staminibus 6; ovario glabro, 6-loculare; fructibus globosis, 2 ad 2.5 cm diametro, breviter apiculatis, glabris, pericarpio fragile.

A tree about 18 m high, entirely glabrous except the flowers. Branches dark-colored when dry, the younger ones marked with numerous, crowded, petiolar scars. Leaves subcoriaceous, oblong-obovate, 9 to 12 cm long, 2.5 to 5 cm wide, entirely glabrous on both surfaces, shining, subolivaceous when dry, the base acute, the apex obtuse to rounded, margins distinctly recurved; lateral nerves very numerous, slender but rather distinct, the primary ones not more prominent than the secondary ones and the reticulations, crowded, about 20 to a centimeter, uniting to form a distinct submarginal nerve about 1 mm from the edge of the leaf; petioles 2 to 2.5 cm long. Flowers axillary, 6-merous, their pedicels puberulent, in fruit thickened upward and about 2.5 cm long. Sepals 6, 2-seriate, puberulent, the outer three about 5 mm long, triangular-oblong, acute, the inner three as long as the outer ones but one-half as wide. Stamens 6. Ovary glabrous, 6-celled. Fruit globose, 2 to 2.5 cm in diameter, brown when dry, tipped by the very short style, glabrous, the pericarp brittle. Seeds 1 or 2 in each fruit, brown and shining, obtuse, about 1.5 cm long and 1 cm wide, slightly compressed.

MINDANAO, Province of Surigao, Cadyangan, For. Bur. 22834 Ponce, August 20, 1914, in rather dense forests at about sea level, locally known as duyuk-duyuk.

The alliance of this species is with the Malayan Mimusops kauki Linn. from which it differs in its leaves being entirely glabrous, even when very young, not at all pubescent on the lower surface, its much more distinct lateral nerves, giving the leaves quite the appearance of those of some species of Calophyllum, and the distinct marginal veins.

OLEACEAE

LINOCIERA Swartz

LINOCIERA OBOVATA sp. nov.

Arbor parva, ramulis junioribus inflorescentiisque minute puberulis exceptis glabra; foliis crassissime coriaceis, obovatis, 4 ad 7 cm longis, apice late rotundatis vel late breviter acuminatis, basi angustatis, decurrento-acuminatis, nervis lateralibus obscuris, circiter 8 utrinque. Cymis axillaribus, solitariis, anguste pyramidatis, dense multifloris, sessilibus.

A small tree, glabrous except the minutely puberulent branchlets and the inflorescence. Branches gray, stout, terete, glabrous. Leaves very thickly coriaceous, obovate, 4 to 7 cm long, 2 to 4.5 cm wide, pale when dry, the upper surface shining, the
lower dull, apex broadly rounded, sometimes very shortly and broadly acuminate, sometimes even slightly retuse, the base narrowed and more or less decurrent on the petioles, the margins recurved; lateral nerves indistinct, often subobsolete, about 8 on each side of the midrib; petioles 1 to 1.5 cm long. Cymes panniced, axillary, sessile, solitary, densely many-flowered, branched from the base, slightly puberulent, brown when dry, 2 to 4.5 cm long, 2 to 3 cm wide, the branches spreading. Flowers 4-merous, the buds ellipsoid or obovoid, about 2 mm long, their pedicels 1 to 3 mm long. Calyx-teeth broadly triangular, acute, short. Mature flowers and fruits not seen.

**Luzon, Province of Laguna, San Antonio, in forests, Bur. Sci. 15014 Ramos (type), Phil. Pl. 1161 Ramos, June, 1912.**

A very characteristic species, recognizable by its very thick, obovate, obscurely nerved leaves, and by its dense pyramidal inflorescence.

**Linociera nitida** sp. nov.

Ut videtur arbor parva, glabra; foliis oblongis, in siccitate nitidis, subcoriaceis, oblongis vel late oblongis, usque ad 18 cm longis, basi rotundatis vel subacutis, apice brevissime acuminate, nervis utrinque circiter 8, patulis, prominentibus, anastomosantibus, reticulis obsoletis vel subobsoletis; racemis brevibus, 1 ad 1.5 cm longis, solitariis vel fasciculatis, axillaribus, densifloris; floribus 4-meris, 5 mm longis.

Apparently a small tree, glabrous, the branches terete, smooth, light gray. Leaves oblong or broadly oblong, subcoriaceous, 12 to 18 cm long, 5 to 7 cm wide, entire, brown when dry, or the upper surface somewhat olivaceous and the lower surface brown, shining on both surfaces, smooth, the base broadly rounded or somewhat acute, the apex very shortly and somewhat abruptly acuminate; lateral nerves 7 or 8 on each side of the midrib, prominent, spreading at nearly right angles, somewhat curved, anastomosing, the reticulations obsolete or nearly so; petioles dark brown, 2 to 3 mm long. Racemes short, axillary or in the axils of fallen leaves, solitary or somewhat fascicled, 1 to 1.5 cm long, densely flowered, quite glabrous or very obscurely and sparsely puberulent, the bracts broadly ovate, acute or acuminate, 1.5 mm long. Sepals ovate, acute, about 1 mm long. Petals 4, narrowly oblong, thick, 5 mm long, about 1 mm wide, slightly narrowed upward, the apex obtuse, somewhat cucullate, the margins somewhat inflexed. Anthers about 1 mm long, the connective very broad.

**Basilan, Bur. Sci. 15406 Reillo, August 11, 1912, in forests.**

A species well characterized by its vegetative characters, especially by its leaves being brown when dry and with obsolete or nearly obsolete
reticulations, and its short, many-flowered, mostly fascicled, racemose inflorescence.

**LINOCIERA PALUDOSA** King & Gamble in Journ. As. Soc. Beng. 74 (1905) 268.

Palawan, Taytay, Merrill 9177, 9335, Phil. Pl. 1873 (as *L. euphlebia* Merr.), April, May, 1913.

The specimens are not quite identical with King's collector 6It76 from Larut, Malay Peninsula, a duplicate of one of the specimens cited in the original description. I can, however, detect no essential differences and prefer to consider the Philippine form under King & Gamble's specific name. Previously known only from the Malay Peninsula.

**BORAGINACEAE**

**HELIOTROPIUM** Linnaeus

**HELIOTROPIUM OVALIFOLIUM** Forsk. var. **DEPRESSUM** (Cham.) Merr. in Philip. Journ. Sci. 9 (1914) Bot. 134.

*Heliotropium gracile* R. Br. var. *depressum* Cham. in Linnaea (1829) 457.

*Heliotropium coromandelium* Retz. var. *depressum* A. DC. Prodr. 9 (1845) 542.

Luzon, Province of Laguna, Calamba, along the shores of Lake Bay, F. C. Gates 6651, July 27, 1913.

This species, other than the record of F.-Villar, sub *H. coromandelium* Retz., is new to the Philippines. The specimen cited above agrees in all essentials with our Guam material, the type of the variety *depressum* being from Guam. It differs from the Indian material notably in its relatively longer and much narrower leaves. Forskål's specific name dates from the year 1775, Retzius's name from the year 1781.

India, Tropical Africa, and Australia, the variety in Luzon and the Mariana Islands (Guam).

**GESNERIACEAE**

**TRICHOSPORUM** D. Don

**TRICHOSPORUM BAKERI** sp. nov. § *Holocalyx*.

Scandens, ramulis junioribus plus minusve pilosus; foliis coriaceis, in siccitate pallidis, ovatis ad elliptico-ovatis, usque ad 4.5 cm longis, obtusis vel late obscure obtuseque acuminatis, basi rotundatis, nervis lateralis circiter 3, obscurissimis vel obsoletis; floribus glaberrimis, 5.5 cm longis, corolla quam calycis duplo longioribus.

Scandent, slender, elongated, the stems terete, grayish, wrinkled, 3 mm in diameter or less, rooting at the nodes, sparingly branched, the younger branchlets rather densely villous. Leaves numerous, when fresh apparently fleshy, when dry coriaceous or subcoriaceous, pale, dull or slightly shining, the
nerves and reticulations obsolete, or sometimes about 3 pairs of lateral nerves evident but obscure, 2 to 4.5 cm long, 1.5 to 3.8 cm wide, base rounded to obscurely cordate, apex obtuse to broadly and obscurely blunt-acuminate, the younger ones often slightly villous on the margins; petioles 2 to 4 mm long, when young more or less villous, when old quite glabrous. Flowers apparently dark red, on short, 1- or 2-flowered peduncles in the uppermost axils. Calyx cylindric, quite glabrous, about 2.5 cm long, very shallowly lobed, slightly enlarged upward. Corolla about 5.5 cm long, entirely glabrous, somewhat curved, contracted above the base, then expanded, the lobes broad, subequal; stamens slightly exserted; style pubescent in the lower one-half.

Luzon, Province of Laguna, hills back of Paete, C. F. Baker 3714 (type), 3719, December 28, 1914; Mount Maquiling, Bur. Sci. 16889 Serviñas, November, 1912, trailing over bowlers or ledgers.

A species similar to and manifestly closely allied to Trichosporum loheri (Kränzlin) [Aeschynanthus loheri Kränzlin. in Philip. Journ. Sci. 8 (1913) Bot. 165], from which it differs in its much slenderer, entirely glabrous flowers. Kränzlin describes the flowers of Trichosporum loheri as glabrous, but both the calyx and corolla are distinctly but minutely pubescent externally.

ACANTHACEAE

ASYSTASIA Blume


Justicea gangetica Linn. Amoen. Acad. 4 (1759) 299.


The above is the first verification of F.-Villar’s record for this genus and species as a Philippine plant. Widely distributed in tropical Asia, Africa, and Malaya.

POLYTREMA C. B. Clarke

POLYTREMA ADDISONIENSE (Elmer) comb. nov.


The type number of this is Elmer 12715, from Addison Peak, Palawan; the same species is apparently represented by Merrill 7235 from Ulugan Bay, Palawan, September, 1910. It is not a Hypoestes but is congeneric with the three species of the Malay Peninsula for which C. B. Clarke has proposed the generic name Polytrema. The Palawan species is apparently closely allied to Polytrema vulgare C. B. Clarke. The genus appears to be very closely allied to Hallieracantha Stapf. Here I also refer the following species:
POLYTREMA PULGARENSE (Elmer) comb. nov.


The type is _Elmer 12785_, from Mount Pulgar, Palawan, and is not matched by any other collection so far received.

POLYTREMA AEOQUIFOLIUM C. B. Clarke sp. nov.

Procumbens, radicans, parum pilosa, folii oppositis, aequa-libus, lamina 6 ad 7 cm longa, elliptica aut lanceolata, petiolo 5 ad 10 mm longo; corolla 11 ad 12 mm longa; capsula 15 mm longa, glabra; seminibus 4, minute verrucosis.

Resembling a weak axillary-flowered _Justicia_, the corolla and capsule much as in that genus. Stamens 2; anther-cells parallel, oblong, at equal height, muticus. Pollen globose, minutely granular, without bands, with 4 (or more) stopples. Cymes 5- to 1-flowered, small, axillary. Calyx-segments 5, linear, 6 mm long; bract lanceolate, shorter than the calyx.


The above description was supplied to me by the late C. B. Clarke some time before his death, but was not printed then as the description of the genus had not been published at that time.

LEPIDAGATHIS Willdenow

LEPIDAGATHIS PALAWANENSIS sp. nov.

Herba erecta usque ad 60 cm alta, haud vel parce ramosa, subtus folii ad nervis ramulisque prominentes subfurfuraceopubescentibus, inflorescentiis dense albido-ciliato-pilosis; folii chartacei, oblongo-ovatis, usque ad 12 cm longis, integris vel obscure undulatis, obtusis vel subacutis, base longe decurrente-acuminatis, nervis utrinque 8 vel 9, subtus prominentibus; spicis axillaribus terminalibusque, fasciulatis, densis, usque ad 5 cm longis, calycis lobis bracteisque dense ciliato-pilosis; capsulis 5 mm longis, 4-angulatis.

An erect, unbranched or sparingly branched herb up to 60 cm in height, the stems terete, about 4 mm in diameter, the younger parts obscurely 4-angled, rather prominently subfurfuraceous-pubescent as are the nerves on the lower surface of the leaves and petioles. Leaves in equal pairs, oblong-ovate, chartaceous, 9 to 12 cm long, 3.5 to 6 cm wide, the upper surface olivaceous, shining, glabrous, with scattered, short cystoliths, the lower surface a little paler, apex obtuse or subacute, base long-decurrent-acuminate, winging the petiole nearly to its base, the petioles 3 to 4 cm long; lateral nerves 8 or 9 on each side of the midrib, prominent on the lower surface. Spikes axillary and terminal,
numerous, fascicled, up to 5 cm in length, dense, many-flowered, ciliate-pilose with white hairs. Bracts oblong-lanceolate, acuminate, about 4.5 mm long, 1.5 mm wide, imbricate, prominently ciliate-pilose with white hairs as are the sepals. Sepals 5, four narrowly lanceolate, acuminate, 4 mm long, 0.8 mm wide, the other as long but twice as wide. Corolla at least 5 mm long, the lobes subequal, rounded. Capsule oblong-lanceolate, narrowed upward, 4-angled, about 5 mm long, slightly puberulent toward the apex; seeds 4.1 mm in diameter, the margins rather prominently ciliate.

Palawan, Taytay, Merrill 9760, April, 1913, in dry thickets along trails at sea level.

Perhaps as closely allied to Lepidagathis mindorensis Merr. as any other species, but the indumentum not at all capitate-glandular and the leaves entirely different in shape, not rounded or cordate at the base and with short petioles, but long decurrent-acuminate and long-petioled.

LEPIDAGATHIS MINDORENsis sp. nov.

Herba erecta circiter 20 cm alta; foliis oblongo-lanceolatis, subcoriaceis, glabris, usque ad 9 cm longis, basi late rotundatis vel subcordatis, supra sensim angustatis, obtusis vel obscure obtuse acuminatis, breviter petiolatis; spicis terminalibus dense fasciculatis, 2 ad 4 cm longis, angustis, densis, calycis segmentis bracteisque capitato-glandulosis, plus minusve dense ciliato-pilosis; capsulis dense cinereo-pubescentibus.

An erect herb about 20 cm high, somewhat branched, the basal parts of the stems somewhat woody, terete, glabrous, grayish-brown, the younger parts distinctly 4-angled, brown, more or less densely covered with weak, crisp, brownish hairs. Leaves in equal pairs, oblong-lanceolate, subcoriaceous, 5 to 9 cm long, 2 to 3 cm wide, widest in the lower part, gradually narrowed upward to the blunt, or slightly blunt-acuminate apex, the base broad, rounded or subcordate, margins slightly undulate, the upper surface glabrous and shining, the lower when young somewhat puberulent on the midrib and nerves; nerves slender, distinct beneath, anastomosing and forming a submarginal nerve; petioles pubescent, 2 to 4 mm long. Spikes terminal, fasciculate, many at the apex of each branch, crowded, 2 to 5 cm long, less than 5 mm in diameter, the bracts and calyx-segments rather densely ciliate-pilose, with numerous glandular-capitate hairs intermixed. Bracts narrowly lanceolate, slenderly long-acuminate, about 4 mm long, less than 1 mm wide, 1-nerved. Calyx-segments all 1-nerved, slenderly acuminate, narrowly lanceolate, one
about 1.2 mm wide, two slightly less than 1 mm wide, the fourth cleft to within about 1 mm of the base. Corolla pink, pubescent outside, 5 mm long, the tube slightly narrowed upward, not abruptly contracted, the upper lip about 1.3 mm wide, rounded or very obscurely retuse, the lower one cleft into three obtuse lobes about 1.2 mm long and 1 mm wide. Anthers 0.5 mm long, the cells parallel. Capsule narrowly oblong-ovate, densely cine- reous-pubescent with short hairs.

MINDORO, Bulalacao, in rocky soils along streams, altitude about 50 meters, **Bu. Sci. 6702** Robinson, March 17, 1909.

A species well characterized by its firm, short-petioled leaves which are rounded or subcordate at the base, and by its narrow, dense, fasciculate spikes, the bracts, bracteoles, and calyx-segments being rather densely ciliate-pilose and capitate-glandular, and in its capsules being densely cinereous-pubescent.

**LEPIDAGATHIS CLARKEI** sp. nov.

Species *L. incurvae* Don affinis differt spicis oblongis, solitariis vel subsolitariis, bracteis majoribus, margine parce ciliatis exceptis glabris, in siccitate brunneo purpureis, vel brunneo-purpureis.

An erect herbaceous plant 20 to 30 cm high, not or but slightly branched, the basal part rarely decumbent. Stems brown or olivaceous, glabrous, slender, terete or slightly angled. Leaves in equal pairs, ovate to oblong-ovate, membranaceous, greenish when dry, slightly shining and somewhat paler on the lower surface than on the upper, 5 to 10 cm long, 2.5 to 4.5 cm wide, the base usually long and slenderly decurrent-acuminate, the apex acute or obscurely acuminate, margins entire, both surfaces with scattered, short cystoliths, glabrous; lateral nerves about 6 on each side of the midrib, slender; petioles 1 to 2.5 cm long. Spikes solitary, terminating the stem and the short, axillary branches, the whole inflorescence appearing compound, the individual spikes oblong, 2 to 5 cm long, about 1.5 cm in diameter, the bracts lanceolate, long and slenderly acuminate, about 11 mm long, 2 mm wide, brown or brown-purple when dry, 3-nerved, with distinct transverse reticulations in the upper part, glabrous except the slightly ciliate margins. Calyx-lobes all acuminate, one lanceolate, 3-nerved, with transverse reticulations in the upper half, about 10 mm long, 2.1 mm wide, two linear, 9 mm long, the fourth one cleft to within 4 mm of the base, the lobes about 2 mm wide, with a prominent midnerve and each with a pair of marginal nerves, all the segments slightly ciliate on the margins, otherwise glabrous. Corolla 8 mm long, white, glabrous, the tube slightly constricted, the lobes four, subequal, oblong, obtuse,
about 2.5 mm long, 1 to 1.2 mm wide. Capsule oblong, 6 mm long, 2 mm wide, glabrous.

Luzon, Province of Bataan, Lamao River, Williams 37, October, 1903 (type), Merrill 3119, October, 1903, Whitford 493, July, 1904, on damp shaded banks along the stream at an altitude of 150 meters or less.

One of the specimens (Whitford 493) was identified by the late C. B. Clarke as Lepidagathis incurva Don (L. hyalina Nees), but it seems to me to be specifically distinct from that species. The brown or brown-purplish color of the spikes is characteristic. It is the form previously reported by me as Lepidagathis incurva Don.¹⁰

LEPIDAGATHIS SUBINTERRUPTA sp. nov.

Herba parva, prostrata, ramis floriferis suberectis, vix 10 cm altis, inflorescentiis exceptis glabra; foliis parvis, oblongis, usque ad 2.5 cm longis, breviter petiololatis, obtusis vel obscure acuminatis; spicis terminalibus, gracilibus, plus minusve interruptis, solitariis vel subfasciculatis, terminalibus, usque ad 5 cm longis; calycis segmentis bracteisque leviter ciliatis capitato-glandulosisque.

A small prostrate herb, glabrous except the inflorescence, the stems 4-angled, slender, rooting at the nodes, the flowering branches erect or suberect, 10 cm high or less. Leaves in equal pairs, mostly oblong, chartaceous, 1 to 2.5 cm long, 4 to 8 mm wide, glabrous, somewhat shining, paler on the lower surface than on the upper, both surfaces with small scattered cystoliths, the base acute or somewhat decurrent-acuminate, the apex obtuse or obscurely acuminate; petioles 1 to 3 mm long. Spikes terminal, solitary or at most three together, slender, interrupted, 1 to 5 cm long, about 5 mm in diameter, the flowers somewhat scattered. Bracts and bracteoles similar, lanceolate, acuminate, 3 to 4 mm long, less than 1 mm wide, 1-nerved, slightly ciliate and capitate-glandular. Calyx-segments 5, 3 to 4 mm long, obscurely ciliate and slightly capitate-glandular, one about 1.2 mm wide, the other four similar but less than 1 mm wide. Corolla white, 4 mm long, the tube not contracted, the upper lip 1.5 mm long, 1.1 mm wide, rounded or very obscurely retuse, the lower one 3-lobed, the lobes about 1 mm long, 0.8 mm wide, obtuse. Capsule glabrous, 4 mm long, the seeds brown, about 1 mm in diameter.

Luzon, Province of Isabela, San Luis, Bur. Sci. 8024 Ramos, May, 1909, on bowlders along shaded streams.

A species probably most closely allied to Lepidagathis laxa Nees, differing especially in its much smaller leaves.

LEPIDAGATHIS MACGREGORII sp. nov.

Species L. laxae Nees ut videtur affinis, differt foliis oblongo-ovatis, multo majoribus, usque ad 12 cm longis, 5 cm latis, floribus 4-meris, spicis longioribus, calycis segmentis bracteisque leviter ciliatis, vix glandulosis.

Erect, nearly glabrous, the branches quadrangular, slender, often somewhat puberulent at the nodes, reddish-brown. Leaves in equal pairs, membranaceous, glabrous, oblong-ovate, 10 to 12 cm long, 4.5 to 5 cm wide, somewhat shining when dry, slightly paler on the lower surface than on the upper, the base rather abruptly and shortly decurrent-acuminate, the apex acute or slightly acuminate, margins somewhat undulate, both surfaces with small, scattered cystoliths, the lower one sometimes slightly puberulent along the midrib; lateral nerves 7 or 8 on each side of the midrib, curved, anastomosing; petioles 1 cm long or less. Spikes fasciculate, from one to three on each peduncle, the peduncles very short or up to 4 cm in length, crowded in the upper axils, the spikes slender, 2 to 6 cm long, 5 to 6 mm in diameter. Bracts and bracteoles similar, lanceolate, acuminate, 1-nerved, 4 to 5 mm long, 1.2 mm wide, margins slightly ciliate with short hairs, otherwise glabrous, not at all glandular. Calyx-segments all acuminate, slightly ciliate on the margins, not glandular, one lanceolate, 5 mm long, 1.3 mm wide, very obscurely 3-nerved, not reticulate, two linear-lanceolate, less than 1 mm wide, the fourth cleft to within 2.5 mm of the base, the lobes lanceolate, about 1 mm wide. Corolla apparently white, 5 mm long, glabrous, the tube not or very slightly contracted, the upper lip elliptic-ovate, slightly retuse, 1.5 mm wide, the lower one cleft into three, oblong, obtuse lobes, about 2 mm long, 1 mm wide. Anthers about 0.8 mm long. Capsule 4.5 mm long, glabrous except the puberulent apex.

MINDORO, Baco River, McGregor 128, March 15, 1905.

A species well characterized by its slender, nearly glabrous spikes; it is similar to Lepidagathis laxa Nees in some respects, but differs from that form in the points indicated in the diagnosis; from L. incurva Ham., to which it is also manifestly allied, it differs in its slender, nearly glabrous spikes.

LEPIDAGATHIS HUMILIS sp. nov.

Herba parva, plus minusve prostrata, ramis floriferis erectis vix 10 cm altis; foliis in paribus inaequalibus, breviter petiolatis, ovatis vel late ovatis, usque ad 2 cm longis, basi late truncatis, rariter leviter cordatis vel decurrentibus; spicis axillaribus terminalibusque, solitariis, laxis, angustis, usque ad 5 cm longis, vix 5 mm latis, calycis lobis bracteisque vix ciliatis, leviter hispidis.
A small, nearly glabrous herb, the stems prostrate and rooting at the nodes, 4-angled, obscurely puberulent or glabrous, the flower-bearing branches erect, slightly branched, less than 10 cm tall. Leaves in unequal pairs, the larger ones of each pair ovate to broadly ovate, 1.5 to 2 cm long, about 1.5 cm wide, the base broad, truncate or sometimes subcordate, rarely somewhat decurrent, the apex acute or blunt, margins slightly undulate, the smaller leaves of each pair similar but less than one-half as large, both surfaces with small, scattered cystoliths; petioles 3 mm long or less. Spikes terminal and axillary, solitary, slender, 1 to 5 cm long, less than 0.5 cm in diameter, somewhat interrupted, the bracts and bracteoles similar, broadly lanceolate, acuminate, 1-nerved, about 3 mm long, 0.8 mm wide, very slightly hispid, not ciliate nor glandular. Calyx-segments all acuminate, obscurely hispid with short hairs, not ciliate, 3 to 4 mm long, one 1.2 mm wide, very obscurely 3-nerved, very obscurely reticulate above, two narrowly lanceolate, 0.7 mm long, 1-nerved, the fourth cleft to within 1.5 mm of the base, the lobes lanceolate, 1-nerved. Corolla 4 mm long, pale pink, glabrous, the tube not constricted, the upper lip 1.5 mm long, 1.1 mm wide, rounded, the lower one 3-cleft, the lobes elliptic-ovate, obtuse, nearly 1 mm wide. Anthers 0.6 mm long, the cells parallel.

MINDANAO, District of Davao, Santa Cruz, Williams 2955, June 19, 1905. A species perhaps as closely allied to Lepidagathis tenuis C. B. Clarke as to any other Philippine species, but quite distinct from that form. Well characterized by its small size, small, unequal, broadly ovate, short-petioled leaves and its slender, nearly glabrous spikes.

**RUPELLIA Linnaeus**

**RUPELLIA PANAYENSIS** sp. nov.

Species *R. nudispicae* C. B. Cl. affinis, differt brevissime petiolatis, inflorescentiis fasciculatis haud solitariis tenuioribus, interdum ramosis.

An erect herb about 20 cm in height, simple or sparingly branched, the stems terete, 2.5 mm in diameter or less, ciliate-hirsute, the younger parts rather densely so. Leaves oblong-ovate, chartaceous, 4 to 9 cm long, 2 to 4 cm wide, somewhat olivaceous, shining, apex rounded, base acute or subacute, the upper surface glabrous, the lower more or less hirsute with short hairs especially on the midrib and nerves, margins entire or obscurely undulate; lateral nerves about 8 on each side of the midrib, slender; petioles pubescent, 3 to 5 mm long. Inflorescence mostly spikelike, apical, fascicled, 3 or 4 from each stem, 8 to 12 cm long, slender, glabrous or very slightly pubescent,
occasionally branched, mostly simple. Bracts linear, 2, acuminate, 2.5 mm long. Sepals 5, equal, linear-lanceolate, acuminate, about 8.5 mm long, 1 mm wide, slightly pubescent, free to the base. Corolla (very young) apparently about 1 cm long; stamens 4, all fertile, the anthers 2-celled, cells contiguous. Ovary oblong, glabrous; style-arms one only, short. Capsule linear, slightly pubescent, 8 to 9 mm long, 1.5 mm wide, the sides parallel, seed-bearing to the base. Seeds about 12, on retinacula, somewhat compressed, about 1 mm in diameter.


It is not entirely clear that the specimen came from Panay, as from the field label it seems probable that it was collected on the neighboring Island of Romblon; the locality is given simply as “Capiz, Mount Romblon.” The species is manifestly allied to Ruellia nudispica C. B. Clarke (Gymnostachyum nudispicum Elm.), which is a true Ruellia in the sense that Clarke and Lindau interpret the genus; it differs notably in its inflorescence which consists of fascicled spikes, rarely branches, instead of solitary spikes.

**HEMIGRAPHIS Nees**

**HEMIGRAPHIS BAKERI** sp. nov.

Planta parva, glabra vel subglabra, circiter 20 cm alta, parce ramosa, ramulus plus minusve geniculatis, tenuibus; foliis in paribus aequalibus, obovato-oblongis, obtusis, integris vel leviter undulatis, basi angustatis, cuneatis, usque ad 3 cm longis; spicis tenuibus, paucifloris, bracteolis angustis, quam sepalis haud latioribus, 4 ad 5 mm longis; calycis lobis lineari-lanceolatis, acuminatis, circiter 5 mm longis, glabris; corolla 11 mm longa; capsulis lineari-oblongis, 7 mm longis, 1.7 mm diametro, seminibus circiter 12.

A small, nearly glabrous, sparingly branched plant 20 cm high or less, the branches slender, more or less geniculate in the lower part, the very young ones slightly pubescent, soon quite glabrous. Leaves opposite, those of each pair equal, oblong-obovate; chartaceous greenish-olivaceous when dry, with prominent cystoliths on the upper surface, apex rounded to obtuse, base gradually narrowed, cuneate, margins entire or obscurely undulate, 1 to 2.5 cm long, 4 to 8 mm wide, the lateral nerves about 4 on each side of the midrib, slender; petioles 2 mm long or less. Spikes terminal, slender, few-flowered, up to 5 cm long, the flowers distant, bracteoles not imbricate except toward the tips of the spikes. Calyx about 8 mm long, glabrous, the tube 3 mm long, the lobes 5, linear-lanceolate, acuminate, equal, about 0.6 mm wide below. Corolla about 11 mm long. Anthers 1.3 mm long. Capsule linear-oblong, about 7 mm long, 1.7 mm wide, apiculate, glabrous,
not at all clavate. Seeds about 12, brown, slightly compressed, obtuse, base inequilaterally cordate, somewhat shaggy-ciliate, about 1.5 mm long. Bracteoles linear, 4 to 5 mm long, green, 1 mm wide or less, the lower ones slightly spatulate, glabrous.


A species probably belonging in the group with *Hemigraphis fruticulosa* C. B. Clarke, but nearly or quite glabrous, with entirely differently shaped leaves and relatively very narrow bracteoles.

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NEW OR NOTEWORTHY PHILIPPINE PLANTS, XIII

By E. D. Merrill

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The last paper under this title was published in 1915, the present contribution being essentially similar to the preceding ones of the series. Seventy-two species in thirty-four families are described as new, the groups considered being those that for the most part present comparatively few novelties in current collections. One new genus, Ilocania, of the Cucurbitaceae, is described. Eight species previously described from extra-Philippine material are for the first time credited to the Archipelago, representatives of these having appeared in our current collections; among these the genus Zippelia is new to the Archipelago. A noteworthy species, presenting another striking case of Philippine-Australian distribution is the rare and very characteristic Ipomoea diversifolia R. Br., which has definitely been reported only from the small islands in the Gulf of Carpentaria, but which now appears in our collections from northwestern Luzon. Sida longistipula Merr., described below, a very characteristic and strongly marked species, finds its alliance with a few Australian species rather than with the Asiatic representatives of the genus. Vitex celebica Koord. adds another species to the already long list of those known only from the Philippines and Celebes.
ARACEAE

ALOCASIA Schott

ALOCASIA WENZELII sp. nov. § Eualocasia.

Planta magna, glabra; foliis longe petiolatis, usque ad 1 m longis, haud peltatis, oblongo-ovatis vel ovatis, coriaceis, nitidis, laevis, margine cartilagineis, sursum angustatis, apice obtusis ad leviter acuminatis, basi profunde lobatis, lobis oblongis, obtusis, 30 ad 50 cm longis; nervis subtus valde prominentibus, utrinque 8 ad 11, patulis, basilaribus deflexis usque ad apicem loborum attingentibus; inflorescentiis longe pedunculatis, spathis oblongis, acutis, usque ad 12 cm longis et 2.5 cm latis, vetustioribus reflexis, spadices circiter 10 cm longis.

A large, coarse, glabrous plant, the caudices in old plants up to 0.7 m high and 15 cm in diameter. Petioles stout, up to 1 m in length, when fresh green and mottled or horizontally striped. Leaf-blades oblong-ovate, up to 1 m in length and 45 cm in width in the widest part, pale-olivaceous when dry, from the tip of the basal lobes to the apex attaining a length of 1 m, coriaceous, somewhat shining, smooth on both surfaces, the margins prominently cartilaginous, entire; basal lobes not spreading, oblong, obtuse, attaining a length of 50 cm, the sinus extending to the insertion of the petiole, usually narrow, acute; apex obtuse to obscurely acuminate, the blade gradually narrowed from base to apex; lateral nerves 8 to 11, very prominent on the lower surface, spreading at nearly right angles except the basal pair which is deflexed and extends quite to the tip of the basal lobes, emitting from one to three prominent veins on the outer side; reticulations obscure. Inflorescences numerous, their peduncles up to 45 cm in length. Tube of the spathe oblong, about 2 cm long, the limb at first boat-shaped, oblong, acute or somewhat apiculate, about 12 cm long and 2.5 cm wide, white, ultimately reflexed and deciduous. Spadix cylindric, erect, up to 10 cm in length, the basal pistillate portion about 1.5 cm long and less than 1 cm in diameter, the staminate portion 3 to 3.5 cm long, cylindric, somewhat thicker than the pistillate portion, the appendage acute or acuminate, cylindric, about equalling the staminate and pistillate portions of the spadix. Staminate and pistillate flowers crowded. Stigmas sessile, subcapitate, scarcely lobed. Apex of the anther-bearing body truncate, crenate, about 2 mm in diameter, anthers apparently 8 to 10. Fruiting spadices ovoid or ellipsoid, when dry about 3 cm long.

LEYTE, Dagami, Wenzel 97 (type), March 28, 1918, on forested slopes, altitude about 60 meters. BILIRAN, Bur. Sci. 18929 McGregor, June 22,
1914, in forests, altitude about 300 meters. SAMAR, Catubig River at Pinipisakan, *Bur. Sci. 24* 266 Ramos, March 21, 1916, in forests along the river. MINDANAO, Agusan Subprovince, Amparo, *For. Bur. 7615 Hutchinson*, August 23, 1907, in open forests, altitude about 30 meters. It is known in Leyte as *biga*, the common name for *Alocasia macrorrhiza* Schott, and in Samar as *handuroy*.

A remarkable species belonging in the same group with *Alocasia macrorrhiza* Schott, to which, however, it is not closely allied. It is well characterized by its large, oblong-ovate, coriaceous, very smooth, shining leaves, the basal lobes deflexed, not at all spreading, often attaining a length of one-half the lamina, and its very obscure reticulations.

**Alocasia maquilingensis** sp. nov. § *Eualocasia*.

Planta robusta, pedunculis et subitus foliis furfuraceo-hispidulis; foliis late ovatis, usque ad 90 cm longis et 50 cm latis, obtusis vel obscure acuminatis, haud peltatis, lobis latissimae ovatis, rotundatis, comparate brevibus, nervis utrinque circiter 10 utrinque, subtus valde prominentibus, patulis, curvatis, basilari-bus utrinque pinnati-nervosis, leviter deflexis, usque ad apicem loborum attingentibus, reticulis prominentibus; inflorescentiis numerosis, pedunculis usque ad 30 cm longis; spathis circiter 10 cm longis, tubo sub fructu accrescentibus, albis, carnosis, oblongo-ovoideis, usque ad 8 cm longis; spadicis 8 ad 10 cm longis.

A robust plant, the caudices in old specimens stout, attaining a height of about 0.3 m, perhaps higher. Leaves membranaceous, broadly ovate, up to 90 cm long and 50 cm wide, entire, apex obtuse to obscurely acuminate, base not at all peltate, with two very broad, rounded lobes which are at most 20 cm long, and as wide or wider than long, the sinus rather broad, somewhat rounded, the upper surface, when dry, minutely puncticulate-verruculose, the lower uniformly and distinctly furfuraceous-hispidulous on the nerves and reticulations; lateral nerves about 10 on each side of the midrib, prominent on the lower surface, spreading, curved, the basal pair somewhat deflexed and reaching the tip of the lobes, bearing from 3 to 5 pinnately arranged secondary nerves on each side; petioles stout, up to 1.5 m in length, rather densely furfuraceous-pubescent. Inflorescences numerous, up to 30 on each plant, their peduncles pubescent, up to 30 cm in length. Spathes about 10 cm long, the tubular portion 1 to 1.5 cm long, the limb lanceolate or oblong-lanceolate, membranaceous, about 6 cm long, acuminate. Pistillate portion of the spadix about 1 cm long, the flowers crowded; style short, distinct; stigma obscurely lobed. Staminate portion of the spadix about 2 cm long, cylindric, the sterile appendage about 5 cm long. Fruiting spathe ovoid or oblong-ovoid, white, fleshy, up to 8 cm in length, the fruits fleshy, red.
Luzon, Laguna Province, Mount Maquiling, Baker 868 (type), March 1, 1913, Bur. Sci. 16926 Serviñas, November 25, 1912, Bur. Sci. 6737 Robinson, April 8, 1909, Merrill 7153, September 3, 1910, on forested slopes, altitude 120 to 600 meters.

A species well characterized by its pubescent leaves, petioles, and peduncles, and by its white, fleshy, fruiting spathes.

COMMELINACEAE

ANEILEMA R. Brown

ANEILEMA HUMILE sp. nov. § Dictyospermum.

Planta circiter 20 cm alta, erecta, haud ramosa, vaginis et petiolo plus minusve hirsutis; foliis paucis, submembranaceis, oblongis ad oblongo-ellipticis, usque ad 10 cm longis, apice ten-uiter acuminatis, basi cuneatis; inflorescentiis racemosis, paucifloris, solitariis, in axillis superioribus, circiter 2 cm longis; capsulis ovoideis, glabris, locitis 3 mm longis, 3-valvis, loculis 1-spermis; semiuis osseis, plano-convexis, ellipticis, perspiciue rugosis, circiter 2.5 mm longis.

An erect simple plant, or the lower parts of the stem more or less decumbent and geniculate, about 20 cm high, the stems glabrous or very slightly pubescent. Leaves submembranaceous, oblong to oblong-elliptic, 5 to 10 cm long, 1.5 to 3.5 cm wide, subequally narrowed to the slenderly sharp-acuminate apex and to the cuneate base, glabrous, of the same color on both surfaces when dry, scarcely shining, the longitudinal lateral nerves usually three on each side of the midrib, obscure, the petiolar part 3 to 4 mm long, more or less pubescent, the sheaths 1 cm long or less, somewhat inflated, more or less pubescent. Raceme solitary, simple, from the uppermost axil, 2 to 2.5 cm long, few-flowered, glabrous, the base with a narrowly lanceolate, 1 cm long, acuminate bract. Flowers white. Sepals elliptic-obovate, green when fresh, brown when dry, about 3 mm long, concave, somewhat cucullate. Petals very thin, white, oblong-obovate, rounded, about 3.5 mm long, the nerves dark-brown, very prominent. Fertile stamens 3; anthers broadly elliptic-ovate, 1 mm long; staminodes 3. Ovary ovoid, glabrous; style 3 mm long. Capsule ovoid or ovoid-ellipsoid, 3 to 3.5 mm long, 3-valved, 3-celled, the pericarp brittle, shining; seeds solitary in each cell, 2.5 mm long, white, plano-convex, elliptic, prominently rugose.

Alabat, back of Sangirin, Merrill 10459, December 24, 1916, on steep slopes in damp forests, altitude about 80 meters; rare and a few plants observed in only one place.

This very characteristic species is readily distinguished by its inflores-
ence being reduced to a short simple raceme, a character very different from most of the other species in the genus. It is apparently not very closely allied to any previously described form.

LILIACEAE

SMILAX Linnaeus

SMILAX ERECTA sp. nov.

Frutex erectus, glaber, leviter aculeatus, simplex vel parce ramosus, circiter 1 m altus, eirrhiferus; foliis oblongis, in siccitate brunneis, nitidis, usque ad 20 cm longis, utrinque aequaliter angustatis, apice prominentem acuminatis, basi cuneatis, perspicue 3-nervis; inflorescentiis axillaribus, simpliciter umbellatis, breviter pedunculatis; fructibus ovoideis vel ellipsoideis, circiter 8 mm longis.

An erect shrub about 1 m high, glabrous, simple or at most once dichotomously branched above, without tendrils, the stems terete, pale-brownish, 5 to 6 mm in diameter below and armed with widely scattered, stout, short, straight spines 2 mm in length or less, the upper parts of the stem unarmed. Leaves oblong, subcoriaceous, brown and shining when dry, of nearly the same color on both surfaces, 12 to 20 cm long, 4 to 6 cm wide, equally narrowed to the rather prominently acuminate apex and the acute base, the base prominently 3-nerved, the lateral nerves extending to the tip of the leaf, the reticulations lax, fairly prominent; petioles about 2 cm long, the inflated basal part 1 cm long or less, cucullate. Umbels in the upper axils, solitary, simple, their peduncles 1.5 cm longer less, the pedicels 6 to 10, about 8 mm long. Fruits black when dry, ovoid or ellipsoid, wrinkled, shining, about 8 mm long.


This most characteristic species is readily distinguished by its erect, simple or but once branched stems which are aculeate below; by its prominently 3-nerved leaves; by the entire lack of tendrils; and by its simple umbels.

SMILAX LUCIDA sp. nov.

Frutex scandens, ramis leviter armatis, distincte circiter 9-angulatis, sulcatis; foliis firme chartaceis vel subcoriaceis, oblongo-ovatis ad oblongo-ellipticis, usque ad 16 cm longis, breviter apiculato-acuminatis, basi in foliis minoribus rotundatis, in majoribus distincte cordatis, utrinque nitidis, 5- vel 7-nervis; umbellis axillaribus, solitariis, pedunculo 2.5 ad 3 cm longo; fructibus globosis, in siccitate subnigris, nitidis, 8 ad 10 mm diametro.
A scandant shrub, the branches and branchlets pale when dry, distinctly about 9-angled, sulcate, sparingly armed with widely scattered, short, straight, rather stout spines that do not exceed 2 mm in length. Leaves firmly chartaceous to subcoriaceous, subolivaceous when dry, prominently shining on both surfaces, oblong-ovate to oblong-elliptic, 8 to 16 cm long, 3.5 to 10 cm wide, all with a stout apiculate-acuminate apex, the smaller ones rounded at the base, the larger ones prominently cordate, 5- or 7-nerved, the inner pair of nerves much stouter than the outer ones, reaching the apex, the reticulations rather lax, prominent; petioles 1 to 2 cm long, the lower part somewhat sheathing, the tendrils attaining a length of about 10 cm. Umbels axillary, solitary, their peduncles 2.5 to 3 cm long, the pedicels in fruit 1.5 to 2 cm long. Fruits globose, numerous, nearly black when dry, somewhat wrinkled, prominently shining, 8 to 10 mm in diameter; seeds usually 3.


A species well characterized by its inflorescences being reduced to a simple umbel. In vegetative characters it somewhat resembles Smilax Elmeri nom. nov. (Smilax reticulata Elm. Leafl. Philip. Bot. 8 (1815) 2740, non Desv., nec Heer), but Smilax elmeri has racemously arranged umbels, and its leaves are acute at the base.

PIPERACEAE

ZIPPELIA Blume

ZIPPELIA BEGONIAEFOLIA Blume in Roem. & Schultes Syst. 7 (1830) 1614, 1651.


Piper zippelia C. DC. Prodr. 161 (1869) 256.

Jolo, Mrs. Clemens 9335, October 15, 1915, in damp forests, altitude about 600 meters.

This monotypic genus is new to the Philippines. Indo-China, Mekong River, Thorel, the Malay Peninsula, Borneo, and Java.

FAGACEAE

QUERCUS Linnaeus

QUERCUS CAGAYANENSIS sp. nov. § Cyclobalanus.

Arbor circiter 12 m alta, partibus junioribus densissime ferrugineo-pubescentibus; foliis oblongo-ovatis ad ovato-lanceolatis, integris, coriaceis, usque ad 15 cm longis, basi acutis, apice caudato-acuminatis, supra costa exceptis glabra, nitidis, subitus pallidioribus, ad costa nervisque pubescentibus, nervis utrinque 7 ad 9, subitus prominentibus, curvato-adscendentibus,
haud anastomosantibus, reticulis tenuibus, confertis, obscuris, subparallelis; cupulis obovoideis, pubescentibus, 2 cm diametro, obscure zonulatis, basi obovoidis, dentibus circiter 1 mm longis, infra distantibus, supra confertis; glans puberulis, 1.5 cm diametro, circiter 1.5 cm longis, subovoideis, apiculatis.

A tree about 12 m high, the younger parts densely ferruginous-pubescent. Branches terete, brownish, glabrous, somewhat lenticellate. Leaves coriaceous, oblong-ovate to ovate-lanceolate, 10 to 15 cm long, 3 to 6 cm wide, entire, base acute, apex slenderly subcaudate-acuminate, the acumen blunt, up to 2 cm in length, the upper surface glabrous except for the pubescent midrib, smooth, shining, pale or brownish-olivaceous when dry, the lower surface paler than the upper, pubescent on the midrib and nerves; lateral nerves 7 to 9 on each side of the midrib, prominent, curved-ascending, not anastomosing, the reticulations slender, close, subparallel, inconspicuous; petioles densely pubescent, 5 to 8 mm long. Infructescences simple, up to 12 cm in length, spike-like, rather stout, lenticellate, when young pubescent, ultimately glabrous, each bearing two or three fruits. Cups ovoid, about 2 cm in diameter, brown-pubescent on both surfaces, rather abruptly contracted below into a stout pseudo-stalk which is 5 to 8 mm long and about 5 mm in diameter, somewhat contracted to the truncate orifice which is 1.5 cm in diameter, the zones obscure, about 10 in all, the lower ones distant and with distant teeth, the upper ones close, the teeth contiguous, the teeth narrow, 1 mm long or less. Glans ovoid from a truncate base, about 1.5 cm long and wide, about two-thirds contained within the cup, puberulent, apiculate.

Luzon, Cagayan Province, Pamplona, For. Bur. 26973 Velasco, August 9, 1917, in forests, altitude about 60 meters.

The alliance of this species is not entirely clear, but it is apparently most closely related to Quercus llanosii A. DC., from which, however, it is distinguished by numerous characters. It is one of the species that is difficult to place as between the sections Pasania and Cyclobalanus, but I have placed it in the latter section as the scales have free apices and are not imbricate; the zones are indistinct, distant below, and contiguous above. QUERCUS MABESAE sp. nov. § Pasania.

Arbor circiter 20 m alta, ramulis et subtus foliis minute brunneo-puberulis vel pubescentibus; foliis coriaceis, oblongis, usque ad 14 cm longis, utrinque subaequaliter angustatis, basi acutis, apice tenuiter acuminatis, supra glabris, vel junioribus leviter puberulis, laevis, nitidis, in siccatite brunneis, subitus subconcoloribus vel paullo pallidioribus; nervis utrinque circiter 9, perspicuis, curvatis, obscure anastomosantibus, reticulis sub-
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obsoletis; cupulis 2 cm diametro, circiter 1.5 cm altis, truncatis, utrinque dense pubescentibus, zonis circiter 10, contiguis, dentibus numerosis, confertis, 1.5 ad 2 mm longis; glans oblongo-ovoideis, glabris, nitidis, 2.5 cm longis et 1.7 cm diametro.

A tree about 20 m high, the branchlets and lower surface of the leaves minutely brownish puberulent or pubescent. Branches subterete, smooth, subolivaceous. Leaves oblong, coriaceous, 9 to 14 cm long, 3.5 to 6 cm wide, entire, base acute, apex slenderly acuminate, the acumen about 1 cm long, obtuse, the upper surface glabrous, smooth, shining, brownish when dry, or when young slightly puberulent, the lower surface of the same color or slightly paler, brownish-pubescent with very short hairs; lateral nerves about 9 on each side of the midrib, prominent, curved, obscurely anastomosing, the reticulations slender, obscure, often nearly obsolete; petioles castaneous-pubescent, about 5 mm long. Infrauctescence a simple spike about 10 cm long, the rachis rather stout, pubescent, each bearing but few fruits. Cups cupshaped, 2 cm in diameter, about 1.5 cm high, truncate, densely pubescent with pale-brownish hairs on both surfaces, sessile, the zones about 10, contiguous, the teeth numerous, crowded, oblong, acuminate, 1.5 to 2 cm long. Glans oblong-ovoid, glabrous, shining, brown when dry, 2.5 cm long, 1.7 cm in diameter, apiculate, the lower 7 mm included within the cup.

Luzon, Laguna Province, Mount Maquiling, For. Bur. 26915 Mabesa, September 19, 1917, on forested ridges, altitude 300 meters and above, locally known as ulayan.

In vegetable characters this species closely resembles Quercus lipacon Elm. of Mindanao, but is entirely different in its fruit characters. The cups strongly resemble those of Quercus jordanae Laguna, but the present species is not otherwise closely allied to that species.

URTICACEAE

ELATOSTEMA

ELATOSTEMA GRACILIFOLIUM sp. nov.

Herba erecta, 20 ad 40 cm alta, inflorescentiis exceptis glabra, dioica, ramosa, ramis gracilis, adscendentibus; foliis lineari-lanceolatis, usque ad 4 cm longis et 6 mm latis, acuminatis, leviter falcatis, inaequilateralibus, utrinque acutis, margine utrinque dentibus 4 ad 6 conspicuis instructis; inflorescentiis axillaribus, solitariis, sessilibus, bracteis exterioribus orbiculariibis, circiter 3 mm diametro, margine perspicue ciliatis, ad apicem perspicue corniculato-apiculatis, interioribus multo mi-
noribus, circiter 2 mm longis, obovatis, ad oblongo-obovatis vel obovato-spatulatis, navicularibus, haud corniculatis; floribus 4-meris.

A slender, erect, branched herb 20 to 40 cm high, glabrous except the inflorescences. Stems greenish when dry, about 3 mm in diameter, the branches slender, ascending, up to 16 cm in length, less than 1 mm in diameter, with numerous cystoliths. Leaves linear-lanceolate, somewhat falcate, subchartaceous, dark-green when dry, 3 to 4 cm long, 3 to 6 mm wide, slenderly acuminate, base acute, somewhat inequilateral, both surfaces with numerous, irregularly arranged cystoliths, margins prominently and sharply toothed above the middle, 4 to 6 teeth on each side; wider-side of the leaf with a single ascending nerve leaving the midrib 2 to 3 mm above the base and extending one-fourth to one-third to the apex, the nerves and reticulations otherwise obsolete; petioles 0.5 mm long. Staminate inflorescences axillary, sessile, 3 to 4 mm in diameter, ciliate, the outer two bracts orbicular, 3 mm in diameter, the tip with a 0.5 mm long apiculus, margins prominently glabrous, the inner ones smaller, the innermost about 2 mm long, oblong-obovate to oblong or oblong-spatulate, navicular, hooded, ciliate toward the tips, not corniculate. Staminate flowers 4-merous, their pedicels up to 1.5 mm long, the perianth about 1 mm long, the segments obscurely penicillate.


A most characteristic species readily distinguished by its slender branches and very narrow, prominently toothed leaves, which, except for the midrib and single basal nerves, are without evident nerves or reticulations.

**ARISTOLOCHIACEAE**

**ARISTOLOCHIA** Linnaeus

**ARISTOLOCHIA HUMILIS** sp. nov.

Species _A. philippinensis_ Warb. affinis. Suffrutex erectus circiter 40 cm altus, simplex vel parce ramosus; foliis membranaceis ad chartaceis, ovatis ad oblongo-obovatis, usque ad 25 cm longis, supra olivaceis, nitidis, glabris, subitus pallidioribus et parce pubescentibus, basi subacutis ad rotundatis, apice acutis, obtusis, vel latissime obtuse acuminatis, nervis utrinque circiter 7, prominentibus, adsendentibus; racemis axillarisibus, usque ad 6 cm longis; floribus tenuibus, circiter 3 cm longis; fructibus oblongo-ellipsoideis, circiter 2.5 cm longis, 6-carinatis, apice obtusis, basi acuminato-attenuatis.
An erect undershrub about 40 cm high, simple or sparingly branched, the stems 5 to 10 cm thick, terete, brownish, glabrous, the younger parts sparingly pubescent. Leaves few, 4 to 7 on each plant, ovate to oblong-obovate, membranaceous to chartaceous, 13 to 25 cm long, 6 to 11 cm wide, the upper surface olivaceous, glabrous, shining, the lower paler, sparingly pubescent with very short hairs on the midrib, nerves, and reticulations, the base subacute to rounded, the apex acute, obtuse, or broadly and bluntly acuminate; lateral nerves about 7 on each side of the midrib, prominent, ascending, anastomosing, the reticulations lax, prominent; petioles 2 to 3 cm long, sparingly pubescent, becoming nearly or quite glabrous. Racemes axillary, 4 to 6 cm long, or when young much shorter, many flowered, but only one or two flowers developing at one time, the bracts oblong, somewhat pubescent. Flowers apparently purplish, slender, about 3 cm long, their pedicels 3 to 4 mm in length. Ovary oblong, somewhat keeled, about 3 mm long, the corolla-tube above the ovary slender, cylindric, about 7 mm long, the inflated part ovoid or ellipsoid, base somewhat inequilateral, about 6 mm long, the cylindric tube above the inflated part 5 to 7 mm long, the limb 1-lipped, the lip linear to linear-oblong-ellipsoid, about 18 mm long, 3 to 4 mm wide. Anthers 6, the cells contiguous. Capsule brown when dry, glabrous, oblong-ellipsoid, about 2.5 cm long, 6-keeled, the apex obtuse, the base attenuate-acuminate.


The alliance of this species is manifestly with Aristolochia philippinensis Warb., from which it differs in very numerous characters, notably in its low stature and larger, differently shaped leaves.

MENISPERMACAEA

COCCULUS de Candolle

COCCULUS SARMENTOSUS (Lour.) Diels, var. STENOXYLLUS var. nov.

A typo differt foliis lanceolatis, oblongo-lanceolatis, vel oblan-
ceolatis, basi acutis, 3 ad 5 cm longis, 8 ad 15 mm latis.


This form differs so radically from the typical form of the species, which is represented by Bur. Sci. 27213 Ramos from the same locality, that I believe that it is worthy of at least varietal rank. In this connection Clemens 749 from Camp Keithley, Mindanao, cited under Cocculus sar-
mentosus (Lour.) Diels and also under Hypserpa jagori Diels,\(^5\) pertains entirely to Cocculus and represents a form distinctly allied to the variety stenophylla Merr., but with larger leaves which attain a length to 7.5 cm and a breadth of 2.6 cm.

**MAGNOLIACEAE**

**MICHELIA** Linnaeus

**MICHELIA PLATYPHYLLA** sp. nov.

Arbor glabra; folii oblongo-ellipticis, chartaceis, usque ad 30 cm longis et 13 cm latis, obtuse acuminatis, basi subacutis, in siccitate pallidis vel subolivaceis, utrinque nitidis, nervis utrinque 18 ad 23, perspicuis; floribus longe pedicellatis, perianthii segmentis circiter 12, oblanceolatis, acuminatis, 2.5 cm longis; antheris circiter 25, 12 mm longis.

A glabrous tree, the branchlets terete, smooth, about 5 mm in diameter, dark-brown, marked with a few conspicuous lenticels and the conspicuous stipular scars, the internodes 2 to 3 cm long. Leaves chartaceous, oblong-elliptic, 23 to 30 cm long, 9 to 13 cm wide, when dry pale or subolivaceous, shining on both surfaces, the base subacute, the apex shortly and obtusely acuminated; lateral nerves 18 to 23 on each side of the midrib, conspicuous on both surfaces as are the rather close, raised reticulations; petioles 2 to 3 cm long; stipules lanceolate, dark-brown and rugose when dry, about 6 mm long, deciduous. Flowers white, axillary, solitary, their pedicels 4 to 5 cm long, with a rather conspicuous bracteole scar above the middle. Buds oblong-ovoid, brown when dry, acute, about 2.5 cm long, the bud-scale splitting down one side, deciduous. Perianth-segments about 12, oblanceolate, acuminate, the outer ones about 2.5 cm long and 1 cm wide, the inner ones smaller and narrower. Stamens about 25, the anthers linear, 12 mm long.

LEYTE, Burauen, Cagañon, For. Bur. 26866 Tomelden, May 21, 1917, in semi-open country (parang) at an altitude of 50 meters, locally known as hañguilo.

This species is well characterized by its remarkably large leaves. Its alliance is with the extra-Philippine Michelia montana Blume, to which, however, it is not very closely related.

**MONIMIACEAE**

**MATTHAEA** Blume

**MATTHAEA INTERMEDIA** sp. nov.

Frutex circiter 4 m altus inflorescentiis exceptis glaber, ramulis brunneis vel atro-brunneis; foliis subcoriaceis, oblongo-
ellipticis, usque ad 13 cm longis, integerrimis, breviter acute acuminatis, basi rotundatis et leviter decurrento-acuminatis, in siccitate subolivaceis, subitus pallidioribus; nervis primariis circiter 8, distinctis, supra haud impressis; inflorescentiis axillaribus, pedunculatis, depauperato-cymosis, pubescentibus, 1 ad 2 cm longis; receptaculis & depresso-turbinatis, pubescentibus, circiter 4 mm diametro, tepalis reniformibus, rotundatis, circiter 1.5 mm longis; antheris 3 vel 4, confluentes, sessilibus, connectivo haud producto.

A shrub about 4 m high, glabrous except the inflorescence. Branches and branchlets terete, smooth, the former straw-colored, the latter reddish-brown or dark-brown when dry. Leaves subcoriaceous, oblong-elliptic, entire, 8 to 13 cm long, 3 to 6 cm wide, the apex shortly and acutely acurate, base rounded and somewhat decurrent-acuminate, shining when dry, the upper surface subolivaceous, the lower somewhat paler; primary lateral nerves about 8 on each side of the midrib, spreading, rather prominently arched-anastomosing distant from the margin, not at all impressed on the upper surface and scarcely projecting on the lower surface, the reticulations lax; petioles dark-brown, 1 to 1.5 cm long. Staminate inflorescences axillary, depauperate-cymose, few-flowered, peduncled, 1 to 2 cm long, appressed-pubescent with short, brownish hairs. Receptacles depressed-turbinate, externally sparingly pubescent, about 4 mm in diameter, the bracts oblong, pubescent, 1.5 mm long, the pedicels 5 mm long or less. Tepals subreniform, rounded, about 1.5 mm long, glabrous. Anthers 3 or 4, sessile or subsessile, broadly ovoid or orbicular-ovoid, 1 mm long, the connectives not produced.

Luzon, Tayabas Province, Mount Binuang, Bur. Sci. 28614 Ramos & Edaño, May, 1917, in forests, altitude about 1,000 meters.

If the entire leaves be any criterion this species comes near Matthaeæa calophylla Perk. and M. latifolia Perk., but it is not otherwise closely allied to these species. It seems to be much more closely allied to Matthaeæa sancta Blume, and in many respects is very similar to the entire-leaved forms of M. sancta Blume var. venulosa Perk. From this it is easily distinguished by its olivaceous leaves, its dark-brown branchlets, and the lateral nerves rather obscure and not at all impressed on the upper surface of the leaves.

CAPPARIDACEAE

CAPPARIS Linnaeus

CAPPARIS LONGIPES sp. nov.

Frutex scandens, glaber; foliis lanceolatis, membranaceis ad chartaceis, usque ad 11 cm longis, acutissime acuminatis, basi acutis, nervis utrinque circiter 15, distinctis; infructescentiis
axillaribus, tenuibus, parce ramosis, usque ad 20 cm longis; fructibus longe pedicellatis, globosis, circiter 12 mm diametro.

A scandent glabrous shrub, the branches slender, terete, brownish or olivaceous, the ultimate branchlets about 1 mm in diameter, the stipular spines straight, usually about 2 mm long. Leaves lanceolate, membranaceous to chartaceous, green or greenish-olivaceous when dry, somewhat shining, 7 to 11 cm long, 2 to 3 cm wide, narrowed upward to the very slender apex, sharply acute-acuminate, base acute; lateral nerves about 15 on each side of the midrib, slender, distinct on both surfaces, anastomosing, the primary reticulations lax, the ultimate ones close, both distinct; petioles 2 to 3 mm long. Infuctescences axillary, very slender, sparingly branched, up to 20 cm in length, each branch bearing a single fruit, its pedicel about 3 cm long. Fruit globose, brown when dry, glabrous, about 12 mm in diameter.


A remarkable species on account of its greatly elongated, axillary, very slender infuctescences. Its alliance is with Capparis loheri Merr., from which it is distinguished not only by its infuctescence but also by its much smaller, entirely glabrous leaves.

Capparis Ilocana sp. nov.

Frutex glaber, ut videtur scandens, ramis ramulisque teretibus; foliis membranaceis vel chartaceis, oblongo-ellipticis, usque ad 7 cm longis, apice breviter acutaeque acuminatis, basi obtusis, nervis utrinque circiter 10, tenuibus, distinctis; inflorescentiis terminalibus, umbellatis, 5- vel 6-floris; floribus longe pedicellatis, pedicellis 2 ad 2.5 cm longis, alabastros globoso, 5 mm diametro.

A glabrous shrub, apparently scandent, the branches slender, terete, brownish-black when dry, the stipular spines very short, straight, about 1 mm long, the branchlets pale-greenish. Leaves pale-greenish when dry, oblong-elliptic, membranaceous to chartaceous, 5 to 7 cm long, 2.5 to 3.5 cm wide, slightly shining, the apex shortly and acutely acuminate, base obtuse; lateral nerves about 10 on each side of the midrib, slender, distinct, anastomosing, the primary reticulations lax, the ultimate ones close, indistinct; petioles 2 to 4 mm long. Inflorescence a simple terminal, few-flowered umbel, the flowers usually 5 or 6, their pedicels 2 to 2.5 cm long. Buds globose, about 5 mm in diameter.


A species characterized by its terminal, simple, few-flowered umbels
of long-pedicelled flowers. It may be as closely allied to *Capparis sepiaria* Linn. as to any other species, but it is entirely different from the numerous forms of this Linnean species in its vegetative and inflorescence characters.

ROSACEAE

RUBUS Linnaeus

**RUBUS EDANOII** sp. nov. § Malachobatus, Elongati.

Frutex scandens, minute aculeatus, ramulis et inflorescentiis pilosis; foliis simplicibus, coriaceis, ovatis ad oblongo-ovatis, usque ad 12 cm longis, acute acuminatis, basi truncato-rotundatis cordatisque, prominet 5- vel 7-nerviis, nervis lateribus utrinque 5 ad 7, rectis, adscendentibus, in pagina superiore ad costa nervisque pilosis, subtus pilosis et minute leviter aculeatis, margine apiculato-dentatis; inflorescentiis terminalibus, elongatis, circiter 20 cm longis, dense subadpresse pilosis; sepalis oblongo-ovatis ad ovato-lanceolatis, circiter 6 mm longis, petalis brevibus, caducis, oblongo-obovatis, circiter 4 mm longis, basi angustatis, apice prominente dentatis.

A scandent shrub, the branches terete, brown, more or less pilose, and with small, reflexed, scattered aculei 1 mm long or less. Leaves simple, thickly coriaceous, olivaceous, ovate to oblong-ovate, 6 to 12 cm long, 3 to 7 cm wide, shining, apex sharply acuminate, base broadly truncate-rounded and distinctly cordate, prominently 5- or 7-nerved, the nerves straight, the primary ones all ascending, 5 to 7 on each side of the midrib, the primary reticulations subparallel, prominent, the margins acuminate-dentate, the upper surface glabrous or pilose on the midrib and lateral nerves, the lower surface pilose on the midrib and nerves and also with few scattered, minute aculei; petioles pilose, minutely aculeate, 1 to 1.5 cm long; stipules narrowly oblong, free or nearly so, deciduous, about 4 mm long. Panicles terminal, narrow, up to 20 cm long, pilose, the younger parts very densely so, slightly aculeate, the lower branches 3 cm long or less, spreading, widely scattered. Flowers about 1.8 cm in diameter, their pedicels 10 mm long or less. Sepals oblong-ovate to ovate-lanceolate, somewhat acuminate, externally densely pilose with pale appressed hairs, internally densely cinereous-puberulent. Petals thin, glabrous, caducous, narrowly oblong-ovate, about 4 mm long, glabrous, base narrowed, apex prominently toothed. Stamens indefinite. Carpels few, usually 6 or fewer, glabrous or with very few scattered hairs; including the slender styles 2 to 2.5 mm long.

A species allied to *Rubus cumingii* O. Kuntze, from which it is distinguished at once, among other characters, by its sharply acuminate leaves. *Rubus cumingii* O. Kuntze is figured by Focke, a photogravure of the type specimen, Species Ruborum Bibl. Bot. 17 (1910) 59, fig. 21.

**CONNARACEAE**

**CONNARUS** Linnaeus

**CONNARUS SUBFOVEOLATUS** sp. nov.

A scandent shrub attaining a length of about 6 m, glabrous except the branchlets and inflorescences, the branches terete, brown, about 4 mm in diameter, lenticellate, the young branchlets sparingly pubescent. Leaves 3-foliolate, the petiole and rachis 6 to 7 cm long. Leaflets firmly chartaceous, ovate to subelliptic, 9 to 13 cm long, 4.5 to 6.5 cm wide, pale and shining when dry, both surfaces manifestly and densely foveolate, the pits shallow, base obtuse, sometimes minutely peltate, the apex rather abruptly and prominently acuminate, the acumen blunt and 8 to 12 mm long; lateral nerves 4 on each side of the midrib, prominent, curved-ascending, anastomosing; petiolules 3 to 5 mm long. Panicles axillary and terminal, up to 12 cm in length, rather lax, densely ferruginous-pubescent with short simple hairs. Flowers brownish-pink, their pedicels 1 to 2 mm long. Sepals oblong, obtuse, pubescent, 2 mm long. Petals narrowly oblong, obtuse, 3 to 3.5 mm long, 0.8 mm wide, verruculose when dry, glabrous, prominently glandular with reddish glands. Carpels solitary, subglobose, pubescent; styles 3 mm long, glabrous.


A species strongly characterized by its trifoliolate leaves and the densely and shallowly foveolate leaflets.
LEGUMINOSAE

ALBIZZIA Durazzini

ALBIZZIA MEALADENIA sp. nov.

Arbor circiter 8 m alta, subglabra, partibus junioribus leviter pubescentibus; foliiis 14 ad 18 cm longis, petiolis et rachibus inter pinnis ultimis glandulis magnis ovoideis instructis; pinnis 6- ad 9-jugatis, 5 ad 7 cm longis; foliolis 20- ad 30-jugatis, oblongis, obtusis, 5 ad 7 mm longis, inaequilateralibus; fructibus anguste oblongis, usque ad 8 cm longis, circiter 1.4 cm latis, obtusis, nitidis, reticulatis; seminibus 15 ad 20, contiguos.

A tree about 8 m high, nearly glabrous. Branches terete, glabrous, dark reddish-brown or nearly black when dry, the branchlets paler in color, also glabrous. Leaves bipinnate, 14 to 18 cm long, 6- to 9-jugate, the petiole at or above the middle with a very prominent, dark-brown, ovoid, projecting, 7 to 9 mm long gland, a similar but smaller one usually present between the ultimate pinnae; pinnae 5 to 7 cm long, the rachis very sparingly pubescent; leaflets oblong, inaequilateral, glabrous or nearly so, 20 to 30 pairs on each pinna, 5 to 7 mm long, 1.5 to 2 mm wide, rounded at the apex, the base rounded on the broader side, subacute or obtuse on the narrow side, the nerves indistinct. Pods brownish when dry, shining, somewhat reticulate, narrowly oblong, 7 to 8 cm long, about 1.4 cm wide, rather thin, rounded at the apex, the base acuminate, margins somewhat thickened; seeds 15 to 20, contiguous, subelliptic, compressed, about 4 mm long.

Luzon, Tayabas Province, Umiray, Bur. Sci. 29023 Ramos & Edano, June, 1917, in forests along the Umiray River.

This species in vegetative characters somewhat resembles Albizzia lebbekoides Benth., but is entirely different in its fruit characters, and in its remarkably large, ovoid, projecting petiolar and rachis glands. The pods, although much smaller, resemble those of Leucaena glauca Benth., but are indehiscent and reticulate.

NEPTUNIA Loureiro

NEPTUNIA DEPAUPERATA sp. nov.

Suffrutex prostratus e basi lignosus, usque ad 40 cm longis, ramosis, ramis ramulisque tenuibus, teretibus vel ramulis obscurissime angulosis; foliiis 1.5 ad 3 cm longis, 1- ad 4-jugatis; foliolis oblongis, 2 ad 3 cm longis, confertis, crassis, margine leviter ciliatis, obscurissime venosis; capitulis axillaribus, solitariis, pedunculatis; floribus 5-meris, staminibus 5; floribus inferioribus neutris, staminoideis petaloideis, circiter 10 mm lon-
gis, lineari-oblanceolatis, planis; ovario 6-ovulatis; leguminibus oblongis, planis, 2 cm longis.

A prostrate undershrub from a much thickened woody root, the branches spreading, prostrate, distinctly woody, slender, up to 40 cm in length, branched, the branches and branchlets dark reddish-brown, glabrous, terete, or the ultimate ones very obscurely angular. Leaves 1.5 to 3 cm long, 1- to 4-jugate, the pinnae 1 cm long or less; leaflets 12 to 16 pairs, sessile, oblong, thick, 2 to 3 mm long, obscurely nerved, base inequilaterally rounded, apex obtuse to minutely apiculate, margins in young leaves sparingly ciliate; stipules inequilateral, slenderly acuminate, ovate, about 3 mm long. Heads axillary, yellow, their peduncles slender, 2 to 3 cm long. Lower flowers neuter. Calyx less than 1 mm long. Petals somewhat oblong-oblanceolate, 2 mm long, free. Staminodes petaloid, yellow, flat, membranaceous, linear-oblanceolate, about 1 cm long. Perfect flowers: Calyx 1.5 to 2 mm long, the teeth 5, ovate, obtuse to subacute, 0.5 mm long. Petals 5, free, about 2.5 mm long, oblong-spatulate. Filaments filiform, 4 mm long; anthers oblong-elliptic, 1 mm long, falling very soon after anthesis, tipped with a minute sessile gland. Ovary subsessile, compressed, oblong, inequilateral, glabrous; ovules about 6; style 3 mm long. Pods oblong, thin, brown, about 2 cm long and 5 mm wide, minutely apiculate.


This species in many respects resembles Neptunia triquetra Benth., which extends from India to Indo-China, but is smaller, with much smaller leaves, and with but five stamens, and very different staminodes. It is distinctly woody, the root being much thickened, the prostrate stems not at all herbaceous. On account of its five stamens its true alliance is with the Australian Neptunia gracilis Benth. and N. monosperma F. Muell., being more distinctly allied to the former. It is easily distinguished from Neptunia gracilis Benth. by its much smaller leaflets.

Crotalaria Linnaeus

Crotalaria trifoliastrum Willd. Sp. Pl. 3 (1806) 983.

Luzon, Province of Ilocos Norte, Burgos, Bur. Sci. 27265 Ramos, March 15, 1917, in open places near streams at low altitudes.

Tropical Asia to northeastern Australia; new to the Philippines.

Spatholobus Hasskarl

Spatholobus philippinensis sp. nov.

Frutex, scandens inflorescentiis exceptis glaber; folioliis oblongo-ovatis ad ovatis, chartaceis, usque ad 11 cm longis, obtusis, glaberrimis, nervis utrinque circiter 7; leguminibus circiter 11 cm longis et 3 cm latis, in siccitate brunneis, nitidis,
leviter falcatis, utrinque obtusis v.1 apice breviter apiculatis, valvis perspicue reticulatis.

A scandent shrub of indefinite length, entirely glabrous except the somewhat ferruginous-pilose inflorescences. Branches and branchlets slender, terete, reddish-brown, smooth. Leaves 3-foliolate, the petioles 2.5 to 6 cm long; leaflets firmly chartaceous, oblance-ovate to ovate, brownish or pale-olivaceous when dry, shining, 7 to 11 cm long, 3 to 6 cm wide, base usually rounded, apex usually obtuse; lateral nerves about 7 on each side of the midrib, distinct, the reticulations evident and rather close on both surfaces. Panicles terminal and in the upper axils, somewhat ferruginous-pilose with subapressed hairs as are the very young calyces. Mature flowers not seen, the panicles before anthesis up to 16 cm in length. Pods glabrous, shining, brownish when dry, thin, in general oblong, somewhat falcate, about 11 cm long and 3 cm wide, base inequilaterally rounded, apex rounded or obtuse, often slightly apiculate, the valves conspicuously reticulate.

Luzon, Laguna Province, Mount Maquiling, For. Bur. 26841 Mabesa, July 23, 1917, along trails on rather open slopes, altitude 100 to 200 meters. The same species is represented by Bur. Sci. 2630 Ramos and For. Bur. 466 Ahern's collector, from Rizal Province, Luzon, both of these specimens being with very young buds.

*Spaltholobus philippinensis* Merr. is entirely different from the few other representatives of the genus known from the Philippines. It is well characterized by being entirely glabrous except for the sparingly pubescent inflorescences. In vegetative characters it is somewhat similar to *Spaltholobus harmandii* Gagnep. of Indo-China.

**RUTACEAE**

**EVODIA** Forster

**EVODIA GLABERRIMA** sp. nov.

Frutex glaberrimus, foliis 1- ad 3-foliolatis; foliolis oblongis ad oblango-lanceolatis, in siccitate nitidis, viridi-olivaceis, utrinque acuminatis, papyraceis, nervis primariis utrinque circiter 16, patulis, anastomosantibus, utrinque perspice glandulosis; paniculis axillaribus, 3 ad 4 cm longis, paucifloris, floribus circiter 3 mm longis.

An erect, entirely glabrous shrub, the branches and branchlets pale when dry, slender, terete. Leaves opposite, 1- to 3-foliolate on the same branch, the petioles 3 to 5 cm long, the petiolules 1 cm long or less and like the petioles glandular-punctate; leaflets chartaceous, oblong to oblong-lanceolate, greenish-olivaceous and shining when dry, conspicuously glandular-punctate on both sur-
faces, subequally narrowed to the acuminate base and apex, the apical acumen obtuse, stout, about 1 cm long; primary lateral nerves about 16 on each side of the midrib, spreading, distinct, anastomosing, the reticulations distinct. Panicles axillary, solitary, 3 to 4 cm long, peduncled, narrowly pyramidal, few-flowered, the lower branches 1 cm long or less. Young flowers about 3 mm long, the petals 4, oblong, obtuse, glandular. Sepals, ovate, obtuse, 1 mm long. Staminodes 4, about 1 mm long. Ovary glabrous, deeply 4-lobed, the immature carpels brown, about 3.5 mm long.


The alliance of this species is apparently with *Evodia ternata* (Blanco) Merr., from which it is readily distinguished by its thicker leaflets which vary in number from 1 to 3; its short, few-flowered inflorescences; and in being entirely glabrous in all parts.

**TETRACTOMIA** Hooker f.

**TETRACTOMIA PACHYPHYLLA** sp. nov.

Arbor glabra, circiter 15 m alta, ramis crassiss, rugosis, cicatricibus perspicuis instructis; foliis crasse coriaceis, obovatis, in sicicitate olivaceis vel olivaceo-brunneis, usque ad 11 cm longis, apice latissime rotundatis, basi cuneatis, obscure punctatis, nervis utrinque circiter 8; inflorescentiis usque ad 15 cm longis, longe pedunculatis; floribus circiter 5 mm diametro, petalis latissime ovatis, acutis vel obscure acuminatis, circiter 2.5 mm longis latisque.

A glabrous tree about 15 m high. Branches stout, rugose, about 6 mm in diameter, grayish or grayish-brown, marked with numerous large petiolar scars. Leaves thickly coriaceous, obovate, 6 to 11 cm long, 4 to 7 cm wide, shining, olivaceous or brownish-olivaceous when dry, the lower surface often paler than the upper, the apex very broadly rounded, the base cuneate, the upper surface obscurely pitted, the lower obscurely glandular-punctate; lateral nerves about 8 on each side of the midrib, rather conspicuous, anastomosing, the reticulations lax; petioles 1 to 2 cm long. Inflorescences from the upper axils and subterminal, long-peduncled, up to 15 cm long, the branches few, the lower primary ones up to 6 cm in length. Flowers fragrant, yellowish-green, dark-brown when dry, about 5 mm in diameter, somewhat crowded on the ultimate branchlets, shortly pedicelled. Calyx somewhat turbinate, 2.5 to 3 mm in diameter, shallowly toqthed. Petals broadly ovate, about 2.5 mm long and wide, acute or somewhat acuminate. Filaments about 3 mm long.
Staminodes 0.5 mm long or less, or sometimes obsolete, the petals then with an evident gland in the median portion.

Mindanao, Surigao Province (Dinagat Island), For. Bur. 26985 Ponce, July 22, 1917, in thin poor soil on semi-open slopes, altitude about 20 meters.

The alliance of this species is manifestly with Tetractomia tetrandra (Roxb.) Merr. in Journ. Str. Branch Roy. As. Soc. 76 (1917) 87 (T. roxburghii Hook. f.), from which it is distinguished especially by its differently shaped leaves which are broadly rounded at their apices.

POLYGALACEAE


Negros, near Dumaguete, Eskridge s. n., 1913, with the Visayan name chicate.

This species, previously reported only from Burma and Indo-China, is allied to Polygonum triphyllum Ham. The Philippine specimen agrees closely with duplicates of Thorel’s Mekong collections cited by Gagnepain as representing Kurz’s species.


This species is reported only from India. The identification of the above specimens has been made entirely from the descriptions; they seem to conform more closely to the form described by Hasskarl as Polygala eumeltes which Chodat has reduced to Polygala elongata Klein as forma heyneana (Wall.) Chodat.

HIPPOCRATEACEAE

HIPPOCRATEA Linnaeus

HIPPOCRATEA Megalocarpa sp. nov.

Frutex scandens, glaber; foliis coriaceis, integris, ellipticis ad late ellipticis, apice rotundatis vel brevissime abrupte obtuseque acuminatis, nervis utrinque 5 vel 6, distinctis; capsulis oblongo-ellipticis circiter 10 cm longis et 4 cm latis, seminibus 5.

A scandent glabrous shrub, the branches and branchlets terete, brownish. Leaves elliptic to broadly elliptic, entire, coriaceous, rather pale and slightly shining when dry, of the same color on both surfaces, 7 to 13 cm long, 5 to 10 cm wide, apex rounded or very shortly and abruptly blunt-acuminate, base usually rounded; lateral nerves 5 or 6 on each side of the midrib, rather prominent, reticulations lax; petioles stout, 8 to 10 mm long.
Capsules hard, flattened, oblong-elliptic, about 10 cm long and 4 cm wide, apex rounded, base obtuse, subequally narrowed at both ends, the valves pale, somewhat shining, more or less woody. Seeds 5 in each capsule, the seed proper 2 to 2.2 cm long, about 8 mm wide, brown, narrowed upward, compressed, the basal part a prominent, smooth submembranaceous wing attaining a length of 6 cm and a width of 2.7 cm.

Luzon, Laguna Province, Mount Maquiling, For Bur. 24921 Mabesa, December 16, 1915, on dry ridges along the Puting Lupa trail, altitude about 177 meters.

A characteristic species distinguishable by its elliptic entire leaves and its unusually large fruits.

**HIPPOCRATEA TRICHOPETALA** sp. nov.

Frutex scandens, inflorescentiis dense subferrugineo-pubescentibus exceptis glaber; ramis ramulisque teretibus, rubro-brunneis vel atro-brunneis; foliis ellipticis, subcoriaceis, usque ad 10 cm longis, in siccitate utrinque pallidis nitidisque, apice rotundatis, basi acutis, nervis primariis utrinque 6 vel 7, distinctis; cymis axillarisibus, pedunculatis, paucifloris, 2 ad 3 cm longis, floribus circiter 9 mm diametro, petalis oblongis, acutis, circiter 4.5 mm longis, extus dense puberulis, intus in ½ superiore parte perspicue pilosis; discus carnosus, circiter 2.5 mm diametro, apice densissime pilosus.

A scandent shrub, glabrous except the inflorescence, the branches and branchlets slender, terete, smooth, dark-brown or reddish-brown. Leaves elliptic, pale and shining on both surfaces when dry, 6 to 10 cm long, 3 to 6 cm wide, apex rounded, base acute, entire; primary nerves 6 or 7 on each side of the midrib, distinct, anastomosing, the reticulations prominent on the lower surface; petioles about 5 mm long. Cymes axillary, few-flowered, peduncled, 2 to 3 cm long, all parts subferruginous-pubescent with short hairs or the peduncles glabrous, dichotomously branched, the branches about 1 cm long. Flowers green, about 9 mm in diameter, the buds ellipsoid, rounded, their pedicels up to 6 mm in length. Calyx about 3 mm in diameter, short, the teeth 5, very short, acute. Petals oblong, outside densely puberulent, inside in the upper one-half and on the margins conspicuously and densely pilose with weak crisped hairs, acute, about 4.5 mm long. Disk fleshy, 2.5 mm in diameter, about 1.5 mm high, glabrous on the sides, the margin densely pilose with crisped hairs. Stamens 3, the filaments very broad, short, the anthers about 1 mm in diameter. Ovary ovoid,
sunk in the disk, glabrous, triangular, 3-celled, the stigma sub-
 sessile, minutely 3-lobed. Fruits unknown.


This most characteristic species is readily distinguished by its pale, elliptic, rounded leaves and especially by its petals being conspicuously pilose in the upper one-half inside, the hairs about 1 mm long. In its petal characters it is very similar to *Hippocratea cumingii* Laws., which must be typified by the Malacca specimen cited (Griffith) to which the description applies; the Philippine specimen, *Cuming 1725* from Samar, is not cited by Lawson in the original description and may or may not represent the same species as the Malacca one.

**SALACIA** Linnaeus

**SALACIA EUPHLEBIA** sp. nov.

Frutex scandens, glaber, ramis teretibus, junioribus obscure angulatis; foliis oblongis, coriaceis, olivaceis, nitidis, usque ad 15 cm longis, basi acutis ad subrotundatis, apice acuminatis, margine distanter apiculato-serrulatis; nervis utrinque circiter 9, subtus prominentibus, anastomosantibus, reticulis laxis, distinctis; inflorescentiis axillaribus, solitariis, quam petiolo brevioribus, depauperato-cymosis vel floribus fasciculatis; floribus 5-
 meris, circiter 3 mm longis, breviter pedicellatis.

A scendent glabrous shrub at least 3 m high, the branches pale-brownish or grayish, terete, or the younger ones obscurely angled, often pruinose. Leaves opposite, coriaceous, oblong, olivaceous, shining, of the same color on both surfaces, 9 to 15 cm long, 3.5 to 5 cm wide, base acute to somewhat rounded, apex distinctly acuminate, margins distantly apiculate-serrulate; lateral nerves about 8 on each side of the midrib, very prominent on the lower surface, spreading, somewhat curved-anastomosing, the primary reticulations distinct; petioles 5 to 8 mm long. Inflorescences axillary, solitary, very few-flowered, depauperate-cymose, the rachis once forked, or simple, very short, supplied with small bracts, or sometimes the inflorescence reduced to a fascicle; when a depauperate cyme but from 1 to 3 flowers pro-
duced at one time. Pedicels about 1 mm long. Flowers 5-
 merous, oblong, about 3 mm long. Calyx-lobes broadly ovate, rounded, about 1 mm long and wide. Petals oblong, rounded, about 2.8 mm long. Disk prominent, cylindric, enclosing the ovary, about 1 mm high. Filaments flattened, 0.8 mm long.


A species well characterized by its oblong, apiculate-denticulate, pro-
minently nerved leaves, its greatly reduced inflorescences, and short-pedicelled
flowers. It alliance is apparently with Salacia subscandens Elm. of Palawan.

**SALACIA WENZELII** sp. nov.

Frutex scandens, glaber; foliis oppositis, coriaceis, oblongo-ellipticis ad ellipticis, integris, usque ad 14 cm longis, obtuse acuminatis, basi subrotundatis, nervis utrinque 5 vel 6, subitus prominentibus, curvato-adscententibus; inflorescentiis breviter pedunculatis, umbellatis vel depauperato umbellato-cymosis; floribus circiter 6.5 mm diometro, calycibus truncatis.

A scandent glabrous shrub, the branches terete. Leaves opposite, coriaceous, oblong-elliptic to elliptic, brownish to olivaceous when dry, somewhat shining, 10 to 14 cm long, 4.5 to 7 cm wide, entire, apex rather prominently but obtusely acuminate, base rounded to subacute; lateral nerves 5 or 6 on each side of the midrib, prominent on the lower surface, curved-ascending, anastomosing; the reticulations fine, rather close, distinct; petioles 1 cm long or less. Inflorescences solitary, axillary, of short peduncled umbels or of depauperate umbellate cymes, the peduncles shorter than the petioles, the flowers green, numerous, crowded, 6 to 7 mm in diameter, their pedicels up to 8 mm in length, grouped in fascicles on the peduncle or its very greatly reduced, short, stout branchlets. Calyx somewhat saucer-shaped, truncate, about 3 mm in diameter, not toothed. Petals 5, oblong-ovate, obtuse, 3.5 to 4 mm long. Stamens 3, about 2 mm long. Ovary and style slightly 3-angled. Disk very prominent.

**LEYTE,** Tigbao, near Tacloban, Wenzel 1584, July 18, 1915, a vine reaching a height of about 4 meters.

Readily distinguished from the other Philippine forms by its densely many-flowered, short-peduncled, umbellate or depauperate cymose-umbellate inflorescences, the peduncles shorter than the petioles, the flowers arranged in fascicles on the peduncle or on its very short stout branchlets, appearing like a true umbel. The very young fruits are ovoid.

**SAPINDACEAE**

**NEPHELIUM** Linnaeus

**NEPHELIUM SCHNEIDERI** sp. nov.

Species N. mutabile et N. intermedio affinis, differt nervis lateralis magis numerosis, utrinque circiter 18. Arbor usque ad 9 m alta, partibus junioribus et inflorescentiis exceptis glabra; foliiis 25 ad 35 cm longis, foliolis 5 vel 7, oblongis, chartaceis vel subcoriaceis, usque ad 20 cm longis, nitidis, subitus subglaucescentibus, nervis utrinque circiter 18, perspicuis; fructibus globosis, circiter 3 cm diometro, in siccatitae castaneis, processibus
subrectis, subtruncatis, compressis, rigidis, sulcatis, circiter 6 mm longis.

A tree about 9 m high, glabrous except the younger parts and the inflorescence. Branches subterete, pale-grayish, often sulcate. Leaves 25 to 35 cm long, glabrous, the leaflets 5 or 7, oblong, chartaceous to subcoriaceous, oblong, 16 to 20 cm long, 5.5 to 8 cm wide, distinctly acuminate, base acute, when dry pale-brownish to pale-olivaceous, shining, the lower surface paler than the upper and usually slightly glaucous; lateral nerves about 18 on each side of the midrib, prominent, the reticulations distinct. Panicles terminal, densely subferruginous-pubescent, the branches few, up to 7 cm in length. Buds rather densely crowded, globose; petals ovate, minute. Fruits globose, pale greenish-yellow when fresh, castaneous when dry, 3 cm in diameter, the spines numerous, spreading, straight or slightly falcate, compressed, striate, subtruncate, about 6 mm long and 1.5 mm wide.

MINDANAO, Zamboanga District, Talisay, For. Bur. 18775 Foxworthy, DeMesa, & Villamil, June 18, 1913 (type), in the virgin forest, altitude about 20 meters, locally known as buli. The same species is represented by For. Bur. 24052 Acuña from Kalambugan, Lanao District, Mindanao, May 17, 1915, with immature flowers.

Its alliance is with Nephelium mutabile Blume and N. intermedium Radlk., the latter being scarcely distinguishable from the former; from these it is distinguished especially by its much more numerous lateral nerves. The species is dedicated to Mr. E. E. Schneider, wood expert of the Bureau of Forestry, who called my attention to the fact that the wood of this species was entirely different from that of Nephelium mutabile Blume as the type specimen was originally identified by me.

OTOPHORA Blume

OTOPHORA CAULIFLORA sp. nov.

Frutex glaber; foliis circiter 40 cm longis, foliolis 5 vel 6, oblongis ad oblongo-ellipticis, usque ad 25 cm longis, nitidis, acuminatis, basi acutis, nervis primariis utrinque circiter 10; stipulis suborbicularis, subcoriaceis, inaequalateralibus, 1 ad 2 cm longis; inflorescentiis paniculatis e ramis vetustioribus, circiter 20 cm longis, anguste pyramidatis, ramis paucis, inferioribus 3 ad 4 cm longis; fructibus carnosis, subglobosis, 3 ad 4 cm diametro, in siccitate brunneis, 2 ad 3 cm diametro.

A glabrous shrub, 1 m high according to the collector, but probably higher. Branches terete, brownish or grayish, lenticellate. Leaves about 40 cm long, the leaflets 5 or 6, chartaceous to subcoriaceous, oblong to oblong-elliptic, or the lower ones subovate, 15 to 25 cm long, 7 to 9 cm wide, base acute, apex
acuminate, pale when dry, of about the same color and shining on both surfaces; primary lateral nerves about 10 on each side of the midrib, prominent, curved, anastomosing, the reticulations prominent on both surfaces; stipules suborbicular, 1 to 2 cm long, similar to the leaves in texture and color, inequilateral, very shortly obtuse-acuminate or obtuse. Panicles from the trunk or larger branches, narrowly pyramidal, about 20 cm long, the branches few, spreading, the lower ones 3 to 4 cm long. Fruits fleshy, white or somewhat pink when fresh and 3 to 4 cm in diameter, when dry subglobose, 2 to 3 cm in diameter, brown, with one or two large, castaneous, shining seeds 1.5 to 2 cm in diameter.


This species is allied to Otophora fruticosa Blume, but is readily distinguished, among other characters, by its very much larger fruits.

**RHAMNACEAE**

**VENTILAGO** Gaertner

**VENTILAGO BRUNNEA** sp. nov.

A scandent shrub, glabrous except the inflorescence. Branches and branchlets dark-brown, terete, smooth. Leaflets uniformly brown and shining on both surfaces when dry, subcoriaceous or firmly chartaceous, oblong, 12 to 20 cm long, 4 to 6 cm wide, base rounded to subacute, narrowed upward to the very broadly acuminate apex, the acumen rounded or slightly retuse and 3 to 5 mm wide at the tip; primary lateral nerves about 9 on each side of the midrib, prominent, curved, obscurely anastomosing close to the margin, the reticulations dense; petioles brown, 3 mm long or less. Inflorescences axillary and terminal, simple or branched from the base, the branches few, up to 13 cm in length, all parts uniformly pubescent with short, subferruginous or sometimes cinereous hairs. Flowers yellowish-white, numerous,
fascicled along the branches, 3 to 10 in a fascicle, 3 to 4 mm in diameter, their pedicels pubescent, 1 to 1.5 mm long. Calyx dark-brown when dry, externally slightly pubescent, the lobes broadly triangular, acute, 1.5 mm wide at the base, 1.2 mm long. Petals membranaceous, obovate, retuse, 1 mm long. Disk about 2 mm in diameter; styles 2, very short. Fruits unknown, the very young ones when 1 cm long or less very slightly pubescent, apparently soon entirely glabrous.

LUZON, Tayabas Province, Umiray River, *Bur. Sci.* 29053 Ramos & Edaño, June 3, 1917, in forests along the Umiray River at low altitudes. This species is manifestly allied to *Ventilago dichotoma* (Blanco) Merr., from which it is readily distinguished by its much larger leaves.

VITACEAE

TETRASTIGMA Planchon

**TETRASTIGMA CORNICULATUM** sp. nov.

Frutex scandens, inflorescentiis et stipulis exceptis glaber; foliis pedatim 5-foliolatis, foliolis chartaceis vel subcoriaceis, ovatis ad oblongo-ovatis, acuminatis, basi subrotundatis, usque ad 9 cm longis grosse serrato-dentatis, nervis utrinque circeri 6; inflorescentiis pedunculatis, subcorymboso-umbellatis, usque ad 5 cm longis, multifloris; sepalis lanceolatis, acuminatis, petalis extus pubescentibus, circiter 4 mm longis, apice prominentem acuminato-corniculatus.

A scandent shrub, glabrous except the stipules and the inflorescences, the branches subterete, brown when dry. Leaves pedately 5-foliolate, their petioles up to 10 cm long; stipules inequilateral, oblong-ovate, acute to somewhat acuminate, up to 1 cm long, externally densely furruginous-puberulent; leaflets ovate to oblong-ovate, subcoriaceous, slightly shining when dry, subolivaceous, 6 to 9 cm long, 4 to 6 cm wide, base usually rounded, often inequilateral, apex rather prominently acuminate, margins rather coarsely serrate-dentate; lateral nerves about 6 on each side of the midrib, slender, distinct; petiolules usually about 1 cm long. Inflorescences in the upper axils, peduncled, umbellate-corymbose, cinereous-puberulent, many flowered. Flowers greenish, umbellately arranged on the ultimate branchlets, their pedicels cinereous-puberulent, 5 to 6 mm long. Sepals 4, lanceolate, pubescent, acuminate, about 1 mm long. Petals oblong-lanceolate, externally rather densely cinereous-puberulent, 4 mm long, prominently acuminate-corniculate, the apical appendage somewhat spreading. Filaments about 2 mm long. Female flowers not seen.
LEYTE, Tigbao, near Tacloban, Wenzel 1240, May, 1915, a vine with greenish flowers, reaching a height of about 10 meters.

A species well characterized by its prominently corniculate, pubescent petals, in vegetative characters resembling Tetrastigma sepulchrei Merr., but apparently not closely allied to that species.

ELAEOCARPACEAE

ELAEOCARPUS Linnaeus

ELAEOCARPUS BONTOCENSIS sp. nov. § Dicera.

Arbor circiter 8 m alta, partibus junioribus inflorescentiisque exceptis glabra; foliis coriaceis, nitidis, elliptico-ovatis, usque ad 7 cm longis, utrinque subaequaliter angustatis, basi acutis, apice breviter obtuseque acuminatis, margine crenato-serrulatis, nervis utrinque circiter 5, axillis glandulosis; racemis leviter pubescentibus, axillaribus, solitariis, 1 ad 2 cm longis, paucifloris; floribus 4- et 5-meris, parvis; petalis margine parciissime ciliatis, apice breviter laceratis; staminibus 20, obtusis, haud ciliatis; ovario 3-locellato, puberulo.

A tree about 8 m high, glabrous except the very young parts and the sparingly pubescent racemes. Branches terete, reddish-brown, rather slender, the tips of the branchlets more or less appressed-pubescent. Leaves elliptic-ovate, coriaceous, rather pale when dry, shining, 4 to 7 cm long, 2 to 4 cm wide, subequally narrowed to the acute base and short, blunt-acuminate apex, margins distinctly crenate-serrate; lateral nerves about 5 on each side of the midrib, rather prominent, their axils glandular, reticulations slender, rather lax; petioles 1 to 1.5 cm long. Racemes axillary, solitary, short, few-flowered, 1 to 2 cm long, sparingly pubescent. Flowers small, 4- and 5-merous, their pedicels about 4 mm long. Sepals oblong-ovate, acute, slightly pubescent, 4 mm long, 2 mm wide. Petals oblong-ovate to obovate, about 3.5 mm long, 2 mm wide, margins and surface inside in the lower part very sparingly ciliate with slender, white hairs, the apical 1 to 1.5 mm cut into 10 to 12 narrow divisions, none of these more than 1 mm in length. Stamens 20, 2 to 2.5 mm long, the filaments short, the anthers narrow, obtuse, scabrid, the cells equal, not awned or ciliate. Disk gray-puberulent. Ovary ovoid, densely gray-puberulent, 3-celled; style puberulent, about 2 mm long.

LUZON, Bontoc Subprovince, Bauco, Vanoverbergh 3892, January, 1914, in forests, altitude about 1,700 meters, the flowers pink.

A species well characterized by its very short, few-flowered racemes; 4- and 5-merous, small flowers; its very short petal-segments, very sparingly ciliate petals; and obtuse, not at all awned or ciliate anthers.
ELAEOCARPUS SURIGAENSIS sp. nov. § Dicera.

Arbor circiter 20 m alta, inflorescentiis exceptis glaber; foliis oblongs, coriaceis, usque ad 23 cm longis, longe petiolatis, in siccitate brunneo-olivaceis, breviter acuminatis, basi acutis, interdum distincte inaequaliteralibus, margin minute distanter cuspidato-denticulatis, nervis utrinque circiter 10, distinctis; racemis axillaribus, usque ad 11 cm longis, laxis, paucifloris, griseo-pubescentibus; floribus 5- vel 6-meris, circiter 7 mm longis, sepalis petalisque extus uniformiter adpresse cinereopubescentibus; petalis fimbriatis, staminibus circiter 20, antheris 2.5 ad 3.5 mm longis, muticis; ovario dense pubescente, 3-loculare.

A tree about 20 m high, entirely glabrous except the cinereous-pubescent inflorescence. Branches terete, brownish, rugose, the ultimate ones somewhat thickened, 5 to 10 mm in diameter, the petiolar scars rather prominent. Leaves alternate, oblong, coriaceous, brownish-olivaceous when dry, 17 to 23 cm long, 7.5 to 10 cm wide, subequally narrowed to the shortly acuminate apex and to the acute base, the base sometimes distinctly inequilateral, the margins distantly and obscurely cuspidate-denticulate; lateral nerves about 10 on each side of the midrib, prominent, anastomosing, the reticulations rather close, distinct; petioles 2.5 to 6 cm in length. Racemes axillary, solitary, rather numerous, 9 to 11 cm long, rather lax, few-flowered, all parts uniformly appressed cinereous-pubescent, the pedicels 1 to 1.5 cm long, the subtending bracteoles oblong to lanceolate, 3 to 5 mm long. Flowers 5- and 6-merous, yellow, fragrant, perfect, about 7 mm long. Sepals lanceolate, narrowed upward, acute, about 7 mm long, outside uniformly appressed cinereous-pubescent, inside glabrous in the lower one-half, sparingly pubescent above. Petals equaling the sepals in length, oblong, slightly narrowed below, outside uniformly appressed-pubescent, inside along the median portion and margins densely pubescent, slightly so elsewhere, the upper 2 to 3 mm cut into about 15 slender fimbriae. Stamens about 20, their filaments 1.5 to 2 mm long; anthers narrowly oblong, scabrid, 2.5 to 3.5 mm long, one cell slightly exceeding the other, the tip slightly projecting, not awned. Ovary ovoid, densely pubescent, 3-celled; style pubescent near the base, glabrous above, about 4 mm long.

MINDANAO, Surigao Province, near Mabini, For. Bur. 26000 Ponce, May 11, 1916, in level rich soil at the edge of the forest, altitude about 50 meters, locally known as yagao-yagao.

In general appearance this species somewhat resembles Elaeocarpus octopetalus Merr. and E. leytenensis Merr. but belongs in a different section.
of the genus than either of the above. It does not appear to be closely allied to any previously described Philippine form.

**Elaeocarpus Monocera** Cav. Ic. 6 (1801) 1, t. 501.


This species, a very characteristic one, is widely distributed in the Philippines. The type material, on which Cavanilles's description and figure were based was from Los Baños and Jala-jala, Luzon, points on opposite sides of Lake Bay. I can see absolutely no reason for distinguishing *Elaeocarpus megacarpa* Elm. from *E. monocera* Cav. The species is represented by the following specimens:


**MALVACEAE**

**ABELMOSCHUS** Medikus

**ABELMOSCHUS VANOVERBERGHII** sp. nov.

*Herba erecta, usque ad 60 cm alta, hispido-hirsuta, leviter ramosa, e basi valde incrassata; foliiis palmatim 5- vel 7-lobatis, usque ad 9 cm longis, lobis oblongo-ovatis ad lineari-lanceolatis, grosse serratis; floribus circiter 4 cm longis, flavis, calycibus spathaceis, circiter 2 cm longis, hirsutis, bracteis 10, linearis, circiter 1.5 cm longis, ciliato-hirsutis; capsulis ovoideis vel sub-ellipsoides, dense hispido-hirsutis, obtusis, circiter 3 cm longis.

An erect, somewhat branched perennial herb from a much thickened underground base, the branches up to 60 cm in length, these, the branchlets, leaves and bracts prominently hispid-hirsute with spreading, stiff, rather pale hairs. Leaves variable, 4 to 9 cm long, palmately 5- or 7-lobed, the lobes oblong ovate and extending half-way to the base to linear-lanceolate and extending nearly to the base, all acute or somewhat acuminate and rather coarsely toothed, scabrid, somewhat hispid-hirsute on both surfaces; petioles 2 to 6 cm long. Flowers yellow, with dark-purple or brown spots at the base of the petals, several on each branch but only one or two opening at one time. Calyx spathaceous, deciduous, about 2 cm long, short appressed-hirsute, grayish when dry, with short narrow lobes at the apex. Corolla about 4 cm long, campanulate. Bracts 10, linear, prominently
hirse with spreading hairs, about 1.5 cm long. Capsules ovoid
to subellipsoid, obtuse, about 3 cm long and 2 cm in diameter,
externally densely hirsute with stiff, spreading, pale hairs.
Seeds not at all musky.

LUZON, Cagayan Province, **Bolster** 122, July, 1905, *For. Bur. 16493
near Cervantes, *Merrill 4480*, November, 1905; Bontoc Subprovince, *Vano-
verbergh 879, 1221* (type), October and May, 1911.

This species grows in open grasslands, and is characterized by its
thickened, woody, underground base; it is manifestly a perennial plant,
differing in this character from *A. moschatus* to which it is evidently allied.
It is very closely allied to *Abelmoschus sagittifolius* Kurz, which Hoch
reutiner has reduced to *A. abelmoschus*, but has smaller flowers which are
yellow, not at all pink or red, and differently shaped leaves.

**HIBISCUS** Linnaeus

**HIBISCUS VITIFOLIUS** Linn. Sp. Pl. (1753) 696; Mast. in Hook. f. Fl.
Brit. Ind. 1 (1874) 338.

LUZON, Union Province, San Fernando, *R. Lete 117, 144*, July and
August, 1916, locally known as *mapua*.

Not previously reported from the Philippines; tropical Africa and
Asia to tropical Australia.

**SIDA** Linnaeus

**SIDA° LONGISTIPULA** sp. nov.

Herba annua, prostrata, caulis numerosis, usque ad 20 cm
longis, simplex vel rariter ramosis, ciliato-pilosis; foliis oblongis,
usque ad 1.8 cm longis, basi cordatis, 3-nerviis, apice obtusis, in
½ vel ¼ superiore parte prominentе serratis; stipulis linearis vel
lineari-spatulatis, circiter 1 cm longis; floribus breviter pedicel-
latis, axillaribus, plerumque ad apicem ramulorum confertis;
calycibus teretibus, haud angulatis vel costatis, 5-lobatis, extus
pubescentibus pilosisque, 6 ad 7 mm longis; carpellis 5 ad 8,
prominente muricatis, facies interioribus prominentе reticulatis,
brevissime biaristatis.

An annual herb, the stems numerous, tufted from the apex
of the stout perpendicular root, prostrate, spreading, all parts
more or less pubescent with sparingly stellate, long, white ciliate-
pilose hairs, the stems up to 20 cm in length, simple, rarely
branched. Leaves oblong, 1 to 1.8 cm long, 3 to 7 cm wide,
long petioled, base cordate, 3-nerved, apex obtuse, in the upper
one-half or one-third prominently serrate, the upper surface
glabrous, the lower more or less stellate-pilose, the margins
sparingly ciliate; petioles up to 1 cm in length, sparingly ciliate-
pilose; stipules linear or linear-spataulate, about 1 cm long.
Flowers mostly crowded at the apices of the stems, forming a
subcapitate leafy inflorescence, sometimes solitary ones in the lower axils, their pedicels not jointed, 2 to 3 mm long. Calyx 6 to 7 mm long, terete, not ribbed or angled, rather densely cinereous-pubescent and with long, white, ciliate hairs intermixed, the lobes 5, oblong-ovate, acute, 4 to 5 mm long. Corolla-lobes 5 to 6 mm long, oblong-ovate, obtuse, the tube very short. Stamens about 18, the tube about 1.5 mm long. Ovary depressed about 8-celled; styles 8, about 3 mm long; stigmas capitate. Mature carpels 5 to 8, prominently muricate, 3 to 4 mm long, the projections with a minute tuft of hairs at the tips, the inner faces very prominently reticulate, the apex biaristate, the awns 1 mm long or less.


The relationship of this strongly marked species is apparently with the Australian *Sida subspicata* F. Muell., but it is not closely allied to that species. It is well characterized by its tufted, simple stems, its long petioled, oblong, 3-nerved, cordate, small leaves which are prominently toothed in the upper part; its long stipules; its crowded flowers which form a dense, subcapitate, leafy inflorescence; and its prominently muricate, short-awned carpels which are strongly reticulate on the inner faces.

**DILLENIACEAE**

**SAURAUIA Willdenow**

**SAURAUIA ALVAREZII** sp. nov.

Arbor circiter 6 m alta prominente patule setosis, foliiis subcoriaceis, oblongis ad elliptico-oblongis, usque ad 20 cm longis, acutis vel breviter acuminatis, basi obtusis, margine irregulariter spinuloso-serratis, nervis utrinque 10 ad 12, prominentibus, supra olivaceis, subtus pallidis, costa nervisque utrinque setosis; floribus axillaribus, solitariis, longe pedicellatis, pedicellis sub fructu 2 ad 4 cm longis, densissime patule setosis; sepalis 12 ad 14 mm longis, densissime setosis; fructibus 4-locellatis, circiter 12 mm longis, puberulis.

A tree about 6 m high, all parts prominently setose, the setae pale-brownish, rather soft, spreading, thickened below, slenderly acuminate and minutely puberulent. Branches brown, terete, the branchlets very uniformly and densely setose. Leaves alternate, subcoriaceous, oblong to elliptic-oblong, 11 to 20 cm long, 5 to 8 cm wide, the upper surface dark-olivaceous, the lower pale, apex acute to acuminate, base obtuse, margins irregularly spinulose-serrate, midrib on the upper surface spinulose-setose, the epidermis with widely scattered similar hairs, the lower
surface with much more numerous setae; lateral nerves 10 to 12 on each side of the midrib, prominent, curved, anastomosing, the reticulations prominent; petioles densely setose, 1.5 to 2.5 cm long. Flowers axillary, solitary, the pedicels and the sepals externally very densely setose, the pedicels, in fruit, 2 to 4 cm long, often with one or two scars at about the middle. Sepals subcoriaceous, elliptic-ovate to broadly ovate, or the inner ones obovate, 12 to 14 mm long, very densely setose, glabrous inside, the marginal parts of the inner ones thinner, mostly acute. Fruit capsular, about 12 mm long, subellipsoidal, 4-celled, externally puberulent, dehiscing in the upper part only.

MINDANAO, Lanao District, Lanao-Cotabato trail, For. Bur. 25202 Alvarez, March 21, 1916, in dipterocarp forests, altitude about 1,000 meters, locally known as carimog.

A very characteristic species, distinguishable by its long-pedicelled, rather large flowers; its dense indumentum which consists of pale-brownish, spreading, acuminate, rather soft setae, the setae themselves puberulent; and its capsular fruits.

SAURAUIA BICOLOR sp. nov.

Frutex circiter 2 m altus vix setosus, subtus foliis et inflor-escentiis densissime cinnamomeo-pubescentibus; foliis chartaceis, oblongis ad ob lanceolatis, usque ad 20 cm longis, acuminatis, basi acutis, margine perspicue subglanduloso-denticulatis, supra laevis, glabris, atro-brunneis vel atro-olivaceis, subtus cinnamomeis, nervis utrinque 13 ad 15, perspicuis; inflorescentiis axillaribus, brevibus, paucifloris vel 1-floris, floribus pro ratione magnis, sepalis suborbicularibus, circiter 1 cm diametro, petalis circiter 14 mm longis; ovario dense pubescente, stylis 4, glabris, circiter 8 mm longis, ad basim connatis.

A shrub about 2 m high, the younger branchlets, petioles, inflorescences, and lower surface of the leaves very densely cinnamomeous-pubescent, the indumentum felted. Branches terete, dark reddish-brown, glabrous, the branchlets and petioles with few, widely scattered, appressed, oblong-ovate scales 2 mm long or less. Leaves chartaceous, oblong to ob lanceolate, 11 to 20 cm long, 4 to 8 cm wide, narrowed below to the cuneate base, the apex shortly and sharply acuminate, the margins, except at the base, conspicuously denticulate with somewhat spreading, oblong-obtuse, gland-like teeth about 1 mm in length, the upper surface smooth, glabrous, or when young sparingly puberulent, dark-brown or dark-olivaceous, in striking contrast to the densely cinnamomeous-pubescent lower surface where the indumentum is closely felted; lateral nerves 13 to 15 on each side of the
midrib, prominent, curved-ascending, the reticulations slender; petioles 1.5 to 2.5 cm long, the younger ones densely cinnamomeous-pubescent, the older ones glabrous. Inflorescences axillary, few-flowered, sometimes only 1-flowered, shorter than the petioles, the bracts oblong, obtuse, 5 to 6 mm long. Petals about 10 mm in diameter, rounded, suborbicular, outside very densely felted-pubescent. Petals broadly obovate about 14 mm long, retuse. Ovary densely pubescent; styles 4, glabrous, 8 mm long, united for the lower 1.5 mm.

Luzon, Tayabas Province, Mount Binuang, Bur. Sci. 28735 Ramos & Edaño, May 12, 1917, on forested ridges.

A most characteristic species, its indumentum similar to Saurauia mindorensis Merr., but otherwise not at all closely allied to that species. It is otherwise well characterized by being non-setose, the few scales on the branchlets and petioles being closely appressed.

SAURAUIA GLABRIFOLIA sp. nov.

Frutex circiter 3 m altus, glaber vel ramulis junioribus par-cissime furfuraceis; foliis in siccitate viridis, nitidis, subcoriaceis, usque ad 18 cm longis, oblongis ad oblongo-ovatis, acute acuminatis, basi acutis, margine irregulariter glandulososerrulatis, nervis utrinque circiter 9, utrinque prominentibus, obscure anastomosantibus, reticulis laxis, obscuris; floribus axillaribus, solitariis vel depauperato-fasciculatis, longe pedicellatis, circiter 13 mm diametro, sepalis margine leviter ciliatis exceptis glabris; ovario glabro; stilis 3, liberis.

A shrub about 3 m high, the younger branchlets usually with few, scattered, closely appressed, rather prominent ovate or orbicular scales less than 1 mm in diameter, otherwise entirely glabrous except the ciliate margins of the sepals. Branches reddish-brown, terete, smooth, the branchlets of the same color, somewhat angular when dry. Leaves alternate, subcoriaceous, greenish when dry, shining, oblong to oblong-ovate, 13 to 18 cm long, 5 to 7 cm wide, the apex prominently and sharply acuminate, the base acute, the margins irregularly glandulardenticulate; lateral nerves about 9 on each side of the midrib, curved, rather prominent on both surfaces, obscurely anastomosing, the reticulations lax, indistinct; petioles 1 to 2 cm long. Flowers white, axillary, solitary or in depauperate fascicles of two or three flowers each, their pedicels slender, up to 1.5 cm in length. Sepals 5, equal, elliptic, rounded, 6 mm long, their margins ciliate, otherwise glabrous. Petals 5, oblong-ovate, about 7 mm long, the apex prominently inequilateral, retuse. Stamens about 20, their anthers about 2 mm long. Ovary globose, glabrous; styles 3, free to the base, about 5 mm long.
Mindanao, Surigao Province, Placer, Wenzel 1866, July 4, 1916, in forests, altitude about 150 meters.

A strongly marked species, well characterized by its entirely glabrous leaves and slenderly pedicelled flowers. The almost entire absence of indumentum of any type is rather remarkable, as most of the Indo-Malayan species of the genus are prominently pubescent, setose, or ciliate. In the present species the indumentum is reduced to small, widely scattered, closely appressed scales, and these only on the younger parts of the plant.

**FLACOURTIACEAE**

**CASEARIA EUPHLEBIA** sp. nov.

Frutex glaber, ramis ramulisque teretibus; foliis integris, chartaceis vel subcoriaceis, oblongo-ovatis ad oblongo-ellipticis, usque ad 13 cm longis, acuminatis, basi subacutis ad rotundatis, aequilateralibus vel leviter inaequilateralibus, distincte pellucido-punctatis, nervis utrinque circiter 7, subtus valde prominentibus; floribus axillaribus, solitariis, breviter pedicellatis, circiter 4 mm longis, filamentis cum staminoides adnatis.

A glabrous shrub about 2 m high, the branches pale-grayish, somewhat shining, wrinkled when dry, slender, terete. Leaves greenish-olivaceous and somewhat shining when dry, firmly chartaceous to subcoriaceous, oblong-ovate to oblong-elliptic, 6 to 13 cm long, 3.5 to 6 cm wide, entire, apex distinctly acuminate, base equilateral or somewhat inaequilateral, subacute to rounded, in transmitted light distinctly and minutely pellucid-punctate and with scattered, elongated, larger, translucent dashes; lateral nerves 7 on each side of the midrib, very prominent on the lower surface, curved, anastomosing, the reticulations distinct, rather fine; petioles 3 to 5 mm in length. Flowers solitary, axillary, their pedicels 2 to 2.5 mm long. Sepals somewhat puncticulate, elliptic, rounded, about 4 mm long. Staminodes oblong, about 1.5 mm long and 0.7 mm wide, obtuse or truncate and slightly pubescent at the apex, the anthers oblong, 0.7 mm in length. Ovary glabrous. Young fruit red, oblong, obtuse, about 1.5 cm long.

Leyte, Tigbao, near Tacloban, Wenzel 1503, June 3, 1915.

A species well characterized by its distinctly pellucido-puncticulate, prominently nerved, entire leaves, and its solitary flowers.

**CASEARIA CONFERTIFLORA** sp. nov.

Frutex circiter 3 m altus, ramulis et floribus et subtus foliis molliter pubescentibus; foliis inaequilateralibus, ovatis ad late oblongo-ovatis, usque ad 11 cm longis, breviter obtuseque acuminatis, margine crenatis, basi late oblique subtruncatis, nervis
utrinque circiter 6; floribus numerosissimis, axillaribus, fasci-
culatis, dense confertis, breviter pedicellatis, circiter 4 mm
longis; filamentis 1.5 ad 2 mm longis, glabris, staminodeis li-
beris, oblongis, sursum villosis; ovario pubescente.

A species closely allied to Casearia cinerea Turcz. and C.
grewiaefolia Vent., differing especially in its much fewer nerved
leaves. A shrub about 3 m high, the branchlets, lower surface
of the leaves and the flowers rather densely and softly pubescent.
Branches terete, glabrous, reddish-brown when dry, sparingly
wrinkled and lenticellate, the branchlets densely subferruginous-
to cinereous-pubescent. Leaves subcoriaceous, ovate to broadly
oblong-ovate, 8 to 11 cm long, 4 to 5.5 cm wide, pale-brownish
when dry, apex shortly and obtusely acuminate, margins promi-
nently crenate, base broadly and obliquely truncate, both sides
rounded or one side rounded and the other acute, prominently
inequilaterai, subfalcate, the upper surface glabrous except the
sparingly pubescent midrib, the lower surface softly pubescent,
especially on the midrib and lateral nerves; lateral nerves about
6 on each side of the midrib, prominent, curved-ascending, ob-
scurely anastomosing, the reticulations lax; petioles rather
densely pubescent, 3 to 5 mm long. Flowers yellowish, about
4 mm long, very numerous, crowded in subglobose, dense,
axillary fascicles, 30 to 50 in a fascicle, their pedicels densely
pubescent, 3 to 4 mm long. Perianth-segments 5, elliptic-oblong,
densely pubescent, obtuse. Stamens 10; filaments 1.5 to 2 mm
long, glabrous; anthers oblong-ovate, 1 mm long; staminodes
oblong, obtuse, 1.5 mm long, free, glabrous below, villous in the
upper one-half. Ovary ovoid, pubescent; style very short; stig-
ma capitate.

Luzon, Ilocos Norte Province, Bangui, Bur. Sci. 27442 Ramos, in dry
thickets at low altitudes, locally known to the Ilocanos as boyboyoc.

This species is manifestly very closely allied to Casearia cinerea Turcz.,
differing especially in its distinctly fewer nerved leaves and its very num-
erous, densely crowded flowers.

HOMALIUM Jacquin

HOMALIUM MULTIFLORUM sp. nov. § Blackwellia.

Species H. loheri affinis, differt foliis minoribus, usque ad 8
cm longis, nervis paucioribus, utrinque circiter 6, bracteis oblon-
go-ovatis, circiter 2 mm longis.

A tree about 10 m high, the inflorescence prominently ciliate-
pubescent with spreading pale or cinereous hairs, otherwise
glabrous. Branches terete, reddish-brown, often somewhat
glaucous, obscurely lenticellate. Leaves coriaceous or subcoria-
ceous, elliptic, shining, 6 to 8 cm long, 3 to 4.5 cm wide, sub-equally narrowed to the acute base and to the acute or obscurely acuminate apex, the margins distantly crenate-serrate; lateral nerves about 6 on each side of the midrib, prominent on the lower surface, curved, anastomosing, the reticulations distinct; petioles 5 to 7 mm long. Inflorescences terminal and axillary, the racemes forming large, leafy panicles, the individual racemes or branches mostly simple, up to 12 cm long, all parts more or less pubescent with spreading hairs. Flowers very numerous, 5-merous, about 6 mm in diameter, white, somewhat fascicled along the racemes, their pedicels jointed to the calyx, about 2.5 mm long, the subtending bracts oblong-ovate, acute or acuminate, pubescent, 2 mm long. Calyx-tube narrowly funnel-shaped, 2 mm long. Sepals 5, narrowly oblong, ciliate, 2 mm long, about 0.5 mm wide. Petals 5, narrowly oblong-obovate to somewhat spatulate, ciliate, about 3 mm long. Stamens 1 opposite each petal, the filaments about 2 mm long, sparingly ciliate in the lower one-half. Ovary pubescent; styles 3 or 4, about 1.5 mm long, ciliate.


Very closely allied to *Homalium loheri* Merr., from which it is readily distinguished by its smaller, fewer nerved leaves.

**Homalium platyphyllum** sp. nov. § *Myriantheia*.

Arbor circiter 10 m alta, inflorescentiis exceptis glabra; foliis ellipticis, coriaceis, nitidis, usque ad 20 cm longis et 11 cm latis, integris, apice breviter abrupte obtuseque acuminatiis, basi rotundatis, nervis utrinque circiter 9, perspicuis; inflorescentiis dense cinereo-pubescentibus, laxis, multifloris, usque ad 20 cm longis, ramis elongatis; floribus 8-meris, petalis subspatulatis, circiter 3 mm longis, quam sepalis longioribus; staminibus 16.

A tree about 10 m high, glabrous except the rather densely cinereous-pubescent ample inflorescence. Branches terete, brownish. Leaves elliptic, coriaceous, brownish or brownish-olivaceous and shining when dry, about 20 cm long and 11 cm wide, entire, base rounded, apex very shortly and obtusely acuminate; lateral nerves about 9 on each side of the midrib, prominent, reddish-brown on the lower surface when dry, curved-anastomosing, the reticulations slender, distinct; petioles stout, about 1 cm long. Inflorescence ample, paniculate, up to 20 cm in length, the ultimate branches 10 to 15 cm long, all parts
rather densely cinereous-pubescent. Pedicels 1 to 2 mm long. Calyx-tube obconic, about 2 mm long, the lobes 8, linear, about 2 mm long, pubescent. Petals 8, somewhat spatulate, obtuse, cinereous-pubescent, ciliate on the margins, about 3 mm long. Stamens 16, two opposite each petal, their filaments glabrous, about 2 mm long. Ovary and style pubescent, the style-arms 4, about 1 mm long.

LEYTE, Tigbao, near Tacloban, Wenzel 1525, July 15, 1915, the flowers green.

A species manifestly allied to *Homalium luzoniense* F.-Vill., but with much larger, entire, and somewhat fewer nerved leaves.

**Homalium villosum** sp. nov. § *Myriantheia*.

Arbor circiter 15 m alta subitus foliis et ramulis junioribus et inflorescentiis dense molliter villosis; foliis subcoriaceis, ellipticis, usque ad 8 cm longis, breviter obtuseque acuminatis, basi subacutis, nervis utrinque circiter 6, perspicuis; inflorescentiis axillaris terminalibusque, paniculatis, ramis elongatis, bracteis elliptico-ovatis, 3 ad 4 mm longis, membranaceis, villosis; floribus 6-meris, petalis sepalisque subaequalibus, villosis, circiter 2 mm longis, oblanceolatis; staminibus 18.

A tree about 15 m high, the branchlets, inflorescence, and lower surface of the leaves densely and softly villous with pale hairs. Branches terete, brownish, glabrous. Leaves elliptic, subcoriaceous, 5 to 8 cm long, 2.5 to 5 cm wide, pale when dry, the upper surface shining, glabrous except the puberulent midrib, apex shortly blunt-acuminate, base acute, margins distantly crenulate, the teeth in young leaves crowned with a tuft of hairs; lateral nerves about 6 on each side of the midrib, prominent, anastomosing, curved; petioles densely villous, 2 to 3 mm long. Panicles terminal and axillary, the branches numerous, elongated, densely many-flowered, up to 10 cm long, the flowers 6-merous, scattered along the rachis, not fascicled, the villous pedicels 2 to 2.5 mm long, the bracts prominently ciliate, elliptic to ovate-elliptic, obtuse, 3 to 4 mm long. Sepals 6, prominently ciliate, oblanceolate, acute or subacute, about 2 mm long. Petals similar to the sepals. Stamens three opposite each petal, their filaments about 1.4 mm long, sparingly ciliate at the base. Ovary villous; styles 5 or 6, about 1 mm long, sparingly ciliate.

SAMAR, near Catbalogan, *For. Bur.* 22748 Lasquety, August 2, 1914, on forested ridges, altitude about 200 meters, locally known as batu-batu.

This specimen was originally determined as *Homalium loheri* Merr., but belongs in a different section of the genus than this species. It falls in the group with *Homalium villarianum* Vid., but is distinguished from
it and from the other Philippine species of the section *Myriantheia* by its indumentum. In its general appearance and its indumentum it resembles *H. barandae* Vid., but the latter belongs in the section *Blackwellia*.

**BEGONIACEAE**

**BEGONIA** Linnaeus

**BEGONIA CASTILLOI** sp. nov. § *Diploclinium*.

Herba parva, parcissime et longe ciliatis, repens, caulibus usque ad 10 cm longis stipulis multis brunneis oblongo-lanceolatis acuminatis instructis; foliis suborbicularibus, aequilateralibus vel leviter inaequaliter aequilateralibus, late rotundatis, basi cordatis, 3 ad 5 cm longis, margine integris vel irregulariter denticulatis, ciliatis; inflorescentiis tenuibus, paucifloris, 10 ad 12 cm longis; capsulis circiter 1 cm longis, 1 ad 1.4 cm latis, inaequaliter 3-alatis, suborbicularibus vel apice subtruncatis.

A small herb, the stems up to 10 cm long, creeping, covered with numerous, brown, oblong to lanceolate, slenderly acuminate stipules which are up to 1 cm in length and above usually prominently long-ciliate. Leaves membranaceous, olivaceous-brownish when dry, suborbicular, 3 to 5 cm in diameter, equilateral or somewhat inequilateral, apex broadly rounded, base prominently cordate, the lobes broad, rounded, equal or subequal, 9-nerved, the upper surface glabrous, the lower glabrous or with very few hairs on the nerves, the margins entire or denticulate, sparingly ciliate with long brown hairs; petioles slender, 2.5 to 5 cm long, the younger ones ciliate with long, slender, brown hairs. Inflorescences slender, few-flowered, 10 to 12 cm long, glabrous or nearly so. Capsules unequally 3-winged, about 1 cm long, 1 to 1.5 cm wide, suborbicular, or the upper side of the broad wing truncate, this wing 7 to 9 mm wide, the other two about 2 mm wide.


The general alliance of this species is with *Begonia nigritarum* Steud., to which, however, it is not closely allied. Its distinguishing characters are its small, suborbicular, equilateral or nearly equilateral leaves.

**BEGONIA TAYABENSIS** sp. nov. § *Diploclinium*.

Herba subglabra, caulibus circiter 1 cm diametro, stipulis deciduis; foliis longe petiolatis, perspicue peltatis, suboblique ovatis ad oblongo-ovatis, usque ad 20 cm longis, basi rotundatis, apice subacutis vel obtusis, margine subintegris, subtus valde reticulatis; inflorescentiis longissime pedunculatis, 25 ad 35 cm longis, dichotomis, laxis, paucifloris; floribus ♂ circiter 2 cm
diametro; capsulis circiter 1 cm longis et 1.8 cm latis, inaequilateraliter 3-alatis.

A subglabrous herb, the stems creeping, reddish-brown when dry, about 1 cm in diameter, glabrous; stipules deciduous, broadly ovate, acuminate, sparingly ferruginous-ciliate, about 1 cm long. Leaves prominently peltate, the petiole inserted 2 to 4 cm from the base of the leaf, membranaceous, somewhat oblique, ovate to oblong-ovate, 15 to 20 cm long, 10 to 12 cm wide, base broadly rounded, apex acute or somewhat obtuse, margins subentire, not at all lobed, with a fringe of scattered, tooth-like, short cilia, both surfaces with widely scattered, short hairs, ultimately glabrous or nearly so; basal nerves radiate, about 9, prominent, the reticulations very prominent on the lower surface; petioles 12 to 15 cm long, glabrous or with very few, widely scattered, short hairs. Inflorescences 25 to 35 cm long, dichotomous, few-flowered, sparingly ciliate with short, pale, spreading, scattered hairs, the flower-bearing part about 10 cm long. Staminate flowers white or slightly pink, about 2 cm in diameter, the sepals elliptic-ovate, rounded. Capsules about 1 cm long and 1.8 cm wide, base rounded, apex subtruncate, one wing very much larger than the other two and about 1 cm in width, the other two 3 to 4 mm wide.

Luzon, Tayabas Province, Umiray River, Bur. Sci. 2905, Ramos & Edaño, June 3, 1917, on ledges and steep slopes in forests along the river.

This strongly characterized species is one of the few known representatives of the section Diploclinium with peltate leaves. It is readily distinguished from our peltate-leaved species, Begonia hernandioides Merr., B. rufula Merr., and B. ELMERI Merr. [B. peltata Elm. Leafl. Philip. Bot. 7 (1915) 2556, non A. DC., nec Hassk., nec Otto & Dietr.] by being nearly glabrous, the few, widely scattered hairs on the leaves and inflorescences scarcely exceeding 1 mm in length.

Begonia Apayaoensis sp. nov. § Petermannia.

Species B. brevipes Merr. similimis, differt floribus fructibusque multo majoribus. Herba erecta, ramosa, usque ad 45 cm alta, perspicue ferrugineo-pubescentibus; folii inaequilateraliter obovatis, in siccitate bruneis, brevissime petiolatis, usque ad 9 cm longis, acuminatis, basi angustatis, oblique cordatis, margine grosse et irregulariter dentato-lobatis et denticulatis; inflorescentiis terminalibus; 3 ad 5 cm longis, paucifloris; floribus 5-meris, sepalis late ovatis, obtusis, 13 mm longis; sepalis 5, 2, similis; capsulis circiter 2 cm longis et latis, apice truncatis, deorsum angustatis et subacutis, aequaliter 3-alatis.

An erect branched herb about 45 cm high, the lower parts of the stems terete, somewhat decumbent and rooting, dark-brown,
terete, 3 to 4 mm in diameter, ferruginous-hirsute, the younger branchlets rather densely ferruginous-hirsute as are the short petioles and nerves on the lower surface of the leaves. Leaves membranaceous, brown when dry, the lower surface paler than the upper, in general obovate, inequilateral, 7 to 9 cm long, 3.5 to 5.5 cm wide, apex acuminate, base narrowed and obliquely cordate, the wider lobe rounded the other acute, the margins irregularly and coarsely dentate-lobed and denticulate; lateral nerves 4 or 5 on each side of the midrib, prominent; petioles 4 to 10 mm long; stipules membranaceous, 1 cm long or less. Inflorescences terminal, 3 to 5 cm long, few-flowered, the basal flower pistillate, the others staminate, the bracts membranaceous, oblong, acuminate, nearly 1 cm long. Pistillate flowers 5-merous, the sepals broadly ovate, obtuse, about 13 mm long. Stamine flowers white, the sepals 2, similar to those of the pistillate flowers, the stamens numerous, crowded on an elongated axis about 5 mm in length. Capsules equally 3-winged, about 2 cm long and wide, apex truncate, narrowed below to the subacute base, the wings submembranaceous.

LUZON, Apayao Subprovince, Mount Sulu, Bur. Sci. 28403 Félix, May 22, 1917, on rocky shaded slopes, altitude about 1,000 meters.

This species resembles Begonia brevipes to which it is perhaps most closely allied. It is distinguished especially by its somewhat larger size, denser indumentum, and very much larger flowers and capsules.

BEGONIA BINUANGENSIS sp. nov.

Species B. wenzelii Merr. affinis, differt foliis majoribus, usque ad 8 cm longis, petiolis longioribus, capsulis turbinatis, 1.5 cm longis et 2 cm latis. Herba scandens, ramosa, glabra, internodiis 1.5 ad 3.5 cm longis, ramis teretibus, circiter 4 mm diametro; foliis membranaceis, oblongis ad oblongo-lanceolatis, basi rotundatis vel obtusis, apice acuminatis, margine irregulariter serrato-dentatis; sepals 3 orbicularibus, circiter 1 cm diametro; capsulis inaequaliter 3-alatis, apice truncatis, deorsum angustatis.

A scandent, glabrous, branched herb, rooting at some of the nodes, the stems and main branches terete, about 4 mm thick, brown, the branchlets more slender, the internodes 1.5 to 3 cm long. Leaves when dry membranaceous, olivaceous, somewhat shining, oblong to oblong-lanceolate, 5 to 8 cm long, 2 to 3 cm wide, somewhat inequilateral, base rounded or obtuse, narrowed above to the acuminate apex, margins irregularly serrate-dentate, the basal nerves 5 or 7, slender, ascending; petioles 1 to 3 cm long. Inflorescences terminal or in the uppermost axils, 3 to 4 cm long, few-flowered. Stamine flowers white, the sepals 2,
orbicular, about 1 cm in diameter. Capsules turbinate, somewhat unequally 3-winged, about 1.5 cm long and 2 cm wide, the apex truncate or subtruncate, narrowed below to the subacute base.

Luzon, Tayabas Province, Mount Binuang, Bur. Sci. 28813 Ramos & Edano, May 11, 1917, climbing on tree trunks in damp forests near the summit of the mountain, altitude apparently about 1,000 meters.

This characteristic species, belonging in the group with Begonia aequata A. Gray, is most closely allied to Begonia wenzelii Merr., from which it is readily distinguished by its larger, differently shaped, longer petioled leaves and distinctly larger capsules.

**Begonia caudata** sp. nov.

Herba scandens, glabra, usque ad 3 m longa; foliis in siccitate membranaceis, longissime petiolatis, subolivaceis, nitidis, ovatis ad subellipticis vel oblongo-ellipticis, usque ad 20 cm longis, basi inaequilateraliter cordatis, apice tenuiter caudato-acuminatis, margine obscure undulatis et distantier denticulatis; inflorescentiis 40 ad 50 cm longis, axillaris, longe pedunculatis, dichotomis, laxis; floribus 5 circiter 25 mm diametro; capsulis 2 cm longis et 3 cm latis, alis valde inaequalibus, 2 circiter 4 mm latis, ala tertia membranacea, circiter 2 cm lata.

A glabrous scandent herb climbing on tree trunks to a height of 3 m, entirely glabrous, the stems 5 to 6 mm in diameter when dry, the internodes 4 to 6 cm long and with numerous roots. Leaves membranaceous, subolivaceous and shining when dry, ovate to subelliptic or oblong-elliptic, 14 to 20 cm long, 8 to 9 cm wide, base somewhat inequilateral, prominently cordate, palmately 7- or 9-nerved, apex rather abruptly and slenderly caudate-acuminate, the acumen 1 to 2 cm long, margins slightly undulate or nearly entire, sometimes with widely scattered, small, obscure teeth, the lateral nerves above the base usually two on each side of the midrib; petioles stout, 10 to 17 cm long. Inflorescences axillary, the peduncles stout, glabrous, up to 40 cm in length, the cymes dichotomous, lax, 15 cm wide or more. Staminate flowers pink, the sepals suborbicular, about 13 mm long, rounded. Capsules about 2 cm long, very unequally 3-winged, one wing membranaceous, about 2 cm wide, the other two about 4 mm wide.

Luzon, Apayao Subprovince, Mount Sulu, Bur. Sci. 28414 Fenix, May 22, 1917, on rocky slopes in damp forests, altitude apparently above 800 meters.

This most characteristic species is readily recognized by its habit, its long-petioled, subentire, caudate-acuminate leaves, and its very long inflorescences. It apparently belongs in the same group as Begonia oxy sperma A. DC., but is entirely different from that species in its vegetative
characters, and is equally distinct from the scandent *Begonia megacarpa* Merr.

**CORNACEAE**

**MASTIXIA** Blume

**MASTIXIA TETRAPETALA** sp. nov. § *Tetramastixia*.

Arbor parva, inflorescentiis exceptis glabra; foliis numerosis, confertis, alternis, oblongis ad oblanceolatis, coriaceis, usque ad 8 cm longis, pallide olivaceis, nitidis, apice obtusis ad leviter obtuseque acuminatis, basi cuneatis, nervis utrinque 6 ad 7, distinctis; paniculis terminalibus, circiter 2 cm longis, leviter pubescentibus; floribus 4-meris, circiter 6 mm diametro, petalis late ovatis, subacinatis, stabulis, glabris, 3 mm longis, calycis lobis latis, subacutis, glabris, circiter 1 mm longis.

A small tree 3 to 4 m high *fide* Ramos, glabrous except the very youngest growing parts and the inflorescences. Branches rather stout, brownish, rugose, glabrous, terete, the very young branchlets and young petioles sparingly appressed cinereous-pubescent. Leaves alternate, crowded, sometimes subopposite, coriaceous, oblong to oblanceolate, 5 ad 8 cm long, 2 to 3 cm wide, pale-olivaceous when dry, slightly shining, glabrous, the apex obtuse to shortly and obtusely acuminate, base cuneate, margins often revolute; lateral nerves 6 or 7 on each side of the midrib, distinct, the reticulations obscure; petioles 8 to 14 mm long. Panicles terminal, sparingly appressed-pubescent, about 2 cm long, branched from the base. Flowers 4-merous, rather numerous, greenish-yellow, about 6 mm in diameter. Calyx-tube stout, glabrous or very slightly pubescent, about 2 mm long and thick, the limb somewhat spreading, the teeth 4, broadly triangular, acute, about 1 mm long and wide. Petals suborbicular-ovate, subacute, 3 mm long and wide. Filaments 2.3 mm long; anthers broadly ovoid. Ovary projecting slightly above the calyx-tube, the style stout, angled, about 1 mm long. Bracteoles triangular-ovate, acute, 1 mm long, pubescent.

**Luzon**, Tayabas Province, Mount Binuang, *Bur. Sci* 28575 (type), 28628 Ramos & Edaño, May, 1917, in forests near the summit of the mountain, altitude apparently about 1,000 meters.

This species is readily distinguished among the few Philippine forms by its relatively narrow, crowded, alternate, leaves and its 4-merous flowers. It does not appear to be very closely allied to any previously described form. *Bur. Sci* 29088 Ramos & Edaño, from the same locality, may be referable to this species, but it has subopposite larger leaves and much larger inflorescences; the flowers are very immature. *Mastixia premnoides* (Elm.) Hallier f. (*Vitex premnoides* Elm.), which has 4-merous flowers, is entirely different in its vegetative and floral characters.
**MASTIXIA SUBCAUDATA** sp. nov. § Tetramastixia.

Arbor parva novelli et inflorescentiis exceptis glabra; foliis stricte alternis, chartaceis ad subcoriaceis, oblongo-ovatis, usque ad 6 cm longis, apice perspicue subcaudato-acuminatis, basi cuneatis, nervis utrinque 4 ad 6, tenuibus; inflorescentiis 2 ad 3 cm longis, adpressae cinereo-pubescentibus; floribus 4-meris, circiter 3 mm longis, calycibus haud dentatis, extus glabris vel parcissime pubescentibus; petalis glabris.

A small tree, the very youngest parts and the inflorescences appressed cinereous-pubescent, otherwise glabrous. Branches terete, rather pale when dry. Leaves chartaceous to subcoriaceous, oblong-ovate, 5 to 6 cm long, 2 to 2.5 cm wide, the apex prominently subcaudate-acuminate, the acumen blunt and up to 1 cm in length, base cuneate, when dry pale-olivaceous, somewhat shining, the lower surface paler than the upper; lateral nerves 4 to 6 on each side of the midrib, slender, curved, the reticulations indistinct; petioles 7 to 10 mm long, when young slightly pubescent, becoming glabrous. Panicles terminal, 2 to 3 cm long, appressed cinereous-pubescent with short hairs, branched at or from near the base. Flowers numerous, yellowish, about 3 mm long, 4-merous, the pedicels very short, the bracteoles ovate, acute, pubescent, 1 mm long or less. Calyx about 2 mm long, slightly pubescent, the limb narrow, undulate, somewhat spreading, entire or very obscurely toothed. Petals broadly ovate, obtuse, glabrous, 1.5 mm long. Anthers suborbicular, 1 mm long. Top of the ovary sulcate, the style stout, angled, 0.8 mm long.

**LUZON**, Sorsogon Province, Mount Lalao, Bur. Sci. 23353 Ramos, August 23, 1915, on the forested summit of the mountain, altitude not indicated.

The above specimen was originally determined as *Mastixia philippinensis* Wang., a species common and widely distributed in the Philippines. It differs constantly, however, in its 4-merous flowers, and besides has smaller, somewhat differently shaped leaves, entire or subentire calyx-limb, and glabrous petals.


The type of this species is *Elmer 11644*, from Mount Apo, Mindanao. The species is also represented by the following specimens from the Lanao District, Mindanao, which had been long since written up by me, but not published, as a distinct species of *Mastixia* Clemens 683, in flower, and without number, in fruit, March and February, 1907, For. Bur. 25208, 25224 Alvarez, March, 1916. The species belongs in the section *Tetramastixia*.
ARALIACEAE

BOERLAGIODENDRON Harms

BOERLAGIODENDRON YATESII sp. nov.

Frutex glaber; foliis palmatim 5- to 7-foliolati, foliolis coriaceis, oblongis ad oblongo-ellipticis, 8 ad 18 cm longis, omnibus petiolulatis, acuminatis, basi acutis, marginne irregulariter serratis, dentibus mucronatis; inflorescentiis terminalibus, subsessilibus, umbellatis, radiis primariis 5 vel 7, usque ad 3 cm longis, dichotomis vel trichotomis; floribus in capitulis globosis subconferitis, 4-meris, capitulis circiter 1 cm diametro.

An erect glabrous shrub, the branches terete, brownish, 8 to 10 mm in diameter. Leaves alternate, palmately 5- to 7-foliolate, their petioles 13 to 20 cm long, the basal crests 2 or 3, coriaceous, glabrous, not at all pectinate; leaflets coriaceous, oblong to oblong-elliptic, 8 to 18 cm long, 4.5 to 7 cm wide, apex rather prominently acuminate, base acute, in the outer leaflets inequilateral, margins very irregularly serrate, the teeth minute to rather coarse or even slightly sinuate, mucronate; lateral nerves 6 to 10 on each side of the midrib, distinct; petiolules 0.5 to 2.5 cm long. Inflorescence terminal, umbellate, subsessile, the primary branches 5 to 7, usually about 3 cm long; these trichotomous or dichotomous, the secondary lateral branches 2 to 2.5 cm long, the central branch very short and bearing a head of sterile flowers. Heads at the tips of the lateral branches globose, about 1 cm in diameter, each composed of from 10 to 15 pedicelled flowers, the pedicels in young fruit 2 to 3 mm long, the subtending bracteoles elliptic-ovate, rounded, about 3 mm long, their margins ciliate. Very young fruits subellipsoid, about 4 mm long, with 4 obscure, rounded angles.

Luzon, Tayabas Province, Mount Cadig, Bur. Sci. 25118 Yates, December 12, 1916, in the mossy forest near the summit of the mountain.

A very characteristic species, readily distinguished by its palmately 5- to 7-foliolate leaves, and its comparatively small, coriaceous leaflets. It is perhaps most closely allied to Boerlagiodendron heterophyllum Merr.

BOERLAGIODENDRON FENICIS sp. nov.

Frutex circiter 2.5 m altus, inflorescentiis exceptis glaber; foliis circiter 25 cm longis, in ambitu suborbicularibus, 5-lobatis, membranaceis, lobis oblongis, brevissime et abrupte acuminatis, margine distantere denticulatis; petiolis circiter 30 cm longis in dimidio inferiore cristis obliquis pectinatis distantibus instructis; inflorescentiis circiter 6 cm longis, furfuraceis, radiis primariis circiter 15, tenuibus; fructibus sessilibus, ovoideis, 3-sulcatis, 3-angulatis, 3-locellatis, circiter 6 mm longis.
An erect shrub about 2.5 m high, glabrous except the inflorescence, the branches terete, wrinkled, about 1 cm in diameter. Leaves membranaceous or somewhat chartaceous, suborbicular in outline, about 25 cm long, deeply 5-lobed, the base subtruncate, 7-nerved, the lobes oblong, 5.5 to 7 cm wide, extending one-half to two-thirds to the base, the sinuses rounded, the tips shortly and abruptly apiculate, the margins distantly denticulate, not at all lyrately lobed, both surfaces shining when dry, the upper sub-olivaceous, the lower slightly paler; petioles about 30 cm long, the lower half with prominent, scattered, oblique crests about 2 mm wide, their margins pectinate, the laciniae slender, 1 to 1.5 mm long, the lower crests surrounding the petioles, the upper ones reduced in length. Inflorescences terminal, umbellate, the peduncles about 1.5 cm long, all parts more or less furfuraceous, the primary branches about 15, slender, up to 5 cm in length; each branch bears a pair of ovate, about 3 mm long bracts about 2 cm above the base subtending a short-peduncled sterile head and often an additional long-peduncled fertile one, the sterile heads dense, 4 to 7 mm in diameter, their peduncles 1 cm long or less, the peduncles of the fertile heads 2 to 2.5 cm long and bibracteate at about the middle. Fertile heads in fruit 10 to 12 mm in diameter, the fruits crowded, sessile, ovoid, longitudinally 3-sulcate, 3-angled, 3-celled, about 6 mm long.

Luzon, Apayao Subprovince, Guiniri, Bur. Sci. 28186 Fénix, May 12, 1917, on rocky slopes near streams.

The alliance of this species is apparently with Baerlagiodendron luzonisense Merr., from which it is readily distinguished by its thinner leaves, the lobes denticulate but not at all lyrately lobed, the numerous scattered crests, 3-celled fruits, and other characters.

**BOERLAGIODENDRON TAYABENSE** sp. nov.

Frutex glaber, ramis teretibus, circiter 1 cm crassis; foliis usque ad 28 cm longis, chartaceis, 3-lobatis, basi subtruncatis ad late cordatis, lobis oblongis ad oblongo-obovatis, margine distantier apiculato-serrulatis; petiolis 18 ad 22 cm longis, infraperispicue cristatis, cristulis perspicue pectinatis, laciniiis filiformibus, usque ad 1 cm longis; inflorescentiis pedunculatis, confertis, radisciis primariis circiter 4 cm longis, parce furfuraceis; capitulis circiter 1 cm diametro.

An erect, apparently simple shrub, glabrous except the inflorescence. Branches wrinkled, terete, about 1 cm in diameter. Leaves 22 to 28 cm long, up to 30 cm in width across the lateral lobes, chartaceous, brownish or olivaceous-brownish when dry, shining, deeply 3-lobed, the base subtruncate to shallowly cordate, 9-nerved, margins distantly apiculate-serrulate, the lateral
lobes somewhat spreading, oblong-ovate, shortly and abruptly acuminate, about 8 cm wide, the central lobe oblong-obovate, about 20 cm long and as wide as the lateral ones, the sinuses rounded, 3 to 4 cm wide at this distance above the base of the lobes; petioles 18 to 22 cm long, the lower part with numerous, spirally arranged crests, the crests prominently pectinate, the laciniae slender, filiform, up to 1 cm in length, similar but smaller crests scattered along the petiole in the lower one-half or two-thirds, the upper crests reduced to few laciniae. Umbels terminal, peduncled, the peduncle about 3 cm long, glabrous.

This species in many respects resembles Boerlagiodendron pectinatum Merr., from which it is readily distinguished by its thinner, 3-lobed leaves which are not acute at the base; its longer petioles with the pectinate crests scattered along the lower one-half to two-thirds; its much longer bracts; and larger heads. From the species with 3-lobed leaves it is at once distinguishable by its prominently pectinate crests.

EBENACEAE

Diospyros Linnaeus

Diospyros Velascoi sp. nov.

Arbor circiter 5 m alta, ramulis foliis junioribus subtus ad costa nervisque calycibus et fructibus pilis longis ferrugineis vestitis; foliis oblongis ad oblongo-ovatis, usque ad 16 cm longis, breviter petiolatis, basi late rotundatis, apice acute acuminatis, nervis utrinque circiter 8, subtus valde prominentibus, anastomosantibus; fructibus axillaribus, solitariis, sessilibus, ovoideis, junioribus circiter 12 mm longis, in siccate bruneis, nitidis, acutis, pilis longis sparsis vestitis, ut videtur 1-locellatis, monospermis.

A small tree about 5 m high, the young branchlets, younger leaves on the midrib and lateral nerves, petioles, calyces, and young fruits ciliate-pubescent with long ferruginous hairs, the older parts glabrous or nearly so. Older branches terete, smooth, glabrous, sparingly lenticelletae, slender. Leaves ovate to oblong-ovate, chartaceous, brittle when dry, brown, shining, the lower surface paler than the upper, 8 to 18 cm long, 2.5 to 7.5 cm wide, base broadly rounded, apex acutely acuminate; lateral nerves
about 8 on each side of the midrib, very prominent on the lower surface, curved-ascending, anastomosing, the reticulations lax; petioles 4 mm long or less. Flowers not seen. Fruits axillary, solitary, sessile, the calyx accrescent, ferruginous-pilose, the lobes 4, ovate-lanceolate, acuminate, about 8 mm long and 5 mm wide. Young fruits ovoid, brown when dry, acute or apiculate, sparingly covered with long, rather weak, brown, subappressed or somewhat spreading hairs, apparently 1-celled and 1-seeded.

LUZON, Province of Cagayan, Patlao, Camalaniugan, For. Bur. 23278 Velasco, October 18, 1914, on slopes, altitude about 100 meters.

A species well characterized by its solitary, axillary, sessile, pointed fruits, and especially by the long hairs on the young fruits, calyces, and younger vegetative parts. It is closely allied to Diospyros eriantha Champ. of southern China and Formosa, but differs in its larger more numerous nerves leaves which are rounded at the base.

DIOSPYROS TAYABENSIS sp. 'nov.

Arbor, ramulis junioribus et inflorescentiis dense subferrugineo-pubescentibus; foliis ellipticis ad oblongo-ellipticis, in siccitate brunneis, nitidis, usque ad 16 cm longis, chartaceis ad subcoriaceis, acuminatis, subtus leviter pubescentibus, basi rotundatis vel leviter decurrento-acuminatis, subtus utrinque glandulis 1 ad 3 distinctis instructis, nervis lateralibus utrinque 10 ad 12, perspicuis, arcuato-anastamosantibus; floribus et axillariis, fasciculatis, circiter 1.5 cm longis, uniformiter dense ferrugineo-pubescentibus, calycis lobis anguste oblongis, 6 mm longis et 2 mm lati; staminibus 10, antheris lineari-lanceolatis, acuminatis, 3 mm longis.

A tree, 20 meters high fide Ramos, the branches and branchlets terete, dark-brown, smooth, the former glabrous, the latter uniformly and densely ferruginous-pubescent with short hairs. Leaves elliptic to oblong-elliptic, chartaceous to subcoriaceous, brown and shining when dry, the lower surface a little paler than the upper, 10 to 16 cm long, 4.5 to 7.5 cm wide, the apex with a broad, obtuse, short acumen, the base rounded and usually somewhat decurrent-acuminate, beneath with from 1 to 3, black, rather conspicuous glands on each side of the midrib, the upper surface glabrous, the lower sparingly ferruginous-pubescent especially on the midrib, nerves, and reticulations; lateral nerves 10 to 12 on each side of the midrib, prominent, spreading, somewhat curved, arched-anastomosing, the reticulations lax; petioles rather stout, pubescent, brown, 5 to 8 mm long. Staminate flowers axillary, fascicled, numerous, greenish-white, crowded, about 1.5 cm long, all parts of the inflorescence
uniformly ferruginous-pubescent. Calyx-tube turbinate, about 2 mm long, the lobes 5, narrowly oblong, pubescent, 6 mm long, 2 mm wide. Corolla-tube about 9 mm long, pubescent externally, glabrous within, inflated below, narrowed above, the lobes ovate, obtuse, 5 mm long. Stamens 10, their filaments glabrous, 2 mm long; anthers linear-lanceolate, slenderly acuminate, glabrous, 3 mm long. Rudimentary ovary ferruginous-villous.

LUZON, Tayabas Province, Mount Binuang, Bur. Sci. 28489 Ramos & Edaño, May 21, 1917, on forested ridges at low or medium altitudes.

This species greatly resembles Diospyros pilosanthera Blanco to which it is apparently most closely allied. It is readily distinguished by its indumentum.

SAPOTACEAE

BASSIA Koenig

BASSIA CAGAYANENSIS sp. nov.

Arbor circiter 15 m alta, floribus exceptis glabra; foliis oblongis ad oblongo-lanceolatis, subcoriaceis, usque ad 20 cm longis, perspicue acuminatis, basi subacutis, interdum leviter inaequilateralibus, nervis utrinque circiter 15, distinctis, reticulis hau perspicuis; petiolis 2.5 ad 4 cm longis; fructibus oblongis, circiter 2.5 cm longis, glabris, sepalis persistentibus, ovatis, circiter 8 mm longis, dense adpresseque pubescentibus.

A tree about 15 m high, glabrous except the flowers and the very tips of the branchlets. Branches grayish-brown, terete. Leaves oblong to oblong-lanceolate, subcoriaceous, pale and shining when dry, 13 to 20 cm long, 4 to 7 cm wide, narrowed upward to the rather prominently acuminate apex, the base subacute and often slightly inequilateral; lateral nerves about 15 on each side of the midrib, distinct, anastomosing, the reticulations not prominent; petioles 2.5 to 4 cm long. Fruits axillary, solitary or fascicled, oblong, olivaceous when dry, about 2.5 cm long and 1 cm thick, tipped by the slender style, their pedicels about 1.5 cm long. Sepals 4, persistent, ovate, coriaceous, appressed-pubescent with pale-brownish hairs, acute or slightly acuminate, about 8 mm long.

LUZON, Cagayan Province, Buyon, For. Bur. 26883 Bernardo, January 17, 1917, in dense forests, altitude about 15 meters; the fruits edible; locally known as gasatan.

This species is distinguished among the comparatively few Philippine representatives of the genus by its oblong to oblong-lanceolate, acuminate, comparatively long-petioled leaves.
MYRSINACEAE

ARDISIA Swartz

ARDISIA NIGROMACULATA sp. nov. § Akosmos.

Frutex glaber, circiter 3 m alta; foliis numerosis, integris, oblongo-ellipticis ad oblongo-obovatis, utrinque maculis numerosis nigris conspicuis instructis, chartaceis vel subcoriaceis, usque ad 8 cm longis, acuminatis, basi acutis, nervis primariis utrinque circiter 10, tenuibus; foliis numerosis, integris, oblongo-ellipticis ad oblongo-obovatis, utrinque niaculis numerosis nigris conspicuis instructis, chartaceis vel subcoriaceis, usque ad 8 cm longis, acuminatis, basi acutis, nervis primariis utrinque circiter 10, tenuibus; inflorescentiis axillaribus, bipinnatim paniculatis, multifloris, pedunculatis, foliis subaequantibus; floribus 5-meris, calycis circiter 2.5 mm diametro, glandulosis, lobis ovatis, rotundatis, margine leviter ciliatis, circiter 0.7 mm longis, petalis perspicue sed parce nigro-glandulosis, circiter 3.5 mm longis.

A glabrous shrub about 3 m high, the branches rather stout, brown, 5 to 7 mm in diameter, the petiolar scars large, prominent and rather crowded on the younger parts. Leaves numerous, rather crowded, oblong-elliptic to oblong-obovate, chartaceous to subcoriaceous, pale olivaceous-brown when dry, shining, 5 to 8 cm long, 2.5 to 4 cm wide, subequally narrowed to the acute base and to the acuminate apex, the margins entire, both surfaces with numerous, conspicuous, black or nearly black maculae and minutely glandular-punctate; primary lateral nerves about 10 on each side of the midrib, slender, scarcely more prominent than are the secondary nerves and reticulations; petioles 1 to 1.5 cm long. Inflorescences axillary and from the axils of fallen leaves, bipinnately paniculate, peduncled, about as long as the leaves, the primary branches 2.5 cm long or less. Flowers numerous, racemosely arranged on the primary branches, 5-merous, white, in full anthesis 8 mm in diameter, their pedicels 2 mm long or less, the buds ovoid, acute, the styles not project-}

Luzon, Tayabas Province, Mount Binuang, Bur. Sci. 28478 Ramos & Edano, May 7, 1917, in the mossy forest, altitude apparently about 1,000 meters. A specimen with immature flowers and somewhat larger, less conspicuously maculate leaves, Bur. Sci. 28659 Ramos & Edano, from the same locality, apparently represents the same species.
This species is manifestly a representative of the section Akosmos and is strongly characterized by its conspicuously maculate leaves, in this point simulating some of our species of Discocalyx.

ARDISIA RIVULARIS sp. nov. § Tinus.

Species A. boissieri et A. salicifoliae affinis, differt foliis distincte angustioribus. Frutex circiter 2 m altus, glaber; folii coriaceis, lanceolatis ad oblanceolatis, usque ad 7 cm longis et 10 ad 18 mm latis, utrinque angustatis, acutis, nervis inconspicuis; umbellis 2- ad 7-floris, floribus circiter 1.5 cm diametro, calycis lobis punctatis, margine leviter ciliatis exceptis glabris, antheris haud rugosis, dorso obscure glanduloso.

A glabrous shrub about 2 m high, the branches and branchlets brownish, terete. Leaves numerous, rather crowded, lanceolate to oblanceolate, 5 to 7 cm long, 10 to 18 mm wide, subequally narrowed and acute at both ends, coriaceous, pale-brownish or subolivaceous when dry, shining, of about the same color on both surfaces, obscurely glandular, the midrib prominent, the lateral nerves very slender and obscure; petioles about 5 mm long. Umbels in the upper axils, rather numerous, solitary, 2- to 7-flowered, or sometimes the peduncle bearing but a single flower, the pedunices 1 to 2 cm long, the pedicels usually about 1 cm in length. Flowers pink, about 1.5 cm in diameter when expanded. Calyx glandular, glabrous except the slightly ciliate margins of the lobes, the lobes extending one-half to the base, ovate, rounded, about 1.5 mm long. Corolla-lobes elliptic, acute, glandular, about 7 mm long and 4 mm wide. Anthers 4.5 mm long, not rugose, obscurely glandular on the back, acute or acuminate. Fruits globose, 5 to 6 mm in diameter.

LUZON, Tayabas Province, Umiray, Bur. Sci. 29020 (type), 28956 Ramos & Edaño, June 3, 1917, along the Umiray River in forests at low altitudes.

This species, judging from the debris attached to the specimens, and its narrow leaves grows on river banks subject to sudden inundation, having the stenophyllous leaves characteristic of a number of totally unrelated species that grow in similar habitats. Its alliance is manifestly with Ardisia boissieri A. DC. and A. salicifolia A. DC., but it seems to be sufficiently distinct from both.

LOGANIACEAE

FAGRAEA Thunberg

FRAGRAEA CURRANII sp. nov.

Species F. auriculatae Jack affinis, differt nervis lateralibus obsoletis vel subobsoletis. Frutex scandens, glaber; folii crassissime coriaceis, usque ad 25 cm longis, anguste obovatis ad oblongo-obovatis, rotundatis, basi angustatis, in siccitate utrin-
que densissime verruculoso-rugosis, brunneis vel atro-brunneis, nitidis; floribus magnis, circiter 10 cm longis, subcampanulatis.

A scandent shrub attaining a height of 30 meters according to Curran and a diameter of 18 cm, entirely glabrous. Branches stout, about 1 cm in diameter when dry, wrinkled, olivaceous to blackish-brown, shining. Leaves very thickly coriaceous, brown to black-brown on both surfaces when dry, shining, densely verruculose-rugose, oblong-obovate to narrowly obovate, 12 to 25 cm long, 6 to 8 cm wide, apex rounded, gradually narrowed below the middle to the decurrent-acuminate base, the midrib very prominent, the lateral nerves obsolete or nearly so; petioles stout, 2 to 4 cm long, the thick, inflated, basal portion about 1.5 cm in diameter. Flowers white, two or three at the apex of each branchlet, their pedicels very stout, about 1.5 cm long, black when dry, the subtending bracts oblong, obtuse, thickly coriaceous 1.5 cm long. Calyx ovoid, about 3 cm long, the lobes very thickly coriaceous, subelliptic, rounded, about 2.5 cm long, the bracteoles ovate to oblong-ovate, obtuse, about 1.5 cm long. Corolla somewhat campanulate, the tube up to 5 cm in length, widened above, the lobes very thickly coriaceous, brittle when dry, obovate, rounded, 4 to 5 cm long; anthers thick, about 8 mm long.


This species, originally named Fagraea curranii in 1908, was not then published, but was placed under Fagraea auriculata Jack to which it is closely allied, but it differs from the latter species in a number of characters, notably in the obsolete or subobsolete lateral veins of its leaves.

FAGRAEA MACGREGORII sp. nov.

Ut videtur frutex scandens, F. longiflorae Merr. affinis, differt foliis oblongo-obovatis, basi longe decurrentibus, calycibus sub fructu quam fructibus brevioribus, haud accrescentibus.

Apparently a vine, probably pseudo-parasitic, the branches stout. Leaves coriaceous, rather pale when dry, oblong-ovate, up to 70 cm in length and 25 cm in width, acute or slightly acuminate, base gradually narrowed, decurrent along the 6 to 8 cm long petiole; lateral nerves 10 to 12 on each side of the very stout midrib, prominent on the lower surface, reticulations obsolete. Flowers unknown. Fruits crowded at the apices of the branches, about 15 in a rather close, dense head, the subtending bracts ovate, acuminate, about 3 cm long. Fruit, when fresh,
bluish-green, when dry oblong-cylindric, apiculate, about 4 cm long, 1.5 to 2 cm in diameter, somewhat exserted from the calyx, the calyx-lobes ovate, acute, about 1.5 cm long.


A species somewhat resembling and manifestly closely allied to Fagraea longiflora Merr., from Mount Banajao, Luzon. It differs, however, in its somewhat exserted fruits and in its vegetative characters, the leaves of the two being entirely different in shape.

APOCYNACEAE

ALYXIA Banks

ALYXIA REVOLUTA sp. nov.

Frutex scandens, glaber, ramis crassis, quadrangulatis; foliis quaternatis, anguste oblongis, crassissime coriaceis, usque ad 18 cm longis, obtusis, basi acutis et plus minusve decurrentibus, marginale vel longifloro, supra olivaceis, nitidis, subtus glaucis; nervis lateralis numerosis, supra obscureis, subtus obsoletis; petiolo 3 ad 4 cm longo; infructescentiis axillaris, solitarii, ramosis, 3 ad 4 cm longis; fructibus ellipsoideis, circiter 1.4 cm longis, apiculatis, vel dispermis et in medio constrictis.

A scandent glabrous shrub, the branches stout, distinctly 4-angled, up to 1 cm in diameter, the ultimate parts 4 to 5 mm in diameter, the internodes 4 to 8 cm long. Leaves 4-nate, very thickly coriaceous, narrowly oblong, 13 to 18 cm long, 3.5 to 5 cm wide, obtuse, base acute and usually somewhat decurrent, the margins very prominently revolute, the midrib very prominent, the upper surface olivaceous, shining, the lower glaucous; lateral nerves numerous, slender, obscure on the upper surface, obsolete on the lower; petioles very stout, 3 to 4 cm long. Cymes axillary, solitary, their peduncles 1 cm long or less, the branches usually 3, short, the bracteoles persistent. Fruits ellipsoid, when fully mature black or dark-purple, the immature ones yellowish-brown when dry, about 1.4 cm long, somewhat wrinkled, stipitate, apiculate, 1-seeded, or sometimes constricted in the middle and 2-seeded.

LUZON, Tayabas Province, Mount Cadig, Bur. Sci. 25515 Yates, December 12, 1914, in the mossy forest, altitude at least 800 meters.

A most characteristic species, readily distinguished by its narrowly oblong, very thickly coriaceous, stiff leaves which are glaucous beneath, the nerves here obsolete, but especially by the very strongly revolute margins. Its alliance is with Alyxia sibuyanensis Elm.
**Alyxia Glabra** sp. nov.

Frutex scandens, glaber, ramis ramulisque teretibus; foliis quaternatis, oblongo-ellipticis, subcoriaceis, olivaceis, nitidis usque ad 12 cm longis, basi acutis, apice breviter abrupte obtuse acuminatis, nervis utrinque valde numerosis, tenuibus, confertis; inflorescentiis axillaribus, fasciculatis, brevibus, umbellatis, glabris, umbellis 3- ad 5-floris; floribus circiter 14 mm longis, breviter pedicellatis.

A scendent, entirely glabrous shrub, the branches and branchlets terete, the former pale, the latter dark-brown and about 2 mm in diameter, the internodes 6 to 17 cm long. Leaves quaternate, olivaceous, of the same color on both surfaces and shining when dry, subcoriaceous, oblong-elliptic, 8 to 12 cm long, 3 to 5 cm wide, base acute, apex rather abruptly acuminate, the acumen short, blunt; lateral nerves very slender, not prominent, very numerous, crowded, the primary ones up to 1.5 mm apart; petioles about 1 cm long. Inflorescences axillary, fascicled, umbellate, each umbel 3- to 5-flowered, the peduncles 5 to 6 mm long, the pedicels about 3 mm in length; bracts very broadly ovate, obtuse, 1.5 mm long. Calyx-tube very short, the lobes broadly ovate, obtuse, 2 mm long and wide. Corolla white, the tube cylindric, about 11 mm long, the lobes broadly elliptic-ovate, obtuse, 3 to 3.5 mm long.


This species resembles *Alyxia monticola* C. B. Rob., the flowers of which are unknown, in many respects but is apparently not very closely allied to it; Robinson's species has the nerves at least twice as far apart as in the present one. The entirely glabrous, simply umbellate inflorescences are characteristic, and at once distinguish *Alyxia glabra* Merr. from *A. montilifera* Vid.

**Alyxia Lanceolata** sp.nov.

Frutex scandens, partibus junioribus et inflorescentiis parcissime obscureque puberulis exceptis glaber, ramis ramulisque teretibus; foliis quaternatis, lanceolatis, chartaceis ad subcoriaceis, in siccate pallidis, nitidis, usque ad 7 cm longis, apice perspicue tenuiter et obtuse acuminatis, basi acutis, nervis lateralibus obsoletis vel subobsoletis; inflorescentiis circiter 2 cm longis, unbellatim 3-5-floris; floribus circiter 1 cm longis, corollae tubo 6 ad 7 mm longo.

A scendent shrub, entirely glabrous except the obscurely puberulent younger branchlets, petioles, and inflorescences. Branches
and branchlets terete, the former pale, the latter smooth, reddish-brown, slender, about 1 mm in diameter, the internodes 2.5 to 6 cm long. Leaves quadrarate, chartaceous to subcoriaceous, lanceolate, 4 to 7 cm long, 1 to 2 cm wide, narrowed below to the acute base and above to the slenderly but obtusely acuminate apex, the upper surface subolivaceous when dry, shining, the lower much paler, the midrib prominent but the lateral nerves obsolete or subobscure; petioles 2.5 to 5 mm long. Inflorescences axillary, solitary, peduncled, umbellate, about 2 cm long, each with 3 to 5 pedicelled flowers at the apex of the peduncle, the pedicels 2 to 3 mm long, the bracteoles oblanceolate, subacute, 1 mm long. Calyx-tube very short, the lobes ovate-lanceolate, acuminate, 2 mm long. Corolla-tube cylindric, 6 to 7 mm long, the lobes oblong-ovate, somewhat acuminate, 3 mm long.

LUZON, Tayabas Province, Infanta-Siniloan trail, Bur. Sci. 29209 Ramos & Edaño, June 14, 1917, in damp forests. Bur. Sci. 28627 Ramos & Edaño from Mount Binuang, May, 1917, probably represents the same species, but the flowers are very young and the leaves are uniformly dark-brown on both surfaces; the difference in color in the dried specimens is probably due to a difference of method in drying them.

The species is a very characteristic one and is distinguished by its lanceolate, prominently acuminate, practically nerveless leaves and its simple umbellate inflorescences.

ALYXIA LAXIFLORA sp. nov.

Species A. luzoniensis affinis, differit inflorescentiis tenuiter pedunculatis, laxis, paucifloris, 3 ad 6 cm longis. Frutex scandens, glaber, ramis teretibus, ramulis tenuibus, obscure angulatis, internodiis elongatis, usque ad 6 cm longis; foliis ternatis, chartaceis, oblongis, ad oblongo-ellipticis, olivaceis vel brunneo-olivaceis, usque ad 6 cm longis, basi acutis, apice late et obtuse subrostro-acuteinatis, nervis utrinoque numerosis, tenuibus, obscuris; inflorescentiis axillariis et terminalibus, laxis, paucifloris, longe pedunculatis, 3 ad 6 cm longis; floribus circiter 1 cm longis.

A scandent glabrous shrub, the stems terete, 3 to 4 mm in diameter, the branchlets dark-brown, smooth, very slender, 1 to 2 mm in diameter, the older ones terete, the younger ones somewhat 3-angled, the internodes 4.5 to 6 cm long. Leaves ternate, chartaceous, olivaceous or dark brownish-olivaceous, of about the same color on both surfaces and shining when dry, oblong to elliptic-oblong, 4 to 6 cm long, 1.5 to 3 cm wide, subequally narrowed to the acute base and to the subrostrate-acuminate apex, the acumen broad, blunt; lateral nerves very slender, obscure, 35 or more on each side of the midrib, the
primary ones no more distinct than are the secondary ones; petioles 3 to 4 mm long. Inflorescences axillary and terminal, lax, few-flowered, 3 to 6 cm long, solitary or fascicled, glabrous, dark-brown when dry, the peduncles 2 to 3 cm long. Flowers (young) greenish-yellow, their pedicels up to 4 mm in length, usually 5 to 7 on each inflorescence, the bracts acuminate, the lobes ovate-lanceolate, about 3 mm long, somewhat acuminate. Anthers about 1 mm long. Ovary ovoid, glabrous.

Luzon, Apayao Subprovince, Mount Sulu, Bur. Sci. 28371 Fenix, May 22, 1917, in the mossy forest, apparently above an altitude of 800 meters.

The alliance of this species is manifestly with Alyxia luzoniensis Merr., which it closely resembles in most characters except its very lax, long-peduncled, few-flowered inflorescences.

**KOPSIA** Blume

**KOPSIA LAXINERVIA** sp. nov.

Frutex circiter 3 m altus, inflorescentiis exceptis glaber; foliis oblongis, membranaceis, usque ad 22 cm longis, subolivaceis, nitidis, basi acutis, apice breviter obtuseque acuminatis; nervis primariis utrinque 10 ad 12, laxis, distantibus, patulis, anastomosantibus, subtus distinctis; fructibus oblongo-ovoideis, circiter 2 cm longis.

An erect shrub, about 3 m high, entirely glabrous except the inflorescences. Branches terete or somewhat compressed, the branchlets sulcate. Leaves membranaceous, olivaceous or pale brownish-olivaceous and shining when dry, the lower surface slightly paler than the upper, oblong, 12 to 22 cm long, 5.5 to 7 cm wide, base acute, apex shortly and broadly blunt-acuminate; lateral nerves 10 to 12 on each side of the midrib, distinct, spreading, anastomosing, lax, the primary reticulations lax, distinct; petioles about 5 mm long. Inflorescences terminal, peduncled, 5 to 7 cm long, the younger branchlets and persistent bracts somewhat ferruginous-pubescent. Fruits oblong-ovoid, dark-brown or nearly black when dry, somewhat wrinkled, obtuse, about 2 cm long and 1 cm in diameter.


This species is distinguished from Kopsia longiflora Merr., to which it is manifestly allied, by its leaves having much fewer and more laxly arranged nerves than in that species.
ERYCIBE SARGENTII sp. nov.

Frutex alte scandens, inflorescentiis plus minusve castaneo-pubescentibus exceptis glaber; foliis coriaceis, oblongis, usque ad 18 cm longis, obtuse acuminatis, basi rotundatis ad acutis, in siccitate utrinque concoloribus, nitidis, uniformiter bruneis vel purpureo-bruneis nervis utrinque 6 ad 8, distinctis, anastomosantibus, reticulis laxis; paniculis axillaribus terminalibusque, axillaribus circiter 5 cm longis, terminalibus usque ad 12 cm longis et 5 cm latis, multifloris; sepalis coriaceis, orbicularibus, margine leviter ciliatis; corolla circiter 12 mm longa, lobis obcordatis, circiter 8 mm longis et 12 mm latis.

A scandent shrub apparently of large size, entirely glabrous except the inflorescences. Branches terete, smooth, very pale, the younger branchlets sometimes brown or dark-brown, never angled. Leaves coriaceous, oblong, 10 to 18 cm long, 3 to 8 cm wide, smooth and shining, of the same color on both surfaces, and uniformly brownish or purplish-brown when dry, the apex shortly and obtusely acuminate, the base rounded to acute; lateral nerves 6 to 8 on each side of the midrib, distinct, somewhat curved, anastomosing, the reticulations lax, not prominent; petioles stout, 1 to 2 cm long. Panicles axillary and terminal, when young sparingly pubescent with dark purplish-brown, short hairs, ultimately glabrous, the whole inflorescence uniformly dark-brown when dry, the axillary panicles about 5 cm long, the terminal ones up to 12 cm in length and 5 cm in diameter, rather densely many-flowered. Flowers white or pale-yellowish, fragrant, about 12 mm long, their pedicels 3 to 4 mm long, sparingly pubescent, ultimately glabrous. Sepals orbicular, coriaceous, 3 to 3.5 mm in diameter, margins somewhat ciliate, otherwise glabrous. Exposed parts of the corolla if bud densely purplish-brown pubescent, the central pubescent part in flower ovate-lanceolate, 4 to 5 mm long; corolla tube 4 to 5 mm long; the lobes in anthesis obcordate, about 12 mm wide and 8 mm long. Anthers ovoid-lanceolate, acuminate, 2.5 mm long. Fruits ellipsoid, glabrous, brown when dry, 1.5 to 2 cm long.

without definite locality, but probably from Zambales Province, Cuming 1071.

This characteristic species is apparently allied to *Erycibe laevigata* Wall. The specimens are uniformly brown or purplish-brown when dry, giving the species a distinctly characteristic appearance. The terminal panicles are sometimes supplied with greatly reduced leaves. The species is dedicated to Doctor C. S. Sargent, Director of the Arnold Arboretum, for whom the Adduru collection was made.

**IPOMOEA** Linnaeus


This identification has been made entirely from the descriptions cited, with which the specimens apparently agree perfectly. The species is known otherwise only from the islands in the Gulf of Carpentaria, Australia. In the Philippine form the ovaries are 3-celled, the flowers about 5 cm long, violet and white according to Ramos, solitary. The leaves closely approximate those of *Ipomoea coptica* (Linn.) Roth (*I. dissecta* Willd.), but the flowers are very much larger than in the latter species.

**VERBENACEAE**

**CALDICARPA** Linnaeus

**CALDICARPA PLATYPHYLLA** sp. nov.

Arbor circiter 8 m alta; folii subcoriaceis, magnis, usque ad 50 cm longis et 20 cm latis, integris, tenuiter subcaudato-acuminatis, basi acutis, supra glabris, olivaceis, subtus pallidis, nitidis, densissime implexo-puberulis, indumento haud stellato, nervis utrique circiter 12, cum reticulis valde prominentibus; cymis dichotomis, pedunculatis, circiter 7 cm longis, stellato-tomentosis; calycis truncatis, glabris, 3 cm diametro.

A tree about 8 m high, the branches 1 cm in diameter or less, glabrous, somewhat 4-angled, the branchlets densely puberulent with pale, dirty-brown indumentum. Leaves subcoriaceous, oblong-elliptic to obovate-elliptic, entire, slenderly subcaudate-acuminate, base acute, 35 to 50 cm long, 18 to 20 cm wide, the upper surface glabrous, olivaceous, shining, the lower very densely covered with minute, matted, pale, puberulent hairs, the indumentum not stellate, the whole lower surface pale-brownish, shining, the individual hairs not evident under an ordinary lens; lateral nerves about 12 on each side of the midrib, very prominent on the lower surface as are the subparallel primary reticulations, curved, anastomosing; petioles stout, densely puberulent, angled, 4 to 5 cm long. Cymes axillary, peduncled, rather densely stellate-pubescent with pale hairs, dichotomous, about 7
cm long and 9 cm wide, the bracts linear-lanceolate, 4 to 5 mm long, the bracteoles numerous, similar to the bracts but about 1 mm long. Calyx truncate, cup-shaped, 3 mm in diameter, glabrous or nearly so. Fruits globose, about 3.5 mm in diameter.

Luzon, Cagayan Province, Pamplona, For. Bur. 26967 Velasco, August 9, 1917, in forests, altitude about 50 meters.

A most remarkable species, well characterized by its very large, entire, slenderly acuminate leaves which are glabrous above and densely matted-puberulent on the lower surface with a pale-brownish, shining, non-stellate indumentum; glands, if present, are entirely obscured by the indumentum.

**VITEX Linnaeus**


A species previously known only from Celebes, our Philippine material agreeing closely with the description and with Celebes specimens in all essential characters. In Cotabato it is known as calipapa-aso, molave-aso, calipapa, and calipapa-madam; and in Zamboanga as limpapa and himulauin.

**SOLANACEAE**

**SOLANUM LUZONIENSE** sp. nov.

Frutex erectus, ramosus, 0.5 ad 1 m altus, plus minusve pallide stellato-tomentosus, ramis teretibus aculeis sparsiis rectis circiter 2 mm longis armatis; foliis membranaceis, obovatis, integris, in siccitate subolivaceis, acuminatis, basi acutis, plerumque obscure inaequaliteralibus, nervis utrinque circiter 5, tenuibus, curvatis, anastomosantibus; cymis extra-axillaribus terminalibusque, circiter 3 cm longis, breviter pedunculatis, stellato-tomentosis; floribus extus stellato-tomentosis, circiter 8 mm longis, violaceis; fructibus globosis, glabris, carnosis, inermis, coccineis, circiter 6 mm diametro.

An erect, branched, sparingly aculeate, more or less stellate-tomentose shrub or undershrub 0.5 to 1 m high, the branches terete, reddish-brown, sparingly cinereous-stellate-tomentose, with scattered, straight, sharp spines about 2 mm in length, the young branchlets rather densely stellate-tomentose. Leaves alternate, membranaceous, subolivaceous when dry, slightly shining, the lower surface paler than the upper and more pubescent, oblong, entire or obscurely undulate, acuminate, base usually
slightly inequilateral, acute, the upper surface sparingly stellate-pubescent on the midrib and nerves or ultimately glabrous, the lower surface with more numerous stellate hairs, rarely largely confined to the midrib and nerves, more commonly scattered over the entire surface; lateral nerves slender, not prominent, curved, anastomosing, about 5 on each side of midrib; petioles rather densely stellate-tomentose with cinereous hairs, 1 to 2 cm long, unarmed. Cymes extra-axillary and terminal, about 3 cm long, peduncled, rather few-flowered, stellate-tomentose. Flowers violet, about 8 mm long, their pedicels up to 5 mm in length. Calyx somewhat campanulate, sparingly or rather densely stellate-tomentose, about 3 mm long, the lobes oblong-ovate, acute or subobtuse, about 1.5 mm long. Corolla sparingly stellate-tomentose externally, the tube short, the lobes oblong-ovate to ovate-lanceolate, somewhat acuminate, about 6 mm long. Anthers lanceolate, somewhat narrowed upward, obtuse, 4 mm long. Fruit globose, glabrous, smooth, fleshy, red when fresh, about 6 mm in diameter; seeds few, flattened, about 3 mm in diameter.


The alliance of this species is apparently with Solanum retrorsum Elm., from which, among numerous other characters, it is distinguished by its indumentum and especially by its short, scattered, straight, spreading spines. I refer here also the following specimens: Luzon, Pangasinan Province, Bautista, Merrill s. n., July, 1903; Umingan, Bur. Sci. 17710 Otanes, April 17, 1914.

Var. GLABRUM var. nov.

A typo differt omnibus partibus glabris.

Luzon, Pampanga Province, Calumpit, Merrill 4237 (type), September, 1905; Tarlac Province, Gerona, Guerrero s. n., April, 1906.

ACANTHACEAE

HEMIGRAPHIS Nees

HEMIGRAPHIS VIRIDIS sp. nov.

Caule herbaceo, erecto, usque ad 50 cm alto, ramis tetragonis vel sulcatis, minute strigosis; foliis subaequalibus, lanceolatis ad anguste lanceolatis, in siccitate viridis, nitidis, usque ad 9 cm longis, margine undulatis, basi obtusis, sursum angustatis et longissime obtuse acuminatis, cystolithis subtus nullis, supra numerosis, magnis, jam oculo nudo distinctis, nervis utrinque circiter 10, subtus strigosis; spicis circiter 3, pedunculatis, 2.5
ad 5 cm longis; bracteis numerosis, imbricatis, in siccitate viridis, ovatis ad ovato-ellipticis, 1 ad 1.5 cm longis, membranaceis, acutis ad obtusis, margine perspicue ciliatis, bracteolis nullis; floribus circiter 13 mm longis, calycis lobis linearis, tenuiter acuminatis, 8 ad 9 mm longis, ciliatis.

An erect, sparingly branched herb attaining a height of 50 cm, branched only in the upper part, the stems terete below, about 2 mm in diameter, dull-greenish, densely covered with short cystoliths, the branches sulcate or 4-angled, appressed-strigose. Leaves of each pair subequal, lanceolate, chartaceous, green on both surfaces, shining and brittle when dry, 6 to 9 cm long, 1 to 2 cm wide, margins somewhat undulate, base abruptly rounded or obtuse, gradually narrowed upward to the slender but obtusely acuminate apex, the upper surface with numerous cystoliths distinctly visible to the naked eye, these wanting on the lower surface but the midrib and lateral nerves here appressed-strigose; lateral nerves about 10 on each side of the midrib, distant, distinct, prominently anastomosing; petioles 2 to 8 mm long. Spikes 3 to 5, peduncled, 2.5 to 5 mm long. Bracts numerous, imbricate, foliaceous, green when dry, ovate to elliptic-ovate, 10 to 15 mm long, 6 to 9 mm wide, shortly stalked. Base rounded to subacute, apex acute to obtuse, the margins prominently ciliate with long white hairs; bracteoles none. Flowers white, about 13 mm long. Calyx-lobes free nearly to the base, linear, 8 to 9 mm long, about 1 mm wide, narrowed upward to the slenderly acuminate apex, prominently ciliate, the tip with about three, long, slender, white hairs. Capsules 8 mm long and 2 mm in diameter, slightly narrowed below, sparingly pubescent in the upper part.

Luzon, Ilocos Norte Province, Bangui, Bur. Sci. 27587 Ramos, February 27, 1917, in forests at low altitudes, with the Ilocano name caribuso.

A species manifestly belonging in the group with Hemigraphis cumingiana F.-Vill. and H. strigosa F.-Vill., but it is readily distinguished by its vegetative characters.

Hemigraphis hirsutissima sp. nov.

Herba prostrata, e radices sublignosa, ramis adscendentibus, primariis usque ad 30 cm longis, ramis et foliis et bracteis prominentibus hirsutis; foliis ellipticis ad oblongis, usque ad 3 cm longis, subcoriaceis, rigidis, sordide olivaceis, utrinque acutis vel apice obtusis, supra pustulatis, cystolithis nullis, margine obscuris-sime irregulariter crenatis vel integris, nervis utrinque 3 vel 4, obscuris; spicis confertis, ovoideis, 1.5 ad 2 cm longis; bracteis oblongis ad oblongo-ellipticis, obtusis vel subacutis, 10 ad 12 mm longis, prominente ciliato-hirsutis; bracteolis filiformibus 3
mm longis, prominente ciliatis, 3 mm longis; floribus 13 mm longis, calycis lobis 5, linearis, ciliatis, tenuiter acuminatis, circiter 6 mm longis.

A prostrate herb from a thickened woody root, the primary branches up to 30 cm long, rooting at the lower nodes, the branchlets and ends of the primary branches erect or ascending, all parts except the corolla prominently hirsute with stiff, pale or pale-yellowish hairs, those on the upper surface of the leaves from thickened bases, the branches terete or very obscurely 4-angled. Leaves of each pair somewhat unequal, elliptic to oblong, subcoriaceous, dull-olivaceous, 1.5 to 3 cm long, 7 to 13 mm wide, acute at both ends or the apex obtuse, margins entire to obscurely and irregularly crenate, both surfaces prominently hirsute, the upper surface pubescent, the cystoliths not evident; lateral nerves 3 or 4 on each side of the midrib, obscure; petioles densely hirsute, 2 to 3 mm long. Spikes sessile or shortly peduncled, dense, ovoid, 1.5 to 2 cm long; bracts imbricate, oblong to oblong-elliptic, obtuse to subacute, prominently hirsute on both surfaces, 10 to 12 mm long; bracteoles filiform, prominently ciliate, 3 mm long. Calyx-tube about 2 mm long, the lobes linear, prominently ciliate, 6 mm long, slenderly acuminate, one slightly longer than the other four. Corolla 13 mm long, externally sparingly pubescent with short hairs.


A species well characterized by its comparatively small, rather densely hirsute, obscurely nerved leaves which are pubescent on the upper surface; its dense, ovoid spikes; prominently hirsute bracts; and filiform bracteoles.

HEMIGRAPHIS PAUCIFLORA sp. nov.

Herba erecta, simplex vel parce ramosa, usque ad 30 cm alta, partibus junioribus et foliis et bracteis albido-hirsutis; foliis in paribus subaequalibus, anguste oblongis, membranaceis vel chartaceis, olivaceis, utrinque acutis vel apice obtusis, margine levitēr crenatis, usque ad 4.5 cm longis, nervis utrinque circiter 4, obscuris, utrinque hirsutis, pagina superiore cystolithis distinctis inspersis; spicis solitariis, terminalibus, 1 ad 2 cm longis, paucifloris; floribus violaceis, 17 mm longis; bracteis foliaceis, oblongis, hirsutis, 8 ad 14 mm longis, obtusis.

An erect, slender, simple or sparingly branched herb 20 to 30 cm high, rather prominently white-hirsute, the stems below terete, glabrous or slightly scabrid, the younger parts sulcate or somewhat angled, hirsute. Leaves of each pair subequal, narrowly oblong, 3 to 4.5 cm long, 10 to 13 mm wide, olivaceous
or greenish-olivaceous, slightly shining, the lower surface somewhat paler than the upper, the upper surface with distinct cystoliths and scattered, stiff white hairs, the lower surface more prominently hirsute than the upper, acute at both ends, or the apex somewhat obtuse, margins distinctly crenate; lateral nerves about 4 on each side of the midrib, slender, obscure; petioles hirsute, 5 to 8 mm long. Spikes terminal, solitary, 1 to 2 cm long, including the few flowers. Bracts somewhat imbricate, few, foliaceous, hirsute, oblong, obtuse, 8 to 14 mm long, olivaceous; bracteoles filiform, hirsute, about 3 mm long. Calyx tube 2 mm long, the lobes 5, linear-lanceolate, slenderly acuminate, prominently ciliate, one about 6 mm long, the other four 4 mm long. Corolla slightly pubescent externally, 17 mm long.

Luzon, Ilocos Norte Province, Bangui, Bur. Sci. 27543 Ramos, March 9, 1917, along streams in forests at low altitudes.

The alliance of this species is manifestly with *Hemigraphis hirsutissima* Merr., from which it differs in its strictly erect stems; longer leaves and petioles; the leaves not pustulate on the upper surface, but with distinct cystoliths; its few-flowered spikes; and distinctly larger flowers.

**JUSTICIA** Linnaeus

**JUSTICIA DISPAR** sp. nov. § *Calophanoides*.

Planta ut videtur erecta, suffruti\(\_\)cosa, ramosa, subglabra, ramis ramul\(\_\)isque teretibus; foliis in paribus valde inaequalibus, oblongo-ovatis, firmiter chartacea\(\_\)s, acuminat\(\_\)is, basi acutis vel acuminatis, majoribus usque ad 6 cm longis, minoribus 1 ad 2 cm longis, utrinque cystolith\(\_\)is instructis; floribus axill\(\_\)ar\(\_\)ibus, sessil\(\_\)ibus, solitari\(\_\)is vel bin\(\_\)is, 1.2 cm longis, bracteis (foliis floralibus) oblongo-spatul\(\_\)atis, 6 mm longis; calycibus segmentis 5, lanceolat\(\_\)is, tenui\(\_\)ter acuminat\(\_\)is, minute adpress\(\_\)e hispid\(\_\)is.

Apparently erect, much branched, suffrutescent or the stems distinctly woody, the branches and branchlets slender, terete, the branches glabrous, the branchlets black when dry, sparsely pubescent, often distinctly zig-zag. Leaves opposite, those of each pair very unequal in size, the larger ones 4 to 6 cm long and 2 to 3 cm wide, the smaller ones 1 to 2 cm long, 1 cm wide or less, acuminate, glabrous, firmly chartaceous, dark-olivaceous when dry, base acute or acuminate, the cystoliths evident on both surfaces; lateral nerves of the larger leaves 4 to 5 on each side of the midrib, slender, their petioles 5 mm long or less. Flowers axillary, solitary or in pairs, white, about 1.2 mm long, each subtended by a bract-like, oblong-spatulate, petiolate, 6 mm long leaf. Calyx-segments 5, lanceolate, slenderly acuminate, 5.5
mm long, about 1.1 mm wide, slightly pubescent. Corolla-tube 5 mm long, lobes 6 mm long, the broader one broadly obovate, 5 mm wide, broadly 3-lobed, the lobes rounded, about 1.2 mm long, the narrower lobe about 1.4 mm wide above, slightly retuse. Stamens 2; anther cells one above the other, about 1 mm long. Ovary oblong, glabrous; style glabrous, 6 mm long. Capsule nearly 1 cm long, glabrous.


The alliance of this species appears to be with Justicia quadrifaria Wall., from which it is immediately distinguishable by its solitary or paired flowers and its very unequal leaves. Among the Philippine species so far described it is nearest to Justicia loheri C. B. Clarke, but that species has linear leaves and differs in numerous other characters.

LEPIDAGATHIS Willdenow

LEPIDAGATHIS MICROPHYLLA sp. nov.

Herba suberecta e radices incrassatis, circiter 20 cm alta, ramis hau 1 mm diametro, teretibus, junioribus 4-angulatis, minutissime cinereo-puberulis; foliis ovatis, hau 1 cm longis, coriaceis, acutis vel leviter acuminatis, integris, subtus puberulis, nervis utrinque 3 vel 4, prominentibus; spicis 1 ad 2 cm longis, falcatis, densis; bracteis imbricatis, lineari-lanceolatis, cinereo-pubescentibus, acuminatis, circiter 7 mm longis, haud lanaticiliatis ut in L. cinerea; floribus 5 mm longis, calycis lobis valde inaequalibus.

A suberect, slender herb about 20 cm high, from somewhat thickened woody roots, the branches terete, less than 1 mm in diameter, minutely puberulent, the younger branches distinctly 4-angled. Leaves ovate, coriaceous, olivaceous, 5 to 9 mm long, 3 to 7 mm wide, entire, acute to slightly acuminate, base rounded or obtuse, the upper surface glabrous or very slightly pubescent, the lower puberulent; lateral nerves 3 or 4 on each side of the midrib, prominent; petioles 1.5 mm long or less. Spikes 1 to 2 cm long, dense, falcate. Bracteas linear-lanceolate, acuminate, 7 mm long, 0.8 mm wide, minutely cinereo-pubescent. Upper calyx lobe lanceolate, 6 mm long, 1.2 mm wide, the two lower ones 5.5 mm long and 0.8 mm wide, the two lateral ones 5 mm long and 0.5 mm wide, all pubescent. Corolla reddish, 7 mm long. Anthers 1 mm long. Ovary glabrous.

Luzon, Ilocos Norte Province, Bangui, Bur. Sci. 27518 Ramos, March 10, 1917, on dry open hills at low altitudes.

This species somewhat resembles a greatly dwarfed specimen of Lepidagathis cinerea Merr., to which it is distantly allied. It is distinguished
by its small size; in being herbaceous; in its ovate, much shorter leaves; and in its narrow, merely pubescent and not lanate-ciliate bracts.

CUCURBITACEAE

TRICHOSANTHES Linnaeus


The two specimens cited above apparently represent forms of this somewhat polymorphous species, which other than F.-Villar’s previously unverified record of Trichosanthes palmata Roxb., a synonym, has not been reported from the Philippines. The identification has been made wholly from the published descriptions; both specimens present only male flowers.

India and Ceylon to Java, Sumatra, Borneo, and Timor.

ALSOMITRA M. Roemer

ALSOMITRA PUBESCENS sp. nov.

Scandens, omnibus partibus sordide breviter pubescentibus; foliis 3-foliolatatis, foliolis ovatis ad elliptico-ovatis, membranaceis, obscure olivaceis, usque ad 14 cm longis, integris, vel lateralisibus ad basi lobato-aureilulatis; paniculis axillaris, diffusis, multifloris, usque ad 20 cm longis, floribus 5 circiter 6 mm diametro.

Scandent, all parts more or less pubescent with short, dirty-brown hairs, those on the stems and branches minutely capitate-glandular. Leaves 3-foliolate, the petioles usually about 3 cm long, the petiolules about 1 cm in length; leaflets ovate to ovate-elliptic, membranaceous, when dry dark-olivaceous, dull, entire, acuminate, base usually acute, 8 to 14 cm long, 4 to 7 cm wide, the terminal one usually larger than the lateral ones, the latter often with a short, oblong lobe on the margin near the base; lateral nerves about 6 on each side of the midrib, distinct, tendrils slender, forked, up to 20 cm in length. Panicles axillary, slender, peduncled, up to 20 cm long, many-flowered, the bracts and bracteoles linear. Staminate flowers rotate, about 6 mm in diameter, their pedicels up to 1 cm in length; slender. Sepals oblong, apiculate, 1.5 mm long, somewhat gibbous at the base, sparingly pubescent. Petals elliptic, rounded or apiculate, minutely pubescent with short scattered hairs, about 3 mm long. Stamens 5, the filaments free, nearly 1 mm long. Pistillate flowers and fruits not seen.

Luzon, Laguna Province, Mount Maquiling, trail to Dampalit Falls, For. Bur. 26346 Mabesa (type), January 23, 1917, in thickets, altitude 30 to 50 meters, flowers yellow; Baker 4471, January, 1917, “a large vine.”
The alliance of this species is manifestly with *Alsomitra integrifoliola* (Cogn.) Hayata, which it rather closely resembles in appearance. It is easily distinguished by its 3-foliolate leaves and its indumentum.

**ILOCANIA** genus novum

(*Plagiospermeae, Cucumerineae*)


**ILOCANIA PEDATA** sp. nov.

Herba scandens, glabra vel floribus extus parcissime pubescentibus, ramis longitudinaliter sulcatis, tenuibus; foliis in ambitu late ovatis, cordatis, profunde 5- vel 7-lobatis, lobi usque ad 7 cm longis, exterioribus minoribus; petiolo leviter aculeato-denticulato; floribus 5-meris, axillaris, fasciculatis, breviter pedicellatis, circiter 10 mm longis, campanulatis; fructibus globosis vel ovoideis, circiter 1.5 cm diametro; seminibus circiter 5 mm longis.

A glabrous, monoecious, slender, apparently annual vine, the branches about 1.5 mm in diameter, smooth, sulcate. Leaves broadly ovate in outline, cordate, pedately divided into 5 or 7 narrow lobes which extend almost to the base, the lobes chartaceous or membranaceous, dark-olivaceous, linear to narrowly oblanceolate, 5 to 7 cm long, 2 to 7 mm wide, usually narrowed at both ends, sinuses acute to rounded, tips apiculate-acuminate, margins distantly denticulate, the upper surface, in mature leaves, with numerous, rather prominent, scabrid, minute white spots; petioles usually somewhat aculeate-denticulate, about 3 cm long. Tendrils bifid, slender, at least 10 cm long. Flowers axillary, fascicled, greenish-yellow, campanulate, about 10 mm
long, usually one pistillate and two to four staminate ones in a fascicle, but one or two developing at one time; pedicels 2 to 4 mm long. Staminate flowers: Calyx about 4 mm long, campanulate, the lobes 5, narrowly lanceolate, about 2.5 long. Corolla lobes ovate, obtuse, slightly pubescent, about 6 mm long, 5-nerved. Stamens 3, in mature bud entirely free, the filaments short, the anthers about 3 mm long, sigmoid, 2-celled. Pistillate flowers similar to the staminate ones. Staminodes 3, linear, 2 to 3 mm long. Ovary globose, 3-celled; ovules usually 4 in each cell, horizontal. Style about 2 mm long, the arms 3, about 3 mm long; stigmas stout, dichotomous. Fruit globose or ovoid, baccate, smooth, about 1.5 cm in diameter. Seeds about 12, about 5 mm long, margined, not compressed, prominently swollen at right angles to the margin in the upper one-half, flattened below, rugose.


This species is readily recognized by its very narrowly lobed leaves, and in its vegetative characters it is radically different from any other form known to me. I cannot place it in any described genus, although, except in its ovule characters, it conforms closely with the American-African genus Cayaponia in most respects. However its ovules, while few in number, are horizontal, hence placing it in the Pleiospermae. The stamens, entirely free in mature buds, but appearing as if united in dried flowers, are those of the Cucumerineae, and it apparently comes in the group with Sicania and Physesdra, yet is very different from both of these genera.
NEW OR NOTEWORTHY PHILIPPINE PLANTS, XIV

By E. D. Merrill

(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

Separate from

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NEW OR NOTEWORTHY PHILIPPINE PLANTS, XIV

By E. D. Merrill

(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

The last number of this series was published early in the present year. The present paper contains the descriptions of one new genus of the Araliaceae and of eighty-four new species distributed in twenty-six families. In addition to these proposed new species a few forms previously described from extra-Philippine material are for the first time credited to the Archipelago, and a few changes in nomenclature are proposed. The present paper is, therefore, essentially similar to the preceding ones of the series.

PANDANACEAE

PANDANUS Linnaeus

PANDANUS SUBACAULIS sp. nov. § Keura.

Frutex humile, subacaule; foliis circiter 70 cm longis et 5 cm latis, acutis vel breviter lobatis, lobis usque ad 1.5 cm longis; pedunculis terminalibus; syncarpiis solitariis, globosis, circiter 8 cm diametro; drupis numerosis, circiter 3 cm longis, 5-vel 6-locellatis, apice sulcatis; stigmatibus 2 ad 3 mm diametro, leviter obliquis in centro valde depresso.

A low shrub, practically acaulescent, the trunk, entirely covered by the imbricate leaf-bases, 20 cm in length or less. Leaves numerous, about 70 cm long and 5 cm wide, the margins armed with numerous, antrorse, conspicuous teeth about 2 mm in length, with similar ones on the midrib beneath and along the two

1 Professor of botany, University of the Philippines.
lateral nerves on the upper surface toward the apex, the apex acute in very young leaves, in mature ones cleft into two short lobes, the lobes oblong-ovate, acute or acuminate, up to 1.5 cm long, their margins toothed. Syncarps solitary, terminal, globose, about 8 cm in diameter, the peduncles about 10 cm long, apparently pendulous. Drupes numerous, crowded, about 3 cm long, 1 to 2 cm wide, narrowed below, 5- or 6-celled, angular, the apical part cleft between the loculi, the individual terminal parts of the loculi 5 to 10 mm long, angular, narrowed upward; stigmas somewhat oblique, 2 to 3 mm in diameter, prominently depressed in the center.

Catanduanes, on forested slopes along the Santo Domingo River, Bur. Sci. 30: 69 Ramos, December 5, 1917.

A species well characterized by being nearly acaulescent, in habit closely approximating Pandanus brachypodus Martelli, but with solitary syncarps and entirely different drupes.

Pandanus philippinensis sp. nov. § Keura.

Arbor circiter 10 m alta; foliis usque ad 2.2 m longis, circiter 9 cm latis, sursum angustatis, acuminati; syncarpiis circiter 6, spicatim dispositis, confertis, subglobossis ad subellipsoideis, circiter 11 cm longis; drupis numerosis, confertis, circiter 3.5 cm longis, plerumque circiter 1.5 cm diametro, angulatis, 5- ad 8-loccellatis, partibus 1/4 superioribus liberis, subpyramidatis, extremitate truncatis, circiter 1 cm diametro, loculorum apices pyramidales, 5 ad 7 mm longis, sulcis distinctis separati; stigmatisbus obliquis.

A tree about 10 m high. Leaves coriaceous, about 2.2 m long and 9 cm wide, the margins toothed throughout, the midrib on the lower surface with scattered teeth in the upper part of the leaf, the lateral veins here distinct, one on each side of the midrib, unarmed. Syncarps usually 6, arranged in a dense spike, subglobose to subellipsoid. Drupes numerous, crowded, about 3.5 cm long, mostly about 1.5 cm in diameter, 5- to 8-celled, angular, narrowed below, the upper one-fourth free, narrowed upward, the apex truncate and about 1 cm in diameter, the apices of the loculi pyramidal, 5 to 7 mm long, the sulci between them distinct, narrow; stigmas oblique, about 1.5 mm in diameter.


This species is well characterized by its crowded, spicately arranged syncarps, and the narrowly pyramidal free apices of the loculi of the drupes. In vegetative characters it is suggestive of Pandanus exaltatus Blanco, but is totally different from that species in its numerous syncarps, and in the details of the individual drupes.
PANDANUS OCCULTUS sp. nov. § Keura.

Caulis prostratis, parce ramosis, usque ad 3 m longis; folii
usque ad 2.2 m longis, circiter 4 cm latis, superne leviter angustat
is, acuminatis; syncarpiis solitariis, erectis, breviter peduncu
lati, ellipsoideis, circiter 20 cm longis; drupis numerosis, 4 ad
4.5 cm longis, deorsum gradatim angustatis, 1.5 ad 2.5 cm latis,
superne haud angustatis, apice truncatis; loculis circiter 5, apices
pentagonis, 5 ad 8 mm diametro, angulatis, leviter pyramidatis,
sulcis distinctis separatis; stigmatibus obliquis.

Trunk prostrate, sparingly branched, 3 to 4 cm in diameter,
up to 3 m in length, the tips ascending about 0.5 m. Leaves
very numerous, greatly elongated, coriaceous, about 2.2 m long
and 4 cm wide, gradually narrowed upward, acuminate, the
margins rather coarsely toothed especially in the lower part,
the teeth less conspicuous and usually appressed above the mid
dle, the midrib beneath with few, small, scattered teeth in the
upper part of the leaf, and the two lateral nerves on the upper
surface with corresponding teeth. Syncarps solitary, erect,
short-peduncled, very dark-green when fresh, ellipsoid, hidden
in the terminal crown of leaves and nearly covered with the
numerous, imbriccate, dead bracts, its length about 20 cm, its
diameter about 11 cm. Drupes numerous, densely crowded, 4
to 4.5 cm long, 1.5 to 2.5 cm wide, the apex broad, truncate,
gradually narrowed below, compressed or angular, usually 5-
celled, the tips of the loculi 5-angled, 5 to 8 mm in diameter,
somewhat pyramidal, distinctly separated by narrow and not
very deep sulci, the stigmas solitary, oblique, pointed.

PALAWAN, Taytay, Merrill 9361, May 7, 1913, in level forests, dry at
this season but swammy in the rainy season, slightly above sea level.

This species is prominently characterized by its habit, being prostrate
with ascending branches; its greatly elongated leaves; and its solitary,
erect, ellipsoid syncarps, which are hidden in the terminal crown of leaves
and nearly covered with the dead bracts. The plants were common in one
restricted area, and were very familiar to me for several weeks before I
discovered that a few of them were fruiting.

PANDANUS ACLADUS sp. nov. § Vinsonia.

Arbor 5 ad 6 m alta, simplex; folii usque ad 2 m longis et
10 cm latis, crasse coriaceis, supra gradatim angustat
is; infruc
tescentis pendulis, syncarpiis circiter 9, oblongo-ellipsoideis vel
oblongo-ovoideis, circiter 18 cm longis et 10 cm latis; drupis
numerosis, obovoideis, angulatis, 3.5 ad 5 cm longis, 2 ad 2.5
cm diametro, 9- ad 15-locellatis, apice truncatis et leviter sulcatis,
stigmatibus vix obliquis, 1 ad 1.5 mm diametro.

A tree 5 to 6 m high, unbranched. Leaves up to 2 m in
length, about 10 cm wide, thickly coriaceous, the marginal teeth below coarse, spreading, above finer and ascending, the midrib on the lower surface in the upper part with small antrorse teeth. Infrructescences terminal, pendulous, the rachis 2 to 3 cm in diameter, the heads about 9, oblong-ellipsoid or oblong-ovoid, about 18 cm long and 10 cm in diameter. Drupes numerous, obovoid, angular, 3.5 to 5 cm long, 2 to 2.5 cm wide, 9- to 15-celled, the apical parts with rounded shoulders, the tip truncate and 1 to 1.5 cm in diameter, shallowly sulcate between the tips of the loculi, the latter irregularly conical, 2 mm long or less and at most 4 mm in diameter at their bases. Stigmas scarcely oblique, rounded or reniform, 1 to 1.5 mm in diameter, usually depressed in the center.


This species is remarkable for its habit, being tall and unbranched, and for its pendulous spikelike racemes of numerous syncarps. It belongs in the same group as Pandanus radicans Blanco and P. botryoides Martelli, from both of which it is readily distinguished by its more numerous syncarps, larger drupes, and much more numerous stigmas and loculi.

Pandanus Biliranensis sp. nov. § Vinsonia.

Arbor circiter 7 m alta; foliis circiter 2.5 m longis et 6 cm latis, acuminatis; syncarpiis solitariis, globosis, ut videtur circiter 20 cm diametro; drupis numerosis, circiter 7 cm longis, pleurumque circiter 3 cm diametro, 5- vel 6-locellatis, 5- vel 6-angulatis, in ⅓ inferiore parte angustatis, apice subpyramidatis, late rostratis, extremitate 5 ad 8 mm diametro, planis vel leviter concavis; stigmatibus 5 vel 6, planis, confluentibus.

A tree about 7 m high. Leaves about 2.5 cm long and 6 cm wide, coriaceous, narrowed upward to the acuminate apex, the margins toothed throughout, the teeth much more prominent in the lower 50 cm than above, the midrib near the tip minutely toothed on the lower surface. Syncarps solitary, globose, apparently pendulous, and about 20 cm in diameter. Drupes large, numerous, about 7 cm long, mostly about 3 cm in diameter, 5- or 6-angled, 5- or 6-celled, narrowed below from the upper three-fourths, the upper one-fourth subpyramidal, broadly rostrate, the tip plane or slightly concave, 5 to 8 mm in diameter, the stigmas 5 or 6, confluent, plane, quite covering the tip of the syncarp.

Biliran, Bur. Sci. 18895 McGregor, June 20, 1914, in forests, altitude about 300 meters.

In the form and aspect of the drupes, except in their broadly rostrate apices and plane, confluent stigmas covering the truncate tips, this species is suggestive of Pandanus dubius Spreng., but it does not belong in the
section Hombronia. It does not appear to be closely allied to any previously described species.

**FREYCINETIA** Gaudichaud

**FREYCINETIA ACUTIFOLIA** sp. nov. § Oligostigma.

Foliis subcoriaceis, anguste oblongis, usque ad 35 cm longis et 6.5 cm latis, apice acutis vel obscure acuminatis, basi plus minusve angustatis; syncarpiis 6, anguste cylindraceis, 8 ad 11 cm longis, circiter 1.5 cm diametro; fructibus superne angustatis, partibus superioribus perspicue 4- vel 5-angulatis et sulcatis; stigmatibus 2, rariter 3.

Scandent, the branches about 12 mm in diameter. Leaves narrowly oblong, 30 to 35 cm long, 4.5 to 6.5 cm wide, above rather abruptly narrowed to the acute or slightly acuminate tip, the base narrowed, the clasping part 2 to 2.5 cm wide, margins below conspicuously toothed, in the median parts smooth or with scattered small teeth, toward the apex again toothed, the midrib beneath with small scattered teeth. Syncarps 6, cylindric, 8 to 11 cm long, about 1.5 cm in diameter, the peduncles 5 to 6 cm long, very scabrous above, below nearly smooth except along the edges. Fruits numerous, the upper one-half or more entirely free, narrowed upward, conspicuously 4- or 5-angled and sulcate, the truncate tip about 1 mm in diameter; stigmas 2, rarely 3.


This characteristic species is manifestly allied to *Freycinetia oblongifolia* Merr., from which it is at once distinguished by its longer leaves, longer and narrower syncarps, and much narrower fruits.

**FREYCINETIA PLATYPHYLLA** sp. nov. § Oligostigma.

Foliis chartaceis, oblongis ad oblongo-ellipticis, usque ad 20 cm longis et 8 cm latis, perspicue tessellatis, abrupte et brevisimne acuminatis, deorsum valde angustatis, margine, basi et acumine exceptis, laevis; syncarpiis 4, cylindraceis, junioribus circiter 1.5 cm longis et 6 mm diametro; stigmatibus 2.

Scandent, the branches about 5 mm in diameter. Leaves thinly chartaceous, oblong to oblong-elliptic, 15 to 20 cm long, 5.5 to 8 cm wide, pale-olivaceous, prominently tessellate, nerves about 20 on each side of the midrib, slender, distinct, the apex abruptly and shortly acuminate, the acumen 7 mm long or less, finely toothed, margins otherwise unarmed except at the very base, the blade conspicuously narrowed below and but about 1 cm wide where it sheathes the stem. Very young syncarps 4, cylindric, about 1.5 cm long and 6 mm in diameter, their pedicels densely spinulose; bracts red, membranaceous, oblong, acute or somewhat acuminate, up to 6 cm in length. Stigmas 2.

A species most closely allied to *Freyceinia oblongifolia* Merr., but strongly characterized by its unusually broad, thinly chartaceous, prominently tessellate leaves.

**FREYCINETIA BOTULIFORMIS** sp. nov. § *Pleioistigma*.

Foliis circiter 70 cm longis et 3.5 cm latibus, sensim angustatis, tenuiter et longe acuminatis, basi hauad angustatis, auriculis 2 ad 3 cm longis, omnino adnatis, laminae marginibus dentibus brevibus praeditis, in parte media laevibus; syncarpiis 3, ut videtur carnosis, siccitate cylindraceis, botuliformibus, 17 ad 20 cm longis, 2.5 cm latis; fructibus confertis, alte connatis, numerosissimis, circiter 3 mm diametro, apice subplanis vel paullo elevatis, hauad angulatis; stigmatibus 7 vel 8.

Scandent, the branches stout, 1 to 1.5 cm in diameter. Leaves about 70 cm long and 3.5 cm wide, gradually narrowed upward to the slenderly acuminate apex, the base not narrowed, the basal auricles adnate throughout, narrow, 2 to 3 cm long, toothed toward their apices, the margins below membranaceous, deciduous; leaf margins below toothed, in the median part entire, and near the tip finely toothed, the midrib beneath with small teeth in the lower part, glabrous above. Syncarps 3, cylindric, dense, 17 to 20 cm long and 2.5 cm in diameter when dry, their peduncles smooth, stout, about 3 cm long from a 5 to 6 cm long common peduncle. Fruits very numerous, connate nearly to their apices, about 3 mm in diameter, apparently fleshy, the free apices nearly plane or slightly elevated, not at all angular, the stigmatic portion elliptic, about 2 mm long; stigmas 7 or 8.


This species is well characterized by its elongated leaves and its sausage-shaped, elongated syncarps, the individual fruits being united except at the very tips, the free portion being slightly elevated and not at all angular. In its elongated syncarps it differs radically from the species to which it is allied, such as *F. scabripes* Warb., *F. batanensis* Martelli, and *F. banahaensis* Elm.

**FREYCINETIA BULUSANENSIS** sp. nov. § *Pleioistigma*.

Species *F. williamsii* affinis, differt foliis longioribus et angustioribus, longissime et tenuissime attenuatis, pro ratio subferociter serratis.

Scandent, slender, branched, the branches brownish, about 3 mm in diameter, the internodes 3 to 8 mm long. Leaves rather stiff, 20 to 29 cm long, 5 mm wide, very gradually narrowed upward to the long and slender acuminate apex, the margins and midrib on the lower surface toothed throughout, the teeth
toward the base rather conspicuous. Syncarps 3, globose, 2.5 cm in diameter, their peduncles glabrous, 1.5 cm long. Fruits numerous, flask-shaped, about 9 mm long, narrowed upward, the upper part somewhat angular. Stigmas 4 or 5.


A species manifestly allied to Freycinetia williamsii Merr., but distinguished by the characters indicated in the diagnosis. In the typical form of Freycinetia williamsii the leaves are not at all toothed.

**FREYCINETIA APAYAOENSIS** sp. nov. §§ Pleiostigma.

Foliis numerosis, anguste ensiformibus, usque ad 70 cm longis et 1.5 cm latis, superne sensim longe attenuato-acuminatis, vix tessellatis, coriaceis, auriculis apice liberis; syncarpiis 4, cylindraceis, 6 ad 8 cm longis, circiter 2 cm diametro, pedicellis scabris; fructibus numerosis, liberis, superne subpyramidatis, 4- ad 6-angulatis et sulcatis, sursum angustatis, apice circiter 1 mm diametro; stigmatibus 4 ad 6.

Scandent, attaining a length of 12 m, the stems, when dry, about 1 cm in diameter. Leaves numerous, narrowly ensiform, 60 to 70 cm long, about 1.5 cm wide, coriaceous, scarcely tessellate, gradually narrowed upward to the very slenderly acuminate apex, somewhat narrowed below, the base above the sheathing parts about 1 cm wide, margins below sharply toothed, in the median parts unarmed or sometimes with a few scattered teeth, the long slender tip finely toothed on the margins and midrib, the latter usually unarmed in the lower part of the leaf; auricle chartaceous, rather brittle, adnate to the leaf-margin except at the tip, here 3 to 4 mm wide, subtruncate to somewhat ovate and toothed on the upper side. Syncarps 4, cylindric, 6 to 8 cm long, about 2 cm in diameter, their pedicels scabrous, about 3 cm long. Fruits numerous, free, the upper parts subpyramidal, narrowed upward, conspicuously 4- to 6-angled and sulcate, the tip about 1 mm in diameter; stigmas 4 to 6.


This species belongs in the group with Freycinetia scabripes Warb. and *F. atocensis* Martelli, but among other characters is readily distinguished from both by its conspicuously 4- to 6-angled and sulcate fruits which are narrowly pyramidal above.

**MARANTACEAE**

**PHACELOPHYRNYIUM** K. Schumann

**PHACELOPHYRNYIUM CYLINDRICUM** sp. nov.

Foliis longe petiolatis, chartaceis, oblongo-ellipticus, acumina- tis, usque ad 30 cm longis; inflorescentiiis pedunculatis, spicis
3, cylindraceis, sessilibus, 4 ad 6 cm longis, circiter 8 mm diametro; bracteis numerosis, imbricatis, dense spiraliter dispositis, circiter 1 cm longis, acutis vel leviter acuminatis, sursum plus minusve villosis, bracteis florentes bicarinatis, circiter 8 mm longis; floribus circiter 9 mm longis.

An herb, about 1 m high, tufted, the petioles nearly 1 m long, the leaves chartaceous, oblong-elliptic, acuminate, 25 to 30 cm long, 9 to 11 cm wide. Inflorescences from the sheaths 10 to 12 cm below the base of the leaf, each composed of three, dense, cylindric spikes fascicled at the tip of the common 3 to 4 cm long peduncle, the individual spikes 4 to 6 cm long, about 8 mm in diameter, composed of numerous, imbricate, spirally arranged bracts; bracts about 1 cm long and 5 mm wide, oblong-elliptic, acute or somewhat acuminate, more or less villous above, green, each subtending an inner (floral) bract, which in turn encloses two bracteoles and two flowers, this floral bract about 8 mm long, flattened on the back, the margins inflexed, the keels conspicuously 2-keeled or 2-winged; bracteoles membranaceous, oblong, 5 mm long. Flowers white, about 9 mm long. Ovary densely villous. Sepals oblong-lanceolate, acuminate, about 7 mm long, rather densely 7-nerved, slightly villous toward the tip. Corolla-tube about 4 mm long, the lobes oblong, obtuse, 5 to 6 mm long, 2 to 2.5 mm wide. Staminode one only, oblong-elliptic, rounded, 3 mm long. Cuculate stamen obovate, 3 mm long, callus one 4 mm long, 2 mm wide, plane, somewhat inequilateral, fertile one narrowly oblong, 2 mm long, 1 mm wide.


This species is strikingly characterized by its 3-partite, peduncled inflorescences springing from the sheaths, the individual spikes dense, cylindric, sessile, composed of numerous, imbricate, spirally arranged bracts. It is anomalous in *Phacelophrynium* in its spirally arranged bracts; each of which, however, subtends an inner floral bract, which in turn contains two flowers. In its floral characters it conforms to the genus.

**URTICACEAE**

**LAPORTEA** Gaudichaud

**LAPORTEA PENDULA** sp. nov.

Frutex, inflorescentii et foliiis exceptis glaber; foliiis longe petiolatis, oblongo-ovatis, usque ad 35 cm longis, basi rotundatis, apice acuminatis, supra glabris, subitus pallidoribus et plus minusve hirsutis, nervis utrinque circiter 10, perspicuis; inflorescentii laxis, axillaribus, pendulis, longissime pedunculatis, usque ad 75 cm longis, partibus junioribus et receptaculis pilis
numerosis urentibus instructis; floribus flabellatim dispositis, receptaculis concavis, accrescentibus, usque ad 9 mm diametro.

A shrub, glabrous except the lower surface of the leaves and the inflorescences. Branches thickened, rugose, the ultimate ones about 1 cm thick when dry. Leaves chartaceous, brittle, oblong-ovate, 30 to 35 cm long, about 13 cm wide, base rounded, the apex acuminate, the upper surface olivaceous, rather dull, densely puncticulate, glabrous, the lower surface somewhat paler than the upper and more or less hirsute with rather numerous, scattered, short, stinging hairs; lateral nerves about 10 on each side of the midrib, prominent on the lower surface, the reticulations lax, prominent; petioles 8 to 10 cm long; stipules oblong-ovate, chartaceous to subcoriaceous, densely puncticulate, 2.5 to 3 cm long. Inflorescences axillary, lax, pendulous, long-peduncled, up to 75 cm in length, the younger parts and the receptacles rather densely covered with short stinging hairs. Receptacles obovoid to somewhat reniform, blue when fresh, accrescent and attaining a diameter of 9 mm, concave, the pistillate flowers borne in a single row along the margin, inflexed, about 10 in each receptacle. Achenes about 4.5 mm long, tipped with the reflexed, 2 mm long, lanceolate, acuminate style.

**Catanduanes, Mount Mariguidon, Bur. Sci. 30229 Ramos**, along small streams in damp forests, altitude about 200 meters, November 21, 1917.

This striking species is well characterized by its greatly elongated, pendulous, lax inflorescences which attain a length of 75 cm. In this character it differs from all other species of the genus known to me.

**ELATOSTEMA Forster**

**ELATOSTEMA CATANDUANENSE** sp. nov.

Herba, infra prostrata, ramis paucis, erectis vel adscendenti-bus, usque ad 20 cm longis, tenuibus, brevissime adpressae hirsutis; foliis oblongo-lanceolatis ad oblongo-oblanceolatis, leviter falcatis, usque ad 2 cm longis, acuminati, basi valde inaequali-teralibus, auriculatis, dentibus utrinque 2 vel 3, perspicuis; receptaculis axillaribus, omnibus sessilibus, bracteis exterioribus chartaceis, latissime obovatis, truncatis vel leviter retusis, circiter 4 mm longis, leviter corniculatis, interioribus obovatis et valde retusis ad lineari-lanceolatis et ciliatis, perianthii seg-mentis 4.

A sparingly branched, slender herb, prostrate below, the branches ascending or erect, up to 20 cm in length, appressed-hirsute with short, appressed hairs. Leaves chartaceous, oliva-ceous-brown when dry, dull or slightly shining, without cystoliths, narrowly oblong-lanceolate to narrowly oblong-oblanceolate, 1.5
to 2 cm long, 3 to 5 mm wide, somewhat falcate, acuminate, the base very inequilateral, one side with a rounded auricle, the other acute, the margins with 2 or 3 very conspicuous teeth on each side in the upper one-half, entire below, both surfaces minutely puncticulate, the lower paler than the upper and appressed-hirsute with short hairs on the midrib beneath; lateral nerves 4 or 5 on each side of the midrib, distinct on the lower surface, anastomosing, the reticulations rather lax; stipules lanceolate, falcate, acuminate, often irregularly cleft near the apex, membranaceous, 4 to 8 mm long. Receptacles all axillary, solitary, sessile, mostly pistillate, occasionally a staminate one on the same plant with the pistillate ones. Outer bracts very broadly obovate, about 4 mm wide and long, much thicker than the inner ones, brown, truncate, slightly cornicate, glabrous; the next inner ones thinner, obovate, prominently retuse; the innermost ones linear-lanceolate, ciliate. Staminate perianth segments 4, 2 mm long, two slightly corniculate; anthers 4. Pistillate segments 4, 0.5 mm long, oblong, obtuse. Achene 0.8 mm long.


This is perhaps as near *Elatostema gracilifolium* Merr. as any other species, but is radically different from it in habit; its shorter, fewer-toothed leaves which have no cystoliths; and in the details of its inflorescences.

**FAGACEAE**

**QUERCUS** Linnaeus

**QUERCUS RIZALENSIS** sp. nov. § Cyclobalanus.

*Arbor parva, cupulis exceptis glabra, ramulis atro-brunneis vel nigrescentibus; foliis coriaceis, integris, ellipticis ad elliptico-ovatis, usque ad 6 cm longis, utrinque acuminatis, subitus pallidis vel glaucescentibus, nervis utrinque circiter 6, tenuibus, distinctis; fructibus paucis, in spicis brevibus dispositis; cupulis circiter 1.3 cm diametro, cinereo-puberulis, lamellis 5 ad 7, denticulatis; glans conico-ovoideis, glabris vel junioribus leviter pubescentibus, circiter 1.4 cm longis et latis.

A small tree, glabrous except the cups (inflorescences not seen), the branches terete, dark-colored, the branchlets dark blackish-brown, glabrous. Leaves numerous, elliptic to elliptico-ovate, coriaceous, 4.5 to 6 cm long, 2 to 3 cm wide, subequally narrowed to the acuminate base and to the acuminate apex, the apical acumen narrow, hardly caudate, and less than 1 cm long, the upper surface smooth, pale to brownish-olivaceous, the lower pale or somewhat glaucous; lateral nerves about 6 on each side of the midrib, slender, distinct, very obscurely anastomosing
close to the margin, the reticulations slender, obscure; petioles 3 to 5 mm long. Spikes short, mostly less than 2 cm long, glabrous, each with few fruits. Cups shallow, cinereous-puberulent, about 1.3 cm in diameter, the lamellae 5 to 7, the lower ones distant, the upper close, denticulate. Glans conical-ovoid, brown, glabrous, shining, apiculate, about 1.4 cm long and wide, the younger ones more or less pubescent.

LUZON, Rizal Province, Mount Lumutan, Bur. Sci. 29587 Ramos & Edaño, in the summit forests, altitude apparently about 1,000 meters. The same species is also represented by Bur. Sci. 9445 Robinson from a similar altitude on Mount Binuang, Tayabas Province, Luzon.

The alliance of this species is manifestly with Quercus philippinensis A. DC., from which it is distinguished by its smaller, not caudate-acuminate leaves and smaller fruits. Its fruits are much smaller than are those of Quercus minahassae Koord., another allied species.

LORANTHACEAE

LORANTHUS Linnaeus

LORANTHUS CONFERTIFLORUS sp. nov. § Heteranthus.

Frutex parasiticus inflorescentiis exceptis glaber; ramis 4-angulatis, ramulis acutissime tetragonis, internodiis elongatis; foliis oppositis, coriaceis, olivaceis, nitidis, oblongis ad late oblongo-lanceolatis, acuminatis, basi rotundatis, usque ad 13 cm longis, nervis utrinque circiter 9, vix prominentibus; inflorescentiis axillaribus, solitariis, usque ad 3 cm longis; floribus 6-meris, cymbraceis, omnibus sessilibus, in triadibus subsessilibus vel breviter pedunculatis dispositis, secundis, rhachibus dense puberulis.

A parasitic shrub, glabrous except the densely puberulent rachis and bracts of the inflorescences. Branches stout, brownish, distinctly 4-angled, the older ones becoming nearly terete, the angles represented by raised lines, the younger branchlets very sharply 4-angled, the internodes 3 to 9 cm long. Leaves opposite, coriaceous, olivaceous and of the same color on both surfaces, shining when dry, oblong to broadly oblong-lanceolate, 8 to 13 cm long, 3 to 5 cm wide, narrowed upward to the rather prominently acuminate apex, base rounded; lateral nerves not prominent, distant, irregular, about 9 on each side of the midrib, the reticulations lax, obscure; petioles about 1 cm long. Inflorescences axillary, solitary, about 3 cm long, the flowers all secund, very densely arranged along one side of the densely puberulent rachis, all sessile in triads, the triads racemously arranged on very short peduncles. Flowers red, 6-merous, about 23 mm long, the buds very slightly enlarged at the base and again above
the very slight constriction, cylindric, the bracts 3, forming a small involucre at the apex of the short peduncle, one bract subtending each flower, ovate, obtuse to subacute, about 3 mm long, densely puberulent. Calyx subcylindric, oblong, about 3 mm long, the limb slightly pubescent, somewhat spreading, irregularly lobed. Petals free to the base, or the basal margins slightly cohering, the petals linear, about 20 mm long, the reflexed part above the insertion of the anthers narrowly oblong, 3 to 3.5 mm long, slightly puberulent on the back. Anthers linear, continuous, 2 to 2.5 mm long.

LEYTE, Tigbao, near Tacloban, Wenzel 1249, May 25, 1915, a parasitic shrub about 2 m high.

A very characteristic species readily recognized by its elongated internodes, prominently 4-angled stems and branchlets, and its very dense, solitary inflorescences, the flowers all secund, all sessile in triads, the triads with very short peduncles racemously arranged along the densely puberulent rachis.

LORANTHUS CRASSILIMBUS sp. nov. § Heteranthus.

Frutex parasiticus, glaber, ramis ramulisque teretibus, crassis, internodiis brevibus; foliis oppositis, petiolatis, crasse coriaceis, oblongis, usque ad 13 cm longis, obtusis, basi acutis, nervis reticulisque obsoletis; inflorescentiis axillariis, solitariis, circiter 3 cm longis; floribus circiter 2.8 mm longis, 6-meris, solitariis vel in diadibus vel triadibus racemose dispositis; petalis liberis.

A parasitic glabrous shrub, the branches and branchlets terete, stout, brown when dry, the latter smooth, about 5 mm in diameter, the internodes 1.5 to 3 cm long. Leaves opposite, very thickly coriaceous, oblong, 12 to 13 cm long, 4.5 to 5 cm wide, the upper surface greenish-olivaceous when dry, the lower brown, smooth, slightly shining, apex obtuse, base acute or somewhat decurrent-acuminate, midrib very prominent, the lateral nerves and reticulations obsolete, or the former faintly visible on the upper surface; petioles stout, 1.5 to 2 cm long. Inflorescences axillary, solitary, the rachis about 3 cm long, the flowers racemously arranged, more or less secund, solitary, in pairs, or in triads, their peduncles about 4 mm long, the flowers subtended by a whorl of ovate, acuminate, coriaceous, 4 mm long bracts. Calyx cylindric, about 4 mm long, slightly contracted below the thin limb, the limb about 1 mm long, irregularly lacerate-toothed. Petals 6, linear, free, the unopened flowers somewhat angular, not inflated, the petals about 24 mm long and 2 mm wide below, narrowed upward, the reflexed part above the insertion of the stamen narrowly oblong, acute or somewhat acuminate, 6 mm long.
Anthers linear-oblung, 3 mm long, subsessile. Bracteoles sub-
tending the calyces ovate, acuminate, about 2 mm long.

& Edaño*, August 15, 1916, on trees in forests, altitude about 300 meters, the flowers red and yellow.

This very characteristic species is readily distinguishable by its very
thickly coriaceous leaves, the veins and reticulations obsolete, or the former
faintly visible on the upper surface. It does not appear to be closely
allied to any previously described Philippine form.

**Loranthus Edano** sp. nov. § *Heteranthus.*

Frutex parasiticus, glaber, ramis ramulisque teretibus, inter-
nodiis elongatis; foliis oppositis, sessilibus, crasse coriaceis,
oblongo-ovatis, usque ad 16 cm longis, apice obtusis vel obtuse
acuminatis, basi obtusi, in siccitate minute verruculosus, brun-
neo-olivaceis, nervis primariis utrinque circiter 5, subobscursis,
curvato-adscententibus, secondariis obsoleteis; inflorescentiis axil-
laribus et secus internodiis seriatim dispositis, breviter peduncu-
latis, 6-floris; floribus omnibus sessilibus, 5-meris, cylindraceis,
circiter 16 mm longis, petalis liberis.

A parasitic glabrous shrub, or the inflorescences very obscurely
ferruginous-puberulent. Branches and branchlets terete, dark-
brown, smooth, or the older branches lenticellate, the internodes
7 to 11 cm in length. Leaves opposite, sessile, thickly coriaceous,
dull, brownish-olivaceous, of the same color on both surfaces
and minutely verruculose when dry, often slightly inequilateral,
oblongo-ovate, 11 to 16 cm long, 5.5 to 6 cm long, apex obtuse
to obscurely blunt-acuminate, base obtuse; lateral nerves about
5 on each side of the midrib, curved-ascending, not prominent,
evanescent or obscurely anastomosing, the secondary nerves and
reticulations obsolete. Inflorescences axillary and seriately ar-
ranged along one side of the internodes, all peduncled and 6-
flowered. Peduncles about 5 mm long. Flowers red, 5-merous,
all sessile, and each subtended by a reniform-ovate, rounded
bracteole, about 2 mm long and 2.5 mm wide. Calyx cylindric,
slightly curved, 3.5 mm long, the limb truncate, produced about
1 mm. Petals 5, linear, free, about 13 mm long, 1 mm wide,
glabrous, the portion above the insertion of the stamen thick-
ened, narrowly oblong-obovate, obtuse, 3 mm long. Anthers
oblong, continuous with the filament, 1.2 mm long, the filament
as long as the anther.

& Edaño*, August 8, 1916, on trees at low altitudes.

A very characteristic species, in vegetative characters approaching
*Loranthus cuernosensis* Elm. and *L. seriatus* Merr. It is readily dis-
tinguished by its peduncled, 6-flowered inflorescences, which are in the axils and also seriatly arranged along one side of the internodes.

**Loranthus samarensis** sp. nov. § Heteranthus.

Frutex parasiticus, glaber, ramulis teretibus; foliis oppositis, sessilibus, ovatis, usque ad 18 cm longis, crasse coriaceis, in siccitate brunneis, utrinque minute verruculosis, apice obtuse acuminatis, basi rotundatis vel leviter cordatis, nervis utrinque 5 vel 6, arcuato-anastomosantibus, subdistinctis; inflorescentiis secundum internodiis plus minusve confertis, fasciculis 4-floris, sessilibus vel brevissime pedunculatis; floribus teretibus, circiter 2.4 cm longis, 5-meris, petalis liberis.

A parasitic glabrous shrub, the branches and branchlets terete, reddish-brown, smooth. Leaves opposite, sessile, thickly coriaceous, brown when dry, of the same color on both surfaces, minutely verruculose, ovate, 9 to 18 cm long, 7 to 11 cm wide, often slightly inequilateral, apex obtusely acuminate, base rounded, sometimes slightly cordate; lateral nerves 5 or 6 on each side of the midrib, rather distinct, stout, curved, anastomosing, the secondary ones and the reticulations obsolete. Flowers terete, cylindric, 5-merous, all sessile, about 2.4 cm long, in 4-flowered fascicles, the fascicles sessile or on very short peduncles (peduncles 2 mm long or less), densely crowded along one side of the internodes, each flower subtended by a broad, rounded bracteole 1.5 to 2 mm in length. Calyx cylindric, somewhat thickened upward, about 4 mm long, the limb produced about 1 mm, truncate, minutely ciliate. Petals 5, linear, free, 2 cm long; about 2 mm wide, the part above the insertion of the stamen about 7 mm long, thickened, acute. Anthers oblong, 3 mm long, continuous with the 2 mm long filament.


A species manifestly allied to *Loranthus cuernosensis* Elm. and to *L. edanii* Merr., differing from the former in its flowers being densely crowded in 4-flowered sessile or shortly peduncled fascicles on the internodes, not axillary, and from the latter in its leaves being rounded or somewhat cordate at the base; its 4-flowered, not 6-flowered fascicles; the peduncles, when present, much shorter; and its longer flowers.

**Loranthus pachycladus** sp. nov. § Dendrophthoë.

Frutex parasiticus, glaber, ramulis ut videtur plus minusve carnosis, in siccitate teretibus, laevis, nitidis, brunneo-olivaceis, circiter 1 cm diametro; foliis ternatis vel subternatis, oblongis ad oblongo-ellipticis, coriaceis, usque ad 10 cm longis, nitidis, supra olivaceis, subtus pallidis, apice obtusis, basi cuneatis, nervis utrinque circiter 6, valde obscuris vel subobsoletis; inflorescentiis axillaribus terminalibusque, circiter 10 cm longis, pedunculatis,
umbellatis, ramis primariis 4 vel 5, 1 ad 1.5 cm longis; floribus in ramulis primariis in triadibus dispositis, lateralis breviter pedicellatis, 6-meris, teretibus, infra leviter inflatis, circiter 5 cm longis, segmentis crassis, linearis, tubo circiter 6 mm longo.

A parasitic glabrous shrub, the branches stout, apparently fleshy when fresh, terete, smooth, shining, brownish-olivaceous when dry, about 1 cm in diameter, the branchlets longitudinally striate. Leaves ternate or subternate, oblong to oblong-elliptic, coriaceous, 8 to 10 cm long, 3 to 4 cm wide, shining, smooth, the upper surface somewhat olivaceous, the lower paler, apex obtuse, base cuneate; lateral nerves about 6 on each side of the midrib, slender, obscure, often obsolete or nearly so; petioles 2 to 2.5 cm long. Inflorescences terminal and in the uppermost axils, peduncled, umbellate, the peduncles about 3 cm long, the primary branches 4 or 5, 1 to 1.5 cm long, each bearing at its apex a triad consisting of one central sessile flower and two lateral short-pedicelled ones, each subtended by a broadly ovate, obtuse, 2.5 mm long bract, the lateral pedicles 4 to 5 mm long. Flowers greenish-yellow, 6-merous, about 5 mm long. Calyx cylindric, 6 mm long, the limb truncate, produced about 1.5 mm. Corolla inflated in the lower 1 cm, terete, the lobes 6, united for the lower 6 to 7 mm, the free parts abruptly narrowed, linear, thickened, the reflexed part above the insertion of the filament about 10 mm long and 2 mm wide, thickened, prominently bicapitate inside by the extended margins, obtuse, slightly widened upward, linear. Filaments 4 to 5 mm long, the anthers continuous, linear, 7 to 8 mm long.

LUZON, Ilocos Norte Province, Burgos, Bur. Sci. 27323 Ramos, March 10, 1917, on trees in forests at low and medium altitudes.

A remarkable species, well characterized by its rather long-pediculed, lax, umbellate inflorescences, the primary rays few in number, each bearing a single terminal triad of one sessile and two shortly pedicelled, 6-merous flowers, which are about 5 cm in length. It belongs in the group that Van Tieghem characterized as Stemmatophyllum, but is not at all closely allied to the other species belonging here, such as Loranthus haenkeanus Presl, L. currantii Merr., etc.

LORANTHUS AMPLIFOLIUS sp. nov. § Lepeostegeres.

Frutex parasiticus, glaber, ramis teretibus, ramulis leviter compressis; foliis oppositis, ovatis ad late ovatis, usque ad 16 cm longis, coriaceis, obtusis, basi late acutis vel subtruncatis, nervis utrinque 8 ad 10; capitulis axillaribus, sessilibus, 15- ad 20-floris, bracteis coriaceis, exterioribus reniformibus, circiter 1 cm longis et 2 cm latis, interioribus obovatis, bracteolis lineari-oblongis vel oblongis; floribus sessilibus, 6-meris, circiter 21 mm longis.
A parasitic glabrous shrub, the branches terete, the branchlets somewhat compressed, dull-brownish, smooth, the internodes 5 to 10 cm long. Leaves opposite, coriaceous, dull-brownish when dry, ovate to broadly ovate, 11 to 16 cm long, 8 to 13 cm wide, obtuse, base broadly acute to subtruncate; lateral nerves 8 to 10 on each side of the midrib, distinct, the secondary ones and the reticulations obsolete or nearly so; petioles stout, about 1 cm long. Heads axillary, 15- to 20-flowered, the bracts coriaceous, the outer ones reniform, 1 cm long and 2 cm wide, the inner ones obovate, the bracteoles linear-oblong to oblong, somewhat keeled, about 11 mm long, obtuse. Calyx 4 mm long, cylindric, the limb inflated, membranaceous, produced about 1.5 mm. Corolla-tube inflated below, the lobes six, united for the lower 5 mm, the free portions 2 mm wide below, narrowed upward, the reflexed part above the insertion of the stamens oblong, obtuse, 5 mm long. Anthers linear, acuminate, sessile, 4 mm long.

SAMAR, Catbalogan, Bur. Sci. 17448 Ramos, April 22, 1914, on trees in damp forests at low altitudes, the inflorescence reddish, but the corollas green and yellow.

A species readily distinguished among all the Philippine representatives of the section Lepeostegères by its very broad leaves.

LORANTHUS OVATIBRACTEUS sp. nov. § Macrosolen.

Frutex parasiticus, glaber, ramulis ramulisque teretibus; foliis oppositis, breviter petiolatis, oblongo-ovatis, coriaceis, usque ad 15 cm longis, obtusis, basi acutis vel leviter decurrento-acuminatis, in siccitate supra brunneo-olivaceis, subitus pallidis, nervis utrinque 6 ad 8, obscuris; capitulis axillaribus 12- ad 15-floris, sessilibus, bracteis ovatis, leviter carinatis, circiter 13 mm longis, bracteolis ellipticis ad oblongo-ellipticis, carinatis, 7 ad 11 mm longis; floribus in triadibus sessilibus dispositis, 6-meris, circiter 21 mm longis.

A parasitic, glabrous shrub, the branches and branchlets terete, the former pale- the latter dark-brown, smooth, the internodes 2 to 5 cm long. Leaves opposite, oblong-ovate, coriaceous, shining, 12 to 15 cm long, 5.5 to 7.5 cm wide, narrowed upward to the obtuse apex and below to the acute or somewhat decurrent-acuminate base, the upper surface dark brownish-olivaceous, the lower surface pale-brownish; lateral nerves 6 to 8 on each side of the midrib, slender, very obscure, often evanescent, the secondary nerves and reticulations obsolete; petioles 5 to 8 mm long. Heads axillary, sessile, 12- to 15-flowered, the outer four bracts ovate, coriaceous, acute, more or less keeled, about 13 mm long, the bracteoles subtending the triads elliptic to oblong-
elliptic, keeled, 7 to 11 mm long, 3.5 to 6 mm wide. Flowers
6-merous, red, sessile, each triad subtended by a bracteole.
Calyx cylindric, somewhat thickened upward, 3 mm long, the
limb produced about 1 mm, somewhat spreading, thin, more or
less crenate-lacerate. Corolla in bud about 18 mm long, cylin-
dric, somewhat enlarged in the median portion, the lobes wholly
united for the lower 5 mm, the free parts 1.5 mm wide below,
narrowed upward, the part above the insertion of the anther
linear, reflexed, 3.5 mm long, acute. Anther linear, subsessile,
2.5 mm long.

Samar, Caminiwan on the Catubig River, Bur. Sci. 24135 Ramos, Feb-
uary 8, 1916, at low altitudes.

A species of the section Macrosolen not very closely allied to the others
of this group known from the Philippines. The elliptic to oblong-elliptic,
carinate bracteoles, one bracteole subtending each triad of sessile flowers,
are characteristic.

LORANTHUS SPRAGUEI nom. nov.

Loranthus pubiflorus Merr. in Philip. Journ. Sci. 7 (1912) Bot. 263,
non Sprague.

Mr. T. A. Sprague of the Royal Gardens, Kew, England, has kindly called
my attention to the fact that Loranthus pubiflorus Merr. is a name pre-
occupied by the African L. pubiflorus Sprague, the latter published a few
months before the Philippine one, and I accordingly propose the above new
name for the Philippine form described by me.

LORANTHUS PALAWANENSIS nom. nov.

Loranthus fragilis Merr. in Philip. Journ. Sci. 9 (1914) Bot. 278, non
Sprague.

Loranthus fragilis Sprague was published in 1910 for an African species,
and accordingly the Philippine form described by me in 1914 under the same
specific name is here called Loranthus palawanensis Merr.

ELYTRANTHE Blume

ELYTRANTHE ACUÆ sp. nov.

Frutex parasiticus, glaber, ramis ramulisque teretibus; foliis
oppositis, coriaceis, in siccitate pallide brunneo-olivaceis, nitidis,
oxavis ad oblongo-ovatis, usque ad 18 cm longis, acuminatis, basi
rotundatis, nervis utrinque circiter 8, distantibus, subitus sub-
prominentibus; racemis axillaribus, brevibus, paucifloris, bracte-
olis usque ad ⅓ connatis; floribus 6-meris, curvatis, circiter 5
cm longis.

A parasitic glabrous shrub, the branches and branchlets pale-
brownish, terete, smooth, the internodes 3.5 to 11 cm long.
Leaves opposite, coriaceous, ovate to oblong-ovate, about 18 cm
long, 8 to 9 cm wide, apex prominently acuminate, base rounded,
when dry pale-brownish-olivaceous, shining; lateral nerves about
8 on each side of the midrib, rather prominent on the lower surface, curved, obscurely or scarcely anastomosing, the secondary ones and reticulations obsolete; petioles 3 to 5 mm long. Racemes axillary, solitary, the peduncle and axis 1.5 cm long or less. Flowers 6-merous, about 5 mm long, curved, red, their pedicels 2 to 3 mm long; bracts elliptic-ovate, 3.5 mm long; bracteoles united to the middle, about 2 mm long and 3 mm wide, the lobes triangular, acute. Calyx 4 mm long, somewhat urceolate, the limb produced about 1 mm. Corolla-tube about 3 cm long, somewhat enlarged upward, the lobes about 12 mm long, spatulate, much narrowed below, then broadened for a short distance, the limb 2.8 mm wide in the middle. Anthers linear, 2.3 mm long, continuous with the 8 mm long filament.

Mindanao, Lanao District, Titunod, For. Bur. 23386 Acuña, December 12, 1914, in forests along Libas Creek at low altitudes.

This species is readily recognized among the few Philippine species of Elytranthe by its large leaves and long flowers. It is not closely allied to any previously described form from the Philippines, but seems to be allied to the extra-Philippine Elytranthe formosa G. Don.

ARISTOLOCHIACEAE

ARISTOLOCHIA Linnaeus

ARISTOLOCHIA FOVEOLATA sp. nov.

Frutex scandens; foliis subcoriaceis, ovato-lanceolatis, usque ad 12 cm longis, nitidis, sursum gradatim angustatis, apice acutis vel acuminatis, basi profunde cordatis, lobis rotundatis, subtus dense foveolato-reticulatis et minutissime puberulis; fructibus axillaribus, solitariis, cylindraceis ad anguste obovoides, circiter 3.5 cm longis.

A scandent shrub, glabrous except for the minutely puberulent lower surfaces of the leaves. Branches nearly black when dry, the older ones very prominently lenticellate. Leaves subcoriaceous, rather pale when dry, shining, ovate-lanceolate, about 12 cm long, 4 to 5 cm wide across the base, gradually narrowed upward to the acute or acuminate apex, the base deeply cordate, the sinus narrow, rounded, the lobes broadly rounded and often overlapping, the upper surface distinctly reticulate, the lower densely foveolate-riculate; basal nerves 7 or 9, the inner pair nearly reaching the apex, the lower one or two pairs extending into the basal lobes; petioles 3.5 to 4 cm long. Capsules cylindric to narrowly obovoid, glabrous, dark-colored when dry, axillary, solitary, pendulous, about 3.5 cm long, 1.5 cm in diameter, the apex rounded, base attenuate.
Catanuanes, in forests along small streams back of Calolbong, Bur. Sci. 30370 Ramos, December 9, 1917.

This species is well characterized by its subcoriaceous leaves, which are densely foveolate and minutely puberulent on the lower surface and deeply cordate at the base, the sinuses being narrow and the broad rounded lobes usually overlapping. It belongs in the same general group as Aristolochia tagala Cham., but is not closely allied to that species or to any other known to me.

**MYRISTICACEAE**

**MYRISTICA** Linnaeus

**MYRISTICA MINDORENSIS** sp. nov.

Species M. cumingiae Warb. valde affinis, differt foliis minoribus, usque ad 13 cm longis, 4 cm latis, nervis lateralibus paucioribus, circiter 7 utrinque, floribus paullo majoribus.

A tree about 14 m high, glabrous except the inflorescence and the terminal buds. Branches reddish-brown, terete, rugose when dry, the lenticels few. Leaves oblong-lanceolate, firmly membranaceous or subcoriaceous, brown and somewhat shining when dry and of about the same color on both surfaces, 7 to 13 cm long, 2 to 4 cm wide, widest at about the middle, about equally narrowed at both ends, the base acute, the apex acuminate; nerves 7 on each side of the midrib, curved-ascending, prominent beneath, obscurely anastomosing, the reticulations subobsolete; petioles 1 to 1.4 cm long, rather slender. Staminate inflorescence axillary, the flowers fasciculate on short, stout, solitary, unbranched, or sometimes shortly forked, axillary, pubescent tubercles, 3 to 4 mm long and nearly as thick, each bearing from two to five flowers; pedicels about 2.5 mm long, pubescent, with a large, broad, 3 mm wide, and about 2 mm long, bracteole immediately below the flower. Staminate flowers oblong-ovoid, 5 to 6 mm long, 3-merous, pubescent outside, the lobes oblong-ovate, about 2.5 mm long, obtuse or acute. Anthers about 10, entirely united into a cylindric column about 3 mm long, 1 mm in diameter, the stipe about as thick as the anther-column, 1 mm long. Pistillate flowers and fruits unknown.


A species manifestly closely allied to Myristica cumingii Warb. but with quite different vegetative characters.

**MYRISTICA DISCOLOR** sp. nov.

Species M. simiarum A. DC. affinis, differt foliis subtus pallidis, floribus ♂ duplo majoribus, circiter 7 mm longis.

A tree, glabrous except the inflorescence. Branches terete, wrinkled, brownish when dry, slender, the branchlets nearly
black. Leaves oblong, chartaceous to thinly coriaceous, 10 to 15 cm long, 3.5 to 6 cm wide, the apex acute or somewhat blunt-acuminate, the base slightly decurrent-acuminate, the upper surface dark-colored when dry, slightly shining, minutely pustulate, the lower surface pale, glaucescent or sometimes nearly white, slightly pustulate, sometimes minutely and sparingly pubescent with very short scattered hairs; lateral nerves about 10 on each side of the midrib, slender, prominent on the lower surface, dark-colored in contrast to the pale lower surface of the leaf, looped-anastomosing, the reticulations lax; petioles 2 cm long. Staminate inflorescence axillary, solitary, 2 to 2.5 cm long, the rachis glabrous or nearly so, bearing 3 or 4, stout, short, cylindric, thickened branches, these branches about 1 cm long, 2 mm thick, more or less ferruginous-pubescent, covered with the prominent scars of fallen pedicels, flower-bearing only at the apex. Male flowers 7 mm long, about 2.3 mm in diameter, their pedicels 2 mm long, with an ovate, pubescent, black-punctate, 1 mm long bracteole at the apex. Calyx externally appressed-ferruginous-pubescent, the buds cylindric, the lobes 3, ovate, thick, subacute or obtuse, somewhat recurved in anthesis, 3 mm long, the tube and lobes minutely black-punctate. United anthers cylindric, 3 to 3.5 mm long, their united filaments 1.5 to 2 mm long, slightly appressed-hirsute. Female flowers and fruits unknown.

Luzon, Laguna Province, Mount Maquiling, For. Bur. 18155 Curran, November or December, 1911, altitude not stated.

A very characteristic species manifestly allied to Myristica simiarum A. DC., the type of which was also from Laguna Province (Calauan). It is well characterized by its 3- or 4-branched staminate inflorescences, the branches thickened, cylindric, and covered with pedicel-scars, and its characteristic leaves, which are dark-colored above and very pale beneath. The minutely pustulate leaves and the black-punctate flowers are also characteristic. Its staminate flowers are twice as large as are those of its closest ally, Myristica simiarum A. DC.

Myristica Nitida sp. nov.

Arbor, inflorescentissis fructibusque exceptis glabra; foliis lanceolatis vel oblongo-lanceolatis, usque ad 18 cm longis, apice longe acute acuminatis, basi acutis, supra valde nitidis subitus pallidioribus nitidisque; nervis lateralibus circiter 10 utrinque; fructibus oblongis vel ellipsoideis, circiter 6 cm longis, minute brunneo-tomentosis.

A tree, glabrous except the fruit and apparently the inflorescence, the latter not seen. Branches terete, wrinkled when dry, dark-colored or brownish, the branchlets light-brown. Leaves lanceolate or oblong-lanceolate, chartaceous to thinly coriaceous,
10 to 18 cm long, 2.5 to 5 cm wide, narrowed above to the slenderly acuminate apex and below to the acute base, the upper surface very strongly shining, brownish or pale-olivaceous, the lower surface somewhat paler, usually brownish, shining but less so than the upper surface; lateral nerves about 10 on each side of the midrib, rather slender, faintly anastomosing, not much more prominent than are the alternating secondary nerves, the reticulations lax, obscure; petioles rather slender, 1 to 1.5 cm long. Inflorescence and flowers unknown. Fruits axillary, solitary, oblong to ellipsoid, about 6 cm long, mature ones 3 cm thick and equally rounded at both ends, immature ones somewhat narrower, sometimes inequilateral; pericarp brittle, densely covered with a very short, pale-brown indumentum which rubs off at maturity.

Possibly as closely allied to Myristica cumingii Warb. as to any other species, but very different from that form. It is well characterized by its very strongly shining, entirely glabrous, and slenderly acuminate leaves.

**MYRISTICA PALAWANENSIS** sp. nov.

Arbor parva, usque ad 8 m alta; foliis coriaceis, oblongis ad oblongo-ellipticis, usque ad 40 cm longis, obtusis vel breviter obtuse acuminatis, basi acutis vel rotundatis, nervis utrinque circiter 24, supra glabris, subtus dense ferrugineo-vel pallide ferrugineo-pubescentibus; inflorescentiis brevibus, densissime ferrugineo-pubescentibus, circiter 4 cm longis, bracteis lineari-lanceolatis, circiter 2 cm longis, bracteolis nullis; floribus circiter 5 mm longis; fructibus ellipsoideis vel ellipsoide-ovoideis, 3 cm longis, extus dense ferrugineo-pubescentibus.

A small tree 5 to 8 m high, the branchlets, inflorescence, and lower surfaces of the leaves uniformly and densely ferruginous-pubescent with persistent hairs, the leaves, in age, often pale on the lower surface. Branches terete, glabrous, rugose when dry. Leaves oblong to oblong-elliptic, coriaceous, 25 to 40 cm long, 8 to 19 cm wide, obtuse or the apex shortly, broadly, and obtusely acuminate, the base acute to rounded, the upper surface olivaceous, glabrous, somewhat shining when dry, the lower surface densely ferruginous- or pale ferruginous-pubescent; lateral nerves about 24 on each side of the midrib, very prominent, reticulations obscured by the indumentum on the lower surface, faint on the upper surface; petioles stout, 2 to 3 cm long, when young pubescent, becoming glabrous. Male inflorescence in the uppermost axils, forming a subterminal densely ferruginous, sparingly branched inflorescence about 4 cm long. Flowers brown, densely crowded, racemously disposed, the primary branches (racemes) subtended by very thick, coriaceous,
pubescent, linear-lanceolate, 2 cm long bracts, the bracteoles absent. Flowers 5 to 6 mm long, their lobes broadly ovate, obtuse, 3 mm long, the pedicels about 3 mm long. Anthers 3 mm long. Fruit ellipsoid to ovoid-ellipsoid, 3 cm long, nearly 2 cm in diameter, the pericarp somewhat wrinkled when dry, densely and uniformly ferruginous-pubescent with very short hairs, crustaceous, 2 mm thick or less.

PALAWAN, Taytay, Merrill 9253 (type), 9353, May, 1913; Dawara, For. Bur. 7437 Manalo, March, 1907, in forests at low altitudes.

A species manifestly closely allied to *Myristica guaterifolia* A. DC. and to *M. cookii* Warb., differing from the former in its larger leaves, more numerous nerves, and smaller fruits; and from the latter in its paler indumentum, and smaller and fewer-nerved leaves.

**GYMNACRANTHERA** Warburg

**GYMNACRANTHERA MACROBOTRYS** sp. nov.

Arbor circiter 30 m alta, inflorescentiis exceptis glabra; foliiis oblongis vel anguste oblongo-ellipticis, acuminatis, basi acutis, usque ad 20 cm longis, nervis utrinque 12 ad 15, distinctis; paniculis axillaribus, adpresse ferrarugineo-pubescentibus, circiter 8 cm longis; floribus 4 ad 4.5 mm longis, lobis 3 ad 5; antheris circiter 9, lanceolatis, 2 mm longis.

A tree about 30 m high, glabrous except the inflorescence, the branches terete, grayish to reddish-brown, lenticellate, the terminal buds lanceolate, ferruginous-pubescent. Leaves oblong to narrowly oblong-elliptic, firmly chartaceous, 15 to 20 cm long, 4.5 to 7 cm wide, subequally narrowed at both ends, the apex acuminate, base acute, the upper surface smooth and shining, the lower paler, slightly glaucous; lateral nerves 12 to 15 on each side of the midrib, distinct, the reticulations rather lax, very fine, not at all prominent; petioles about 1 cm long. Panicles axillary, solitary, 6 to 9 cm long, appressed-ferruginous-pubescent, branched from the base, the branches rather distant, the lower ones 2.5 to 4 cm long, many flowered. Male flowers 4 to 4.5 mm long, externally appressed-ferruginous-pubescent, ebracteolate, internally shortly pubescent, the perianth 3- to 5-lobed, the lobes ovate, acute or obtuse, about 2 mm long. Stamens about 9, lanceolate, acuminate, about 2 mm long, on the stout, 0.3 mm long filament.

LEYTE, near Dagami, *Phil. Pl. 1171 Ramos*, August 9, 1912, in forests.

A species well characterized by its large staminate flowers, these being larger than in any previously known species of the genus. In this character *Gymnacranthera macrobotrys* is allied to *G. murtoni* Warb., of the Malay Peninsula and Borneo, but otherwise does not seem to be closely allied. From the common *Gymnacranthera paniculata* Warb. of the
Philippines it differs, among other characters, in its decidedly larger, broader, more numerous ly nerved leaves.

HORSFIELDIA Willdenow

HORSFIELDIA CONFERTIFLORA sp. nov.

Arbor circiter 25 m alta, inflorescentiis exceptis glabra; ramis ramulisque teretibus, lenticellatis; foliis chartaceis vel subcoriaceis, oblongis, usque ad 25 cm longis, breviter acuminate, nervis utrinque circiter 18, sub tus perspicuis; inflorescentiis ±e axillis defoliatis, paniculatis, usque ad 13 cm longis, plus minusve ferrugineo-pubescentibus; floribus pedicellatis, 3-, rariter 4-meris, circiter 1.7 mm diametro, in ramulis ultimis dense confertis.

A tree reaching a height of about 25 m, glabrous except the inflorescence. Branches terete, stout, brownish and striate when dry, lenticellate, the branchlets also terete, glabrous. Leaves firmly chartaceous or subcoriaceous, oblong, 17 to 25 cm long, 4.5 to 8 cm wide, slightly shining and usually more or less brownish when dry, the apex shortly acuminate, the base acute or obtuse; nerves about 18 on each side of the midrib, prominent beneath, anastomosing, the reticulations obsolete or nearly so, very lax; petioles about 1 cm long. Staminate inflorescence from the axils of fallen leaves, paniculate, pyramidal, 10 to 13 cm long, the lower branches spreading, often 5 cm long, the upper few gradually shorter, the rachis, branches and especially the ultimate branchlets more or less ferruginous-pubescent, the flowers densely crowded on the ultimate branchlets, their pedicels less than 1 mm long. Buds globose, less than 2 mm in diameter. Mature flowers 1.5 to 1.8 mm long, 3-, rarely 4-merous, the lobes broadly ovate, acute, about 1 mm long, quite glabrous. Stamens about 14, the anthers entirely united into a sessile, globose or depressed-globose mass about 1 mm in diameter. Immature fruits oblong, about 2 mm long, glabrous.


I am disposed to place this species in the section Pyrrhosa, allied to H. kingii, H. amygdalina, and H. glabra. It strongly resembles, however, H. irya and allied species, but the anthers seem to be entirely united, and the flowers are never 2-merous. This is the form previously identified by me as Horsfieldia ardisiifolia Warb., the determination having been made

from a single sterile specimen. It is not at all closely allied to that species, although resembling it in vegetative characters.

HORSFIELDIA MEGACARPA sp. nov.

Arbor alta, glabra (floribus ignotis); foliis crasse coriaceis, circiter 18 cm longis, oblongis, obscure et obtuse acuminatis, basi subacutis ad subrotundatis, supra verruculosus, in siccitate nitidis, fragilis, nervis utrinque circiter 18, subtus valde perspicuus; infructescentiis brevibus, crassis, circiter 4 cm longis; fructibus globosis, vel globoso-ellipsoideis, circiter 4 cm diametro, pericarpio crassissimo.

A tall tree, quite glabrous (inflorescence and flowers not seen), or the very young growing parts ferruginous-puberulent. Branches stout, brown, terete, lenticellate. Leaves oblong, thickly coriaceous, brittle when dry, about 18 cm long, 7 to 8 cm wide, apparently recurved or falcate, obscurely blunt-acuminate, base subacute to subrounded, when dry brown on both surfaces, the upper surface strongly shining, distinctly verruculose with minute scattered projections; lateral nerves about 18 on each side of the midrib, prominent, anastomosing, the reticulations lax, faint, obscure; petioles stout, about 1 cm long. Inflorescence and flowers unknown. Infuctescence from the branches below the leaves, short, stout, simple, about 4 cm long, each bearing 3 or 4 fruits. Immature fruits globose to ellipsoid-globose, about 4 cm in diameter, the line of dehiscence evident, the pericarp brittle, very thick (about 1 cm).

LUZON, Laguna Province, Dahican River, Bur. Sci. 16527 Ramos, September 18, 1912, in forests.

A strongly marked species, characterized by its short infructescence and especially by its unusually large, globose fruits, which have a very thick (1 cm) brittle pericarp.

HORSFIELDIA OBLONGATA sp. nov.

Arbor alta, glabra; foliis chartaceis, oblongis ad anguste oblongo-obovatis, usque ad 20 cm longis, acuminatis, basi acutis, in siccitate bruneis vel olivaceo-bruneis, nitidis, nervis utrinque 9 ad 13; infructescentiis e axillis defoliatis, usque ad 20 cm longis; fructibus oblongo-ovoideis vel anguste oblongo-ovoideis, 4 cm longis, deorsum 2 cm diametro, sursum angustatis, apice obtusis.

A tall tree, apparently entirely glabrous (flowers not seen). Branches terete, brown, much wrinkled when dry, the branchlets slender. Leaves oblong to narrowly oblong-ovate, 11 to 20 cm long, 4 to 6 cm wide, chartaceous or submembranaceous, the apex acuminate, base acute, when dry brown or brown-olivaceous, shining, lower surface very slightly paler than the
upper; lateral nerves 9 to 11 on each side of the midrib, rather
distant, distinct, curved upward, faintly anastomosing, the retic-
culations lax, slender, not prominent; petioles 1 to 1.5 cm long. 
Infructescence from the axils of fallen leaves on the branches 
below the leaves, slender, sparingly branched, up to 20 cm long. 
Fruits few, oblong-ovoid or narrowly oblong-ovoid, 4 cm long, 
2 cm in diameter in the lower part, narrowed upward to the 
blunt apex, the base somewhat rounded and produced slightly 
as a short stout pseudostalk. Pericarp thickly coriaceous, about 
1.5 mm thick when dry, the lines of dehiscence evident. Aril 
not at all laciniate.

Luzon, Tayabas Province, Mount Pular, *Phil. Pl. 1893* Ramos, Jan. 17, 
1913, in forests.

A species in vegetative characters somewhat resembling *Horsfieldia merr-
illii* Warb., well characterized, however, by its peculiarly shaped, oblong-
ovid fruits which are gradually narrowed upward to the blunt apex.

**KNEMA** Loureiro

**KNEMA PARVIFOLIA** sp. nov.

Arbor circiter 15 m alta, partibus junioribus inflorescentiisque 
ferrugineo-puberulis; foliis chartaceis, oblongis, elliptico-
oblongis vel oblongo-lanceolatis, supra nitidis, subtus pallidiori-
bus, acuminatis, basi acutis, 5 ad 10 cm longis, nervis utrinque 
9 ad 13, subtus perspicuis; floribus 3 parvis, vix 3 mm 
longis, paucis, e tuberculis axillaribus vel e axillis defoliatis, 
disco stamineo glabro, marginie antheris 8 vel 9 breviter stipi-
tatis coronato.

A tree about 15 m high, the trunk reaching a diameter of 
35 cm. Branches dark-brown, terete, striate when dry, some-
what shining, glabrous, the slender branchlets minutely and 
densely ferruginous-puberulent as are the petioles and inflores-
cences. Leaves chartaceous, oblong, elliptic-oblong, or oblong-
lanceolate, entire, 5 to 10 cm long, 1.8 to 2.8 cm wide, the upper 
surface shining, glabrous, the lower pale when dry, dull, with 
scattered, small, brown, sublepidote, glandular dots, especially 
on the midrib and nerves, the base acute, the apex acuminate, 
acumen rather short, blunt; primary nerves 9 to 13 on each 
side of the midrib, prominent beneath, anastomosing, the second-
ary nerves and reticulations rather close, fine; petioles 6 to 9 
mm long. Staminate flowers on short, pubescent, rather stout 
tubercles, these tubercles about 4 mm long, marked with scars 
of fallen pedicels, each bearing from 2 to 5 long-pedicelled flow-
ers, the tubercles solitary in the axils of leaves or of fallen 
leaves; pedicels slender, rusty-puberulent, 8 to 10 mm long, with
a small, deciduous, oblong, obtuse, 1 mm long bracteole at the upper one-fourth or one-third. Staminate flowers small, not exceeding 3 mm in length, the buds ferruginous-puberulent outside, glabrous within, subglobose or somewhat 3-angled, 3-, rarely 4-merous, the calyx-segments thick, ovate, 3 mm long or less, acute. Staminal-disk stipitate, glabrous, the stipe less than 1 mm long, bearing on the margins of the disk 8 or 9, radiately disposed, 0.5 mm long anthers. Pistillate flowers and fruits unknown.

LUZON, Albay Province, Manito, For. Bur. 10573 Curran, June, 1908, on forested ridges, altitude about 30 meters.

A species apparently not closely allied to the other Philippine representatives of the genus, well characterized by its unusually small staminate flowers and by its small leaves.

KNEMA ALVAREZII sp. nov.

Arbor 12 ad 15 m alta, partibus junioribus fructibusque densissime ferrugineo-tomentosis; foliis lanceolatis vel oblongo-lanceolatis, 8 ad 12 cm longis, coriaceis, acuminatis, basi acutis vel obtusis, supra glabris, nitidis, subtus pallidis, nervis utrinque 12 ad 15; floribus 3 axillaribus, parvis, 3-meris, extus densissime ferrugineo-tomentosis, disco stamineo glabro, breviter stipitato, staminibus 6; fructibus junioribus ellipsoideis, 1.5 ad 2 cm longis, dense ferrugineo-tomentosis.

A tree 12 to 15 m high, the young branchlets and leaves very densely ferruginous-tomentose as are the buds and young fruits. Branches grayish-brown, striate, glabrous. Leaves lanceolate to oblong-lanceolate, coriaceous, 8 to 12 cm long, 2 to 3 cm wide, entire, rather slenderly acuminate, base acute or obtuse, the upper surface glabrous, shining, the lower surface pale, puberulent, ultimately becoming nearly glabrous; petioles when young ferruginous-tomentose, later puberulent, 8 to 15 mm long; nerves 12 to 15 on each side of the midrib, prominent, anastomosing, the reticulations not prominent. Male flowers on short, axillary, solitary tubercles, the whole inflorescence ferruginous-tomentose, 1 cm long or less. Pedicels short. Flowers crowded, in bud globose or ovoid, the perianth-segments 3, ovate, about 3 mm long, the bracteoles ovate, deciduous, 2 mm long. Staminal-disk shortly stipitate, glabrous, bearing on the margins 6 radiately spreading anthers about 0.5 mm long. Fruit (immature) ellipsoid, 1.5 to 2 cm long, densely ferruginous-tomentose.


A species manifestly allied to Knema heterophylla Warb., differing in its smaller, fewer-nerved, apparently always entire leaves, the younger
parts and fruits densely ferruginous-tomentose. From *Knema parviflora* Merr. it is distinguished by its different indumentum, short-pedicelled male flowers, and fewer anthers.

**MELIACEAE**

**AGLAIA** Loureiro

**AGLAIA RIZALENSIS** sp. nov. § *Hearnia*.

Species *A. luzoniensis* affinis differt foliolis lanceolatis ad oblongo-lanceolatis, usque ad 10 cm longis et 2.5 cm latis. Arbor parva, novellis et inflorescentiis dense cupreo-lepidotis; folis 1-foliolatis, foliolis subcoriaceis, rigidis, acuminatis, subtus par-cissimse lepidotis, nervis utrinque 10 ad 12, tenuibus; paniculis axillarisibus, brevibus, paucifloris, 2 ad 4 cm longis; floribus parvis, 5-meris, racemose dispositis, petalis libris, extus par-cissimse lepidotis.

A small tree, about 4 m high, the younger parts and the inflorescences densely cupreous-lepidote. Branches terete, grayish-brown, somewhat wrinkled, glabrous, the branchlets densely lepidote as are the very young leaves. Leaves simple, alternate, the petiole 1 to 1.5 cm long, more or less lepidote, the leaflet lanceolate to oblong-lanceolate, subcoriaceous, olivaceous when dry, dull or slightly shining, 6 to 10 cm long, 1.5 to 2.5 cm wide, subequally narrowed to the acute base and the acuminate apex, the upper surface glabrous, the lower sparingly lepidote especially along the midrib; lateral nerves slender, 10 to 12 on each side of the midrib, indistinct, obsolete or nearly so on the upper surface, the reticulations obsolete. Panicles axillary, few-flowered, 2 to 4 cm long, densely cupreous-lepidote, usually branched from the base, the lower branches 1.5 cm long or less; flowers yellowish, racemosely arranged on the branches, their pedicels 1 to 2.5 mm long. Calyx densely lepidote, the teeth 5, short, acute to obtuse. Petals 5, orbicular, 1 to 1.2 mm in diameter, externally slightly lepidote. Staminal tube free, broad, about 1 mm high. Anthers 5, inserted at the apex of the tube just within the rim. Ovary pubescent.


This species is manifestly allied to *Aglaia luzoniensis* (Vid.) Merr. & Rolfe, one of the few species of the genus with unifoliolate leaves. It is readily distinguished by its much narrower, differently shaped leaves. It is distinguished from *Aglaia brevipetiolata* Merr. by its much longer petioles and differently shaped leaves. I now have before me a cotype of the Celebesian *Aglaia unifoliolata* Koord., and am able to confirm its identity with the Philippine *Aglaia monophylla* Perk.; both are identical with *Beddomea luzoniensis* Vid., the basis of *Aglaia luzoniensis* Merr. &
Rolfe. This very characteristic species is common and widely distributed in the Philippines and, like numerous other strongly marked and characteristic types, is otherwise known only from Celebes and New Guinea.

AGLAIA PYRIFORMIS sp. nov. § Hearnia.

Arbor parva, partibus junioribus dense cupreo-lepidotis; foliis alternis, circiter 20 cm longis, foliolis 7, oblongis, coriaceis, usque ad 10 cm longis, acutis vel brevissime acuminatis, basi acutis ad obtusis, subaequilateralibus, utrinque minute puncticulatis, subtus ad costa et nervis cupreo-lepidotis, nervis lateralis utrinque 8 vel 9, perspicuis, curvatis, evanescentibus vel obscure anastomosantibus, reticulis obsolete; paniculis axillaribus, usque ad 18 cm longis, angustis; floribus 5-meris, racemose dispositis, circiter 3 mm diametro; fructibus anguste obovoideis, usque ad 2.5 cm longis, extus dense minuteque cupreo-lepidotis.

A tree about 5 m high, the younger branches, petioles, petiolules, midrib and lateral nerves on the lower surface of the leaflets, panicles, and fruits densely cupreous-lepidote. Leaves alternate, about 20 cm long; leaflets 7, oblong, coriaceous, minutely puncticulate on both surfaces, rather pale when dry, shining, 5 to 10 cm long, 2.5 to 4 cm wide, subequally narrowed to the acute or obscurely acuminate apex and to the acute or somewhat obtuse base, the midrib very prominent on the lower surface; lateral nerves 8 or 9 pairs, prominent, curved, evanescent or obscurely anastomosing, the reticulations obsolete; petiolules 1 cm long or less. Panicles axillary, up to 20 cm long, narrow, the lower branches 3 cm long or less, the flowers racemously arranged on the ultimate branchlets, rather few. Flowers pink, 5-merous, their pedicels stout, 2 mm long or less. Calyx 2 mm long, ovoid, the lobes lepidote, obtuse, coriaceous. Petals 5, free, about 2 mm long, oblong-elliptic, rounded. Staminal-tube turbinate, free, 1 mm long, about 1.5 mm in diameter, truncate. Anthers 5 or 6, inserted on the edge of the tube, inflexed, 0.8 mm long. Fruits narrowly obovoid, dark-brown when dry, rounded, gradually narrowed below, up to 2.5 cm long, externally very densely and minutely cupreous-lepidote.


A most characteristic species, distinguishable by its indumentum; its coriaceous puncticulate leaflets; the prominent evanescent nerves; the obsolete reticulations; and its dark-brown, pyriform fruits.

AGLAIA PUNCTICULATA sp. nov. § Hearnia.

Frutex circiter 2 m altus, partibus junioribus foliolis subtus ad costa nervis et paniculis dense cupreo-lepidotis; foliis circiter
30 cm longis, foliolis longe petiolatis, oblongis, usque ad 13 cm longis, coriaceis, utrinque puncticulatis, breviter acute acuminatis, basi acutis ad obtusis, nervis utrinque circiter 10, curvatis, perspicuis, evanescentibus, reticulis obsoleteis; paniculis axillaribus, circiter 20 cm longis, anguste pyramidatis; floribus numerosis, graciliter pedicellatis, racemose dispositis, 5-meris, 1.5 mm diametro.

A shrub, said by the collector to be about 2 m high, the younger branches, petioles, petiolules, costa and nerves on the lower surface, and inflorescences densely cupreous-lepidote. Leaves alternate, about 30 cm long; leaflets 7, oblong, rather pale when dry, coriaceous, both surfaces minutely puncticulate, 10 to 13 cm long, 2.5 to 5.5 cm wide, apex shortly acuminate, base acute to obtuse; lateral nerves 10 on each side of the midrib, prominent, curved, evanescent, the reticulations obsolete; petiolules 2 to 2.5 cm long. Panicles axillary, narrowly pyramidal, about 20 cm long, the lower branches up to 7 cm in length. Flowers numerous, 5-merous, racemously disposed on the ultimate branchlets, 1.5 mm in diameter, their pedicels about 2 mm long, slender. Sepals orbicular-ovate, 1 mm in diameter, rounded, stellate-lepidote. Petals 5, free, 1.5 mm long, rounded. Staminal-tube turbinate, 1 mm in diameter, truncate, 0.6 mm long. Anthers 5, 0.6 mm long, inserted on the edge of the tube.

LUZON, Nueva Ecija Province, Mount Umingan, Bur. Sci. 26306 Ramos & Edaño, August 21, 1916, in forests, altitude about 400 meters, locally known as amponayan.

This species in its indumentum, its oblong, coriaceous, puncticulate leaves, and its evanescent nerves, the reticulations obsolete, strongly resembles Aglaia pyriformis Merr., and is manifestly allied to it. It differs from Aglaia pyriformis in its larger leaves; larger leaflets, which have much longer petiolules; its longer panicle branches; and especially in its more numerous, much smaller, slenderly pedicelled flowers.

AGLAIA ROBINSONII sp. nov. § Hearnia?

Frutex 3 ad 4 m altus, partibus junioribus petiolis infructescentiis et fructibus densissime cupreo-stellato-tomentosis; foliis alternis, 12 ad 25 cm longis, foliolis 7 ad 10, oppositis vel alternis, lanceolatis, chartaceis vel subcoriaceis, usque ad 7 cm longis, acuminatis, basi acutis, leviter inaequilateralibus, subitus ad costa densissime cupreo-tomentosis, ceteroquin glabra, nervis utrinque 7 ad 10, tenuibus, curvatis, anastomosantibus; infructescentiis axillaribus, brevibus, 1 ad 2 cm longis; fructibus ellipsoideis, 1.5 cm longis, densissime cupreo-tomentosis.

A shrub 3 to 4 m high, the branchlets, petioles, petiolules, midribs on the lower surface of the leaflets, very short infructes-
cences and fruits densely and uniformly stellate-tomentose with short, more or less spreading, cupreous hairs. Leaves alternate, 12 to 25 cm long; leaflets 7 to 10, alternate or opposite, lanceolate, subolivaceous or brownish-olivaceous when dry, somewhat shining, 4 to 7 cm long, 1 to 2 cm wide, subequally narrowed to the acute, somewhat ineqilateral base and to the acuminate apex, chartaceous or subcoriaceous, glabrous except the midrib on the lower surface; lateral nerves 7 to 10 on each side of the midrib, slender, curved, anastomosing; petiolules 2 to 3 mm long, densely pubescent. Infructescences axillary, solitary, all parts densely cupreous-pubescent, the rather stout rachis 1 to 1.5 cm long, the infructescence reduced to a simple raceme. Fruits ellipsoid, 1.5 cm long, few, very densely cupreous-pubescent.


A species well characterized by its lanceolate, small leaflets, its dense cupreous indumentum, and especially by its very short infructescences, which, including the ellipsoid fruits, scarcely exceed 2 cm in length.

AGLAIA TAYABENSIS sp. nov. § Hearnia.

Species A. harmsianae affinis differt foliolis multo majoribus, usque ad 29 cm longis et 11 cm latis. Arbor, partibus junioribus et inflorescentiis dense subcastaneo-stellato-tomentosis; foliis usque ad 65 cm longis, alternis, foliolis 7, oblongo-ellipticis, chartaceis, breviter acuminatis, basi obtusis ad subcordatis, utrinque ad costa stellato-tomentosis, nervis utrinque 15 ad 20; paniculis axillaribus, pyramidatis, pedunculatis, folia subaequantibus; floribus 5-meris, parvis, calycis extus stellato-tomentosis.

A tree about 8 m high, the young branchlets, petioles, inflorescences, and midrib on both surfaces of the leaflets densely subcastaneous-stellate-tomentose. Branches terete, brown, about 7 mm in diameter, tomentose. Leaves alternate, about 65 cm long. Leaflets 7, the lateral ones opposite, oblong-elliptic, chartaceous, brownish-olivaceous when dry, 25 to 29 cm long, 9.5 to 11 cm wide, the upper surface glabrous except for the stellate-tomentose midrib, the lower stellate-tomentose on the midrib and to a less degree on the lateral nerves, the base obtuse to rounded or subcordate, the apex shortly and abruptly acuminate; lateral nerves 15 to 20 on each side of the midrib, distinct, anastomosing, the reticulations lax, indistinct;
petiolules stout, densely stellate-tomentose. Panicles axillary, about as long as the leaves, densely stellate-tomentose, the indumentum subcastaneous, peduncled, the branches few, scattered, spreading, the lower ones up to 16 cm in length. Flowers rather densely crowded on the ultimate branchlets, 5-merous, in bud about 1 mm in diameter, the calyx externally stellate-tomentose, the lobes 1 mm long or less.


The alliance of this species is unmistakably with Aglaia harmsiana Perk., from which it differs chiefly in its very much larger leaflets.

AGLAIA GRANDIFOLIOLA sp. nov. § Euaglaia.

Arbor parva, partibus junioribus et inflorescentiis dense et pallide lepidotis, costa subtus parcisimse lepidotis; folii alternis, circiter 60 cm longis, foliolis circiter 5, oblongo-ellipticis, membranaceis, nitidis, acuminati, usque ad 30 cm longis; panicululis axillaribus, paucifloris, 5 ad 6 cm longis; floribus magnis, 5-meris, circiter 5 mm longis; antheris 8, oblongis, 2 mm longis.

A small tree, 7 m high fide Ramos, the younger parts densely lepidote, the scales appressed, pale, small. Branches terete, brownish, smooth, about 5 mm in diameter, ultimately glabrous. Leaves alternate, about 60 cm long, the petioles and rachis rather densely pale-lepidote, the midrib on the lower surface of the leaflets sparingly lepidote. Leaflets about 5, membranaceous, brownish-olivaceous when dry, shining, oblong-elliptic, 20 to 30 cm long, 8 to 10 cm wide, base rounded to acute, that of the lateral ones inequilateral, apex slenderly acuminate; lateral nerves about 10 on each side of the midrib, prominent, curved, distant, anastomosing, the reticulations lax, indistinct. Panicles axillary, few-flowered, 5 to 6 cm long, densely pale-lepidote, the branches few, the lower ones 1.5 cm long or less, spreading. Flowers yellow, distinctly large for the genus, about 5 mm long, their pedicels short, stout, densely lepidote. Calyx about 3 mm long and wide, the lobes broadly ovate, obtuse, about 1.5 mm long, externally lepidote. Petals 5, free, obovate, glabrous, 5 to 5.5 mm long, apex rounded, base narrowed. Staminal-tube obovoid, 4 mm long, the anthers 8, oblong, 2 mm long, included.

LUZON, Tayabas Province, Umiray River, Bur. Sci. 28981 Ramos & Edaño, June 3, 1917, in forests along the river.

A strongly marked species, well characterized by its few, unusually large leaflets; which are entirely glabrous except for the sparingly lepidote midrib; its very short, few-flowered panicles; and its unusually large flowers.
AGLAIA LANCILIMBA sp. nov. § Euaglaia.

Arbor circiter 10 m alta, ramulis inflorescentiisque densissimae cupreo-lepidotis; foliis circiter 25 cm longis, rhachibus petiolulosisque dense cupreo-lepidotis; foliolis 11 ad 17, lanceolatis, accuminatis, usque ad 9 cm longis, in siccitate pallidis, nitidis, supra minutissimae puncticulatis, in costa utrinque perspicue cupreo-lepidotis, nervis utrinque 10 ad 14, tenuibus, obscuris, reticulis obsoleteis; paniculis folia subaequantibus, anguste pyramidatis, multifloris; floribus 5-meris, racemose dispositis, 2.5 ad 3 mm longis.

A tree about 10 m high, the branches and branchlets, inflorescences, petioles, rachises, and petiolules, and the midrib on both surfaces of the leaflets conspicuously and densely cupreous-lepidote. Ultimate branches terete, cupreous, nearly smooth, about 6 mm in diameter. Leaves numerous, crowded near the apices of the branchlets, about 25 cm long, the rachis, petioles and petiolules densely and conspicuously cupreous-lepidote; leaflets 11 to 17, lanceolate, chartaceous, pale when dry, somewhat shining, apex slenderly acuminate, base somewhat inequilateral, acute, 7 to 9 cm long, 1.2 to 2 cm wide, the upper surface minutely puncticulate-pitted, the lower paler than the upper, conspicuously cupreous-lepidote on and along the midrib on both surfaces, with few, widely scattered scales on the epidermis; lateral nerves 10 to 14 on each side of the midrib, very slender, obscure, not anastomosing, the reticulations obsolete; petiolules 6 to 9 mm long. Panicles in the uppermost axils, narrowly pyramidal, nearly as long as the leaves, peduncled, all parts densely cupreous-lepidote, the lower branches up to 12 cm in length, the upper shorter. Flowers 5-merous, racemose disposed on the ultimate branchlets, their pedicels 1.5 to 2.5 mm long. Sepals 5, suborbicular, densely cupreous-lepidote, about 1 mm in diameter. Petals 5, free, glabrous, about 3 mm long, oblong-elliptic to oblong-ovovate, rounded, concave. Staminal-tube oblong-ovoid, 2.2 mm long, slightly crenate. Anthers 5 or 6, oblong, 1 mm long, inserted at about the middle of the tube, included.

Luzon, Camarines Province, Paracale, For. Bur. 26509 De Mesa & Magistrado, August 2, 1916, on low hills, altitude about 20 meters, locally known as ibatiba.

This very characteristic species is well marked by its dense, cupreous, lepidote indumentum and its narrow, pale leaves. It somewhat resembles Aglaia lanceolata Merr. and A. curranii Merr., being most closely allied to the former. It is distinguished from both by its much larger flowers.
AGLAIA MIRANDAE sp. nov. § Euaglaia.

Species *A. stenophyllae* Merr. affinis, differt foliolis multo brevioribus latioribusque, usque ad 12 cm longis et 4 cm latis, breviter obtuseque acuminatis, nervis minus numerosis, 10 ad 12 utrinque, inflorescentiis dense multifloris, e basi ramosis.

A small tree about 7 m high, the branchlets, petioles, inflorescences, and some other parts of the plant rather densely ferruginous-pubescent with short stellate hairs. Branches grayish, rather slender, ultimately glabrous. Leaves alternate, about 30 cm long, the petiole and rachis ferruginous-stellate-pubescent; leaflets alternate, or the uppermost ones opposite, usually 9, subchartaceous, oblong to somewhat oblong-ovate, 6 to 12 cm long, 2.5 to 4 cm wide, pale and shining when dry, the apex obscurely blunt-acuminate, the base acute to rounded, often more or less inequilateral; nerves 10 to 12 on each side of the midrib, slender, not anastomosing, the reticulations nearly obsolete, the midrib on the lower surface ferruginous-stellate-pubescent as are the 2 mm long petiolules. Panicles axillary, 2 to 5 cm long, pyramidal, branched from the base, densely many-flowered, the flowers yellowish, racemosely arranged on the ultimate branchlets, 5-merous, their pedicels about 1 mm long. Calyx stellate-pubescent, the lobes ovate, obtuse, 0.5 mm long. Petals 5, free, glabrous, elliptic, rounded, about 1 mm long. Staminal-tube depressed-globose, glabrous, free, truncate, about 0.6 mm long, the anthers 5, included.

BASILAN, near Sangal, *For. Bur. 18970 Miranda*, October 1, 1912, in forests, altitude about 100 meters.

A species manifestly allied to *Aglaia stenophylla* Merr. of Samar, differing radically however in its very differently shaped, fewer-nerved leaflets. In its very abbreviated panicles it strongly resembles that species, but here differs in the panicles being very densely many-flowered and branched from the base.

AGLAIA MYRIANTHA sp. nov. § Euaglaia.

Arbor parva, partibus junioribus, petiolis, petiolulis et inflorescentiis dense pallide stellato-tomentosis; foliis alternis, circiter 45 cm longis, foliolis circiter 15, lanceolatis ad oblongo-lanceolatis, tenuiter acuminatis, basi valde inaequilateralibus, usque ad 11 cm long, in sicitate pallidis, nitidis, nervis utrinque circiter 12, tenuibus, distinctis; paniculis axillaribus, folia subaequantibus, pedunculatis, multifloris; floribus numerosis, sessilibus, in ramulis ultimis glomeratim dispositis, 5-meris, sepalis extus stellato-tomentosis, circiter 1 mm longis.
A small tree, the younger parts, petioles, rachis, petiolules, midrib on the lower surface of the leaflets, and the ample inflorescences densely and uniformly stellate-tomentose with short, pale-brownish or grayish-brown hairs. Branches thickened, the ultimate ones at least 8 mm in diameter. Leaves crowded toward the apices of the branchlets, about 45 cm long; leaflets opposite and alternate, pale-brownish when dry, slightly shining, of the same color on both surfaces, subcoriaceous, lanceolate to oblong-lanceolate, 8 to 11 cm long, 2.5 to 3 cm wide, slenderly acuminate, base strongly inequilateral, acute, or acute on one side and somewhat rounded on the other, the lowermost ones shorter than the others; the midrib beneath, and sometimes also on the upper surface, stellate-tomentose; lateral nerves slender, somewhat curved, obscurely anastomosing, about 12 on each side of the midrib, the reticulations obscure; petiolules 5 to 8 mm long. Panicles axillary, as long as the leaves, peduncled, the lower branches up to 20 cm long, the branchlets densely flowered, the flowers somewhat glomerate on the spike-like ultimate branchlets. Flowers 5-merous, minute, very numerous, the sepals ovate, pubescent, about 1 mm long. Petals 5, free, when young orbicular-ovate, about 1 mm in diameter.


A species not closely allied to any other known to me, well characterized by its long leaves and panicles, narrow, pale, very inequilateral leaflets, and very numerous, sessile glomerate flowers on the spike-like ultimate branchlets.


The specimens are rather characteristic, and appear to be decidedly uniform in essential characters; they agree closely with specimens from the Malay Archipelago and from Queensland. Its habitat is apparently characteristic.

The species is new to the Philippines, although I have previously described a variety from the Batanes Islands. I am now of the opinion that this northern form is specifically distinct, and herewith raise it to specific rank.
AGLAIA PALLENS (Merr.) comb. nov.

Aglaia elaeagnoida Benth. var. pellens Merr. in Philip. Journ. Sci. 3 (1908) Bot. 413.


This species differs from Aglaia elaeagnoida Benth. especially in its much smaller leaves.

CHISOCHETON Blume

CHISOCHETON (DASYCOLEUM) PARVIFOLIOLUS sp. nov.

Arbor parva, inflorescentiis exceptis glabra; foliis usque ad 25 cm longis, foliolis usque ad 14, oppositis, coriaceis, oblongis, usque ad 10 cm longis, obtuse acuminatis, in siccitate pallidis, nervis utrinque 10 ad 12, subtus valde perspicuis, subpatulis; infructescentiis axillaribus, longe pedunculatis, folia subaequantibus, puberulis; fructibus globosis vel depresso-globosis, 1.5 ad 2 cm diametro, pericarpio puberulo.

A small tree, glabrous except the more or less cinereous-puberulent inflorescence and younger parts. Branches terete, rather stout, the ultimate ones 5 to 7 mm in diameter, wrinkled when dry, grayish. Leaves alternate, up to 25 cm in length, the leaflets usually about 7 pairs, opposite, coriaceous, oblong, pale when dry, 7 to 10 cm long, 2.5 to 3.5 cm wide, somewhat inequilateral, apex obtusely acuminate, base distinctly inequilateral, rounded on both sides; lateral nerves 10 to 12 on each side of the midrib, spreading, very prominent; petiolules 2 to 3 mm long. Infructescences axillary, long-peduncled, about as long as the leaves, narrowly pyramidal, fruit bearing only in the upper one-third, the primary branches at most 3 cm long, spreading. Fruits globose or depressed-globose, pale-brownish when dry, 1.5 to 2 cm in diameter, puberulent, smooth, indehiscent, usually containing two seeds.


A species closely allied to Chisocheton philippinus Harms., from which it is distinguished by its much smaller, very prominently nerved leaflets.

DYSOXYLUM Blume

DYSOXYLUM HEXANDRUM sp. nov. § Eudysoxylum.

Arbor, inflorescentiis exceptis glabra; foliis alternis, 30 ad 80 cm longis, foliolis alternis vel superioribus suboppositis, chartaceis, olivaceis, in siccitate utrinque minutissime verruculosis, oblongis ad oblongo-ovatis vel oblongo-ellipticis, plerumque cir-
citer 20 cm longis, acuminatis, nervis utrinque 9 ad 12, perspicuis; inflorescentiis axillaribus, depauperato-paniculatis, 12 ad 20 cm longis, ramis paucis; floribus 4-meris, circiter 1 cm longis, petalis extus pubescentibus, liberis; antheris 6; ovario pubescente.

A tree, at least 6 m high, probably higher, glabrous except the inflorescences. Branches grayish to brownish, the ultimate ones 5 to 10 mm in diameter. Leaves alternate, distant, 30 to 80 cm long; leaflets alternate, or the upper ones subopposite, chartaceous, olivaceous and rather dull when dry, both surfaces minutely verruculose, oblong to oblong-ovate or oblong-elliptic, 15 to 30 cm long (mostly about 20 cm), 6 to 11 cm wide; lateral nerves 9 to 12 on each side of the midrib, prominent, somewhat curved, obscurely anastomosing, the reticulations nearly obsolete. Panicles axillary, cinereous-pubescent, sparingly branched, 12 to 20 cm long, the lower branches 6 cm long or less. Flowers white, 4-merous, their pedicels 2 to 4 mm long. Calyx somewhat pubescent, 3 mm in diameter, shallow, somewhat 4-angled, obscurely 4-toothed. Petals 4, narrowly oblong, obtuse, pubescent externally, 10 mm long, 2.5 to 2.8 mm wide, free. Staminal-tube cylindric, glabrous on both surfaces, 9 mm long, crenulate. Anthers 6, about 1 mm long, included, inserted near the top of the tube. Disk cylindric, glabrous, crenulate, 3 to 3.5 mm long. Ovary ovoid, pubescent; style pubescent, about 7 mm long. Fruit obovoid, reddish-yellow, brown when dry, rather hard, 6 to 7 cm long, 5 to 6 cm in diameter.


This species greatly resembles Dysoxylum platyphyllum Merr. in its vegetative and inflorescence characters, but is readily distinguished by its petals being pubescent outside and glabrous within; its entirely glabrous staminal tube; its six anthers; and its minutely and uniformly verruculose leaflets.

Dysoxylum Ilocanum sp. nov. § Eudysoxylum.

Arbor parva, ramulis et foliis et inflorescentiis plus minusve griseo-puberulis vel pubescentibus; foliis alternis, circiter 25 cm longis, foliolis 6 vel 8, oppositis, oblongo-ellipticis vel subellipticis, usque ad 10 cm longis, subcoriaceis, in siccitate pallidis, basi rotundatis, leviter inaequilateralibus, apice obtusis ad obscure acuminatis, nervis lateralibus utrinque circiter 14, subtus valde perspicuis; inflorescentiis axillaribus, solitariis, 5 ad 7 cm longis, racemosis vel depauperato-paniculatis; floribus 4-meris, circiter 7 mm longis, petalis liberis, ovario pubescente.

A small tree, rather prominently grayish-puberulent or pubes-
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cent. Branches terete, the ultimate ones about 5 mm in diameter, pale-brownish, pubescent, the branchlets very densely and uniformly grayish-pubescent with short hairs, a similar indumentum on the petioles, petiolules, and inflorescences. Leaves alternate, about 25 cm long, the leaflets opposite, 3 or 4 pairs, pale when dry, oblong-elliptic to subelliptic, subcoriaceous, mostly 8 to 10 cm long and 4 to 5.5 cm wide, base somewhat inequilateral, rounded, apex obtuse to obscurely acuminate, the upper surface glabrous except for the pubescent midrib, the midrib and lateral nerves on the lower surface sparingly pilose with spreading hairs; lateral nerves somewhat impressed on the upper surface, very prominent on the lower surface, about 14 on each side of the midrib, slightly curved, obscurely anastomosing, the reticulations subobsolete. Inflorescences axillary, solitary, pubescent, 5 to 7 cm long, simple, racemose or the nodes somewhat projecting and forming a very depauperate, raceme-like panicle. Flowers about 7 mm long, 4-merous, somewhat crowded at the nodes, their pedicels about 1 mm long. Calyx-lobes ovate, acute to obtuse, about 1.5 mm long, free nearly to the base, slightly pubescent. Petals 4, oblong, obtuse, free, 7 mm long, 3 mm wide, externally very obscurely pubescent. Staminal-tube cylindrical, 6 mm long, glabrous, free, obscurely crenate; anthers 8, 1 mm long, included. Disk cup-shaped, 2 mm long and wide, margins slightly undulate, glabrous outside, somewhat pubescent inside. Ovary pubescent; style pubescent in the lower one-half, glabrous above, including the ovary about 6 mm long.


A characteristic species belonging in the group with Dysoxylum vries- seanum C. DC. It is most closely allied to Dysoxylum wenzelii Merr., of Leyte, but is readily distinguishable by its more numerously nerved leaves and different indumentum.

DYSOXYLUM PANAYENSE sp. nov. § Eudysoxylum.

Arbor circiter 13 m alta, ramulis junioribus et inflorescentiis dense minuteque cupreo-puberulis; foliis alternis, usque ad 45 cm longis, petiolis et costa et petiolulis in siccitate purpurobrunneis; folioliis alternis vel suboppositis, circiter 8, oblongis, subcoriaceis, in siccitate olivaceis, fragilis, utrinque dense verruculosis, usque ad 14 cm longis, base inaequalilateralibus, decurrento-acuminatis, apice tenuiter subcaudato-acuminatis, nervis utrinque circiter 12; inflorescentiis axillariibus, spiciformis, usque ad 18 cm longis; floribus fasciculatis, 4-meris, breviter
pedicellatis, circiter 7 mm longis, petalis extus puberulis, liberis; disco cylindrico, crenato, glabro; ovario pubescente, 3-loculare.

A tree about 13 m high, glabrous except the minutely but densely cupressus-puberulent branchlets, younger parts, and inflorescences. Branches pale-brownish, about 8 mm in diameter. Leaves alternate, up to 45 cm in length, the petioles, rachis, petiolules, and midribs of the leaflets purplish-brown when dry; leaflets about 8, alternate or subopposite, oblong, subcoriaceous, brittle when dry, olivaceous, both surfaces densely and minutely verruculose, 10 to 14 cm long, 4 to 5 cm wide, base prominently inequilateral, decurrent-acuminate, apex rather slenderly subcaudate-acuminate; lateral nerves about 12 on each side of the midrib, distinct, slightly curved, not anastomosing, the reticulations obsolete. Inflorescences axillary, solitary, up to 18 cm long, spikelike, the rachis brownish-purple when dry. Flowers 4-merous, white, about 7 mm long, somewhat crowded on the very slightly produced nodes, their pedicels stout, 1 to 1.5 mm long. Calyx slightly pubescent, broadly and shallowlv 4-toothed, about 2 mm in diameter. Petals oblong, free, 7 mm long, 2 mm wide, externally puberulent. Staminal-tube cylindric, free, glabrous, crenate, 6 mm long; anthers 8, about 0.9 mm long. Disk cylindric, crenate, glabrous, 2 mm long. Ovary narrowly ovoid, pubescent, 3-celled; style about 5 mm long.

**Panan**, Capiz Province, *For. Bur. 23951 Hirro*, February 13, 1915, in dipterocarp forests near streams at an altitude of about 400 meters, locally known as *balic*.

A species manifestly closely allied to *Dysoxylum palawanense* Merr., which it greatly resembles. It is readily distinguished, however, by its brownish-purple branchlets, petioles, petiolules, midribs, and inflorescences, its somewhat caudate-acuminate leaflets, and its cylindric, crenate disk.

**Vavaea** Bentham

This genus, long considered to be a typical Polynesian one, is apparently as well or even better represented in the Malayan region than in Polynesia. At least one species is widely distributed in the Malay Archipelago, represented by numerous collections, as yet unidentified, in the Buitenzorg herbarium. In Java is also found *Vavaea bantamensis* (Koord. & Val.) Koord. & Merr., originally described, from fruiting specimens, as a species of *Vitex*, while at least eight species are represented in our Philippine collections. The previously described species are *Vavaea amicorum* Benth., *V. harveyi* Seem., and *V. megaphylla* C. H. Wright, of Fiji and the Friendly Islands; *V. papuana* F. M. Bailey, of New Guinea; *V. chalmersii* C. DC., of New Guinea; *V. pauciflora* Volk., of the Caroline Islands; *V. bantamensis* Koord. & Merr., of Java; and *V. surigaoensis* Elm. and *V. ardisioides* Elm., of Mindanao. At least in the Philippines, the species do not appear to be sharply defined, as in some cases specimens are found presenting intermediate characters between rather distinct types.
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NEGROS, Malabunhao, near San Carlos, For. Bur. 23402 Contreras, July 15, 1914, in rocky soil in the hills, altitude about 200 meters, locally known as *saguibunon*.

This species is characterized especially by its strongly obovate, broadly rounded, and very prominently retuse leaves. It is manifestly very closely allied to *Vavaea amicorum* Benth. and *V. harveyi* Seem.

**VAVAEA PILOSA** sp. nov.

Arbor parva, partibus junioribus et inflorescentiis et foliis praesertim subtus ad costa nervisque perspicue subferrugineo ciliato-pilosis; foliis firme chartaceis, in siccitate pallidis, obovatis ad oblong-obovatis, usque ad 20 cm longis, apice acutis, breviter acuminatis, vel subrotundatis, basi angustatis, cuneatis, nervis utrinque circiter 15, curvatis, perspicuis; inflorescentiis dense pubescentibus, axillaribus, numerosis, longe pedunculatis, circiter 10 cm longis; floribus 8 ad 10 mm longis, petalis puberulis, filamentis dense pilosis.

A small tree, apparently deciduous, the inflorescences usually appearing with the young leaves, the younger parts, inflorescences, and the leaves beneath prominently ciliate-pilose with spreading subferruginous hairs. Branches terete, brownish, glabrous, the branchlets marked with prominent petiolar scars, densely pubescent. Leaves crowded at the apices of the branchlets, obovate to oblong-obovate, 11 to 20 cm long, 5 to 9 cm wide, firmly chartaceous, pale when dry, shining, the apex acute, somewhat acuminate, or sometimes rounded or obtuse, base gradually narrowed, cuneate, the midrib on the upper surface rather densely pubescent, otherwise glabrous, or the nerves with few scattered hairs, the lower surface rather softly and densely pubescent with spreading hairs especially on the midrib and lateral nerves; lateral nerves about 15 on each side of the midrib, prominent, somewhat curved, anastomosing; petioles densely pubescent, 1 to 1.5 cm long. Cymes numerous, solitary, in the upper axils, about 10 cm long, densely pubescent, long-peduncled, the flower-bearing portion usually less than 3 cm long, the branches few, somewhat spreading, the inflorescences rarely exceeding 5 cm in diameter. Flowers white or yellowish-white, 4- and 5-merous. Calyx densely pubescent, about 4 mm long, the lobes 4 or 5, acute, 1 to 2 mm long. Petals 4 or 5, oblong, obtuse, puberulent externally, 8 to 10 mm long. Staminal-tube 1.5 to 2 mm long, glabrous externally; stamens 10 or 12, alternate ones slightly shorter than the others, the free parts of the filaments densely pubescent, about 2 mm long; anthers ovoid, about 0.5 mm long. Ovary ovoid, pubescent, 3-, sometimes 4-celled; style rather stout, about 4 mm long. Fruit subovoid,
brownish when dry, about 8 mm long, externally very slightly pubescent.


A species not strikingly different from *Vavaca amicorum* Benth., distinguished, however, by its prominent indumentum, which is composed of subferruginous, spreading, ciliate-pilose hairs.

**VAVAEA HETEROPHYLLA** sp. nov.

Arbor circiter 12 m alta, partibus junioribus et inflorescentiis exceptis glabra; foliis confertis, majoribus obovatis, usque ad 15 cm longis, apice latissime rotundatis, nervis utrinque circiter 8, minoribus oblongis ad obovatis, 2 ad 6 cm longis, omnibus breviter petiolatis; inflorescentiis in axillis superioribus, longe pedunculatis, cymosis, circiter 10 cm longis; petalis 1 cm longis; filamentis plerumque 12, intus densissime villosus, tubo glabro, 2 mm longo.

A tree about 12 m high, the younger parts and inflorescences more or less pubescent. Branches reddish-brown, rugose, 6 to 8 mm in diameter, glabrous, the branchlets somewhat cinereous-pubescent. Leaves crowded at the apices of the branchlets, very diverse in size, the larger ones broadly obovate, 8 to 15 cm long with about 8 pairs of primary nerves, apex broadly rounded, gradually narrowed below to the acute or subacute base, the smaller ones oblong to obovate, 2 to 6 cm long, all chartaceous, pale to brownish when dry, glabrous or the younger ones somewhat pubescent along the midrib on both surfaces, the lower surface somewhat puncticulate; petioles pubescent, 4 mm long or less. Cymes in the uppermost axils, long-peduncled, 9 to 11 cm long, more or less pubescent, many-flowered, each cyme about 4 cm in diameter. Flowers pinkish-white, fragrant. Calyx pubescent, about 4 mm in diameter, usually 5-angled or toothed. Petals 5, oblong, puberulent, about 10 mm long, 3 to 4 mm wide. Staminal-tube glabrous, about 2 mm high, the filaments usually 12, 2.5 to 3 mm long, the alternate ones slightly shorter than the others, densely villous inside. Ovary and style pubescent, the latter 5 to 5.5 mm long; stigma capitate.

*Luzon*, Camarines Province, Paracale, Casalongan, *For. Bur.* 27062 *Magistrado*, May 12, 1917, on forested slopes, altitude about 20 meters, with the local name *pinganpingan*.

This species is well characterized by its short-petioled, chartaceous
leaves, which are truncate tly rounded at the apex and which vary exceedingly in size and somewhat in shape. It is apparently most closely allied to *Vavaea pachyphylla* Merr., but its leaves are entirely different in texture and have much shorter petioles than is the case with the latter species.

**Vavaea pachyphylla** sp. nov.

Frutex vel arbor parva, ramis incrassatis, partibus junioribus et inflorescentiis plus minusve adpressae fulvo-pubescentibus; foliis crasse coriaceis, obovatis, usque ad 13 cm longis, apice latissime rotundatis, basi acutis, nitidis, nervis utrinque 7 vel 8, perspiciuis, subtus ad costa nervisque pubescentibus; cymis sub fructu longe pedunculatis, parvis, 2.5 ad 3.5 cm diametro, fructibus glabris, ovoideis, circiter 1 cm longis.

A shrub or small tree (2 to 3 m high *fide* Ramos), the branches stout, brown, about 1 cm in diameter, the branchlets 5 to 7 mm in diameter, or sometimes as thick as the branches, often marked with numerous petiolar scars, glabrous except the growing tip which is rather densely pubescent with pale-fulvous appressed hairs. Leaves thickly coriaceous, rather pale when dry, obovate to broadly obovate, 9 to 13 cm long, 6 to 9 cm wide, shining, the apex broadly rounded, the base narrowed, acute, the upper surface smooth, glabrous except for the pubescent midrib, the lower surface distinctly reticulate, the veinlets raised, appressed-pubescent on the midrib and lateral nerves; nerves 7 or 8 on each side of the midrib, very prominent, curved, anastomosing; petioles stout, pubescent, 1 to 1.5 cm long. Fruiting peduncles axillary, solitary, 8 to 10 cm long, sparingly pubescent, the cymes 2.5 to 3.5 cm long and wide, the bracts subtending the primary branches oblong, pubescent, up to 1 cm in length. Primary branches few, stout, somewhat pubescent. Fruits ovoid, glabrous, about 1 cm long, the persistent calyx appressed-pubescent with pale-fulvous hairs.

Luzon, Tayabas Province, Mount Binuang, *Bur. Sci.* 28816 Ramos & Edaño, May 11, 1917, in the mossy forest, altitude apparently about 1,000 meters. I refer here without hesitation *Bur. Sci.* 28757 Ramos & Edaño, from the same locality, a specimen with juvenile, yet thickly coriaceous, leaves 5 to 6 cm in length, and rather densely pubescent inflorescences with very young flowers.

The species is a most characteristic one and is readily distinguishable by its very thickly coriaceous, obovate leaves which are broadly rounded at their apices.

**Burseraceae**

**Canarium** Linnaeus

**Canarium microphyllum** sp. nov. § *Choriandra*.

Arbor parva, plus minusve puberulis vel pubescentibus; foliis usque ad 17 cm longis, foliolis circiter 11, parvis, oblongo-ovatis,
chartaceis, integris, usque ad 5 cm longis, apex tenuiter subcaudato-acuminatis, basi acutis, inaequilateralibus, nervis utrinque circiter 8, perspicuis; inflorescentiis ♂ axillaribus, circiter 6 cm longis, racemosis, floribus ad nodis fasciculatis; calycis parce cinereo-pubescentibus, 3 mm longis, 3-lobatis; staminibus 6, liberis; disco villosi.

A small tree, 5 m high fide Ramos, the branchlets, inflorescences, and parts of the leaves puberulent, the tips of the branchlets also rather densely villous. Branches glabrous, terete, brownish, the ultimate ones 3 to 4 mm in diameter. Leaves alternate, about 17 cm long, the rachis and petiole puberulent as are the midribs on both surfaces and nerves beneath; leaflets usually 11, oblong-ovate, chartaceous, brownish-olivaceous, shining, 4 to 5 cm long, 1.5 to 2 cm wide, inequilateral, entire, the apex slenderly subcaudate-acuminate, the acumen blunt, base acute; primary nerves about 8 on each side of the midrib, prominent, curved, anastomosing; petiolules 3 to 5 mm long; stipules none. Inflorescences in the uppermost axils, about 6 cm long, slender, somewhat pubescent, the flowers fascicled at the nodes in the upper part, their pedicels 1 to 1.5 mm long, pubescent. Calyx about 5 mm long, the lobes 3, broadly ovate, obtuse, slightly pubescent. Stamens 6, inserted outside of the villous disk, free.


This species is well characterized by its unusually small, entire, slenderly subcaudate-acuminate leaflets, these being distinctly smaller than are those of any other described Philippine species. It is closely allied to Canarium euryphyllum Perk., differing in its indumentum and in its smaller leaves; Canarium euryphyllum Perk. is entirely glabrous.

SANTIRIA Blume

SANTIRIA ELLIPTIFOLIA sp. nov.

Arbor glabra, circiter 20 m alta; foliis alternis, usque ad 35 cm longis, foliolis 9 ad 13, subcoriaceis, ellipticis ad oblongo-ellipticis, olivaceis, nitidis, usque ad 16 cm longis, apice obtusis ad latissime et breviter acuminatis, basi rotundatis vel truncatis, saepe plus minusve inaequilateralibus, nervis utrinque circiter 11, patulis, curvatis, distinctis; paniculis axillaribus, solitariis, circiter 20 cm longis, e basi ramosis, amplis, multifloris; floribus parvis, petalis ovatis, circiter 2.8 mm longis.

A glabrous tree about 20 m high, the ultimate branches terete, brownish, lenticellate, about 8 mm in diameter. Leaves alternate, up to 35 cm in length, the rachis dark reddish-brown; leaflets 9 to 11, opposite, subcoriaceous, elliptic to oblong-elliptic, entire, 9 to 16 cm long, 4.5 to 7 cm wide, olivaceous when dry,
shining, the apex obtuse to broadly and shortly acuminate, base rounded to truncate, often inequilateral; primary nerves about 11 on each side of the midrib, slender but distinct, spreading, curved, anastomosing, the reticulations distinct on the lower surface; petiolules 2 to 2.5 cm long. Panicles axillary, solitary, branched at or from near the base, up to 20 cm long, the primary branches up to 10 cm in length. Flowers numerous, greenish-yellow, fragrant, the buds obovoid. Calyx with three very short rounded teeth. Petals ovate, about 2.8 mm long and 2 mm wide. Stamens 6, their filaments about 1 mm long and 2 mm wide. Stamens 6, their filaments about 1 mm long, inserted outside of the conspicuous disk which is about 1.5 mm in diameter and 6-angled.

Luzon, Camarines Province, Paracale, For. Bur. 27097 Alambra, March 22, 1918, in dipterocarp forests, altitude about 50 meters.

Among the Philippine species this form is well characterized by its elliptic to oblong-elliptic leaflets and its ample inflorescences.

CELASTRACEAE

MICROTROPIS Wallich

MICROTROPIS PHILIPPINENSIS sp. nov.

Frutex glaber, ramis teretibus, ramulis leviter compressis et obscure sulcatis ad distincte 4-angulatis; foliis chartaceis, oblongo-ellipticis, usque ad 11 cm longis, in siccitate pallidis, nitidis, utrinque subaequaliter angustatis, acuminate, nervis primariis utrinque 6 ad 8, distantibus, arcuato-anastomosantis; cymis axillaris, ut videtur paucifloris, breviter pedunculatis; fructibus oblongo-ovoideis, circiter 1.5 cm longis, acuminate, sepalis 5, persistentibus reniformibus, 2.5 ad 3 mm latis.

A glabrous shrub, the branches terete, the branchlets somewhat compressed and obscurely sulcate to distinctly 4-angled, reddish-brown. Leaves opposite, chartaceous, pale when dry, shining, in general oblong-elliptic, acuminate and subequally narrowed at both ends, 8 to 11 cm long, 3 to 5 cm wide; primary lateral nerves 6 to 8 on each side of the midrib, distant, lax, rather distinct on the lower surface, arched-anastomosing, the reticulations lax; petioles 8 to 10 mm long. Cymes axillary, few-flowered, shortly peduncled, usually dichotomously branched, the two primary branches each bearing a single fruit, the peduncles 5 cm long or less, the branches somewhat shorter than the peduncles. Persistent sepals 5, reniform, rounded or retuse, about 2 mm long, 2.5 to 3 mm wide. Fruits reddish-yellow when fresh, when dry dark reddish-brown, oblong-ovoide, prominently acuminate, about 1.5 cm long, 5 to 8 mm in diameter.
CATANDUANES, Mount Mariguidon, Bur. Sci. 30580 Ramos, November 30, 1917, on forested slopes.

This is the third species of the genus to be found in the Philippines, and is most closely allied to Microtropis platyphylla Merr., from which it is distinguished by its smaller, differently shaped, and fewer-nerved leaves; and by its short-peduncled, few-flowered cymes.

VITACEAE

LEEA Linnaeus

LEEA PAPILLOSA sp. nov.

Frutex circiter 2 m altus, ramis et petiolis et rhachibus et inflorescentiis perspicue firmiter papillosis, papillis rigidis, simplicibus vel furcatis, usque ad 2 mm longis; foliis tripinnatis, usque ad 60 cm longis, foliolis chartaceis ad subcoriaceis, oblongis, usque ad 18 cm longis, subabrupte caudato-acuminatis, margine perspicue serratis; infructescentiis amplis, laxis, diffusis, usque ad 25 cm longis, pedunculatis; fructibus globosis, glabris, in siccitate nigris, plus minusve rugosis, circiter 8 mm diametro, calyces lobis 5, subpersistentibus.

A shrub about 2 m high, the branches, branchlets, petioles, rachises and secondary rachises of the leaves, and the inflorescences conspicuously papillate, the papillae numerous, stiff, rigid, simple or forked, up to 2 mm long, all these parts dark-brown when dry, the ultimate branches about 5 mm in diameter. Leaves tripinnate, up to 60 cm long, the primary pinnae few, usually 4 or 5, the lower ones up to 35 cm in length. Leaflets in general oblong, firmly chartaceous to subcoriaceous, 9 to 18 cm long, 4 to 6 cm wide, glabrous except the midrib beneath, which is usually supplied with scattered tufts of short hairs and with small papillae, rather pale-olivaceous, shining, the apex rather abruptly caudate-acuminate, the acumen slender, blunt, 1.5 to 2 cm long, the base usually rounded; lateral nerves 8 to 12 on each side of the midrib, prominent, anastomosing, the reticulations prominent. Infructescences diffuse, lax, up to 25 cm in length, their peduncles about 5 cm long, all parts papillate with processes similar to those on the petioles and branches. Fruits globose, glabrous, black and somewhat rugose when dry, about 8 mm in diameter, the subpersistent calyx-lobes 5.

CATANDUANES, Bur. Sci. 20388 Ramos, December 8, 1917, along small streams in forests back of Calolbong at low altitudes.

This species is remarkable for the numerous, short, simple or forked, stiff, rigid papillae or papilla-like protuberances on the branches, branchlets, leaves, and inflorescences, in this particular character differing from all other described species of the genus known to me.
STERCULIACEAE

FIRMIANA Marsigli


Hibiscus simplex Linn. Sp. Pl. ed. 2 (1763) 977.
Sterculia platanifolia Linn. f. Suppl. (1781) 423.

Luzon, Pangasinan Province, Mount San Isidro, Labrador, Bur. Sci. 29858 Fenix, November 6, 1917, in forests, altitude about 400 meters, locally known as bitnong.

The specimen is in flower and presents immature leaves, which are glabrous and considerably smaller than are those on our Chinese material. The tree is manifestly deciduous, the new leaves appearing with the flowers.

I can see no reason, in the absence of more complete material, and especially mature leaves and fruits, for distinguishing this Philippine form from this well-known Chinese and Japanese species. In floral characters it conforms very closely with material from southern China.

DILLENIACEAE

SAURUAIA Willdenow

SAURUAIA OLIGOPHLEBIA sp. nov.

Frutex, ramulis, petiolis, et pedicellis dense adpresse paleaceis; foliis chartaceis, oblongis, usque ad 8 cm longis, supra brunneo-olivaceis, nitidis, ad costa nervisque breviter adpresse setosis, subtus pallidoribus, apice breviter acuminatis, basi acutis ad obtusis, margine denticulato-setosis, nervis utrinque 5 vel 6; floribus axillaribus, solitariis, breviter pedicellatis, ebracteatis, circiter 2 cm diametro, sepalis ovato-ellipticis, exterioribus acutis, dense subpatule setosis, interioribus subpetaloideis, obtusis; ovario glabro; stylis 3, liberos.

A shrub about 1 m high, the branchlets, petioles, and pedicels rather densely appressed-paleaceous with oblong, obtuse to acuminate, 0.5 to 1.2 mm long, thick scales, with similar ones on the midrib and nerves on both surfaces of the leaves. Leaves oblong, chartaceous, 5 to 8 cm long, 2 to 3.5 cm wide, the upper surface brownish-olivaceous, shining, the lower paler, here also with scales on the reticulations, the apex shortly acuminate, base acute to obtuse, margins denticulate-setose; lateral nerves 5 or 6 on each side of the midrib, prominent, the reticulations distinct; petioles 0.5 to 1 cm long. Flowers axillary, solitary, white, ebracteate, about 2 cm in diameter, their pedicels 5 to 8 mm long. Sepals ovate-elliptic, about 8 mm long, the outer two densely setose on the back, acute, the inner three more or less petaloid, thinner, rounded, setose only on the exposed parts, the setae somewhat spreading, thick, lanceolate, acuminate, up to
3 mm in length. Petals irregularly retuse. Stamens 20. Ovary globose, glabrous; styles 3, free, about 4 mm long.


This species apparently belongs in the group with Saurauia oligantha Merr. and S. sparsiflora Elm., differing from both in numerous characters, notably in its much larger flowers and densely setose sepals.

THEACEAE

TERNSTROEMIA Mutis

TERNSTROEMIA MEGACARPA sp. nov.

Arbor glabra, circiter 12 m alta; foliis crasse coriaceis, in siccitate brunneis, oblongo-ellipticis ad obovato-oblongis, usque ad 30 cm longis et 11 cm latis, apice breviter obtuseque acuminate, basi cuneatis, nervis utrinque circiter 15, sat distinctis; floribus axillaribus, longe pedicellatis, pedicellis 4 ad 10 cm longis; fructibus ovoideis, circiter 6 cm longis; seminibus oblongis, utrinque obtusis, circiter 3 cm longis.

A glabrous tree about 12 m high. Branches terete, grayish-brown, wrinkled when dry. Leaves thickly coriaceous, brown when dry, slightly shining, oblong-elliptic to obovate-oblong, 16 to 30 cm long, 7 to 11 cm wide, apex broadly and shortly blunt-acuminate, base narrowed, cuneate, the lower surface somewhat verruculose, not black-puncticulate or glandular; lateral nerves about 15 on each side of the midrib, rather distinct; petioles stout, about 2 cm long. Flowers axillary, dioecious, solitary, long-pedicelled, the pedicels rather stout, 4 to 10 cm long. Calyx lobes orbicular, thickly coriaceous, about 1 cm in diameter. Stamens indefinite, crowded, the anthers about 1.5 cm long. Fruit ovoid or ellipsoid-ovoid, about 6 cm long and 4 cm in diameter, brown when dry, the pericarp brittle-coriaceous, glabrous. Seeds oblong, rounded at both ends, crimson when fresh, about 3 cm long.

Mindanao, Lanao District, Camp Keithley, Mrs. Clemens s. n. (type) and 959, collected in March, June, July, and September, 1907.

This species is distinguished from Ternstroemia philippinensis Merr. by its larger, more prominently nervet leaves which are not black-glandular or puncticate on the lower surface, and its long-peduncled flowers and fruits. Its alliance with the extra-Philippine species appears to be with Ternstroemia penangiana Choisy, to which it is not closely allied, and T. robinsonii Merr., of Amboina.

EURYA Thunberg

EURYA PACHYPHYLLA sp. nov.

Arbor parva, 4 ad 5 m alta, glabra; foliis coriaceis, ellipticis ad oblongo-ellipticis, brunneo-olivaceis, nitidis, usque ad 5 cm
longis, nervis cum venularum reti utrinque distinctis, basi acutis, apice breviter acuminatis, acuminis retusis; petiolo 4 ad 5 mm longo; floribus axillaribus, solitariis vel binis, breviter pedicellatis, sepalis omnino glabris; stylis 3, paene liberis.

A small glabrous tree 4 to 5 m high, the branches and branchlets terete, smooth, reddish-brown, the ultimate branchlets slender, 1 mm in diameter or less, the internodes mostly about 1 cm long. Leaves coriaceous, elliptic to oblong-elliptic, 4 to 5 cm long, 2 to 3 cm wide, subequally narrowed to the acute base and to the shortly acuminate apex, the apex retuse, margins minutely crenulate-serrulate, the nerves and reticulations distinct on both surfaces, the primary lateral nerves 7 to 9 on each side of the midrib, scarcely more prominent than are the secondary nerves and primary reticulations, freely anastomosing; petioles 4 to 5 mm long. Flowers axillary, solitary or in pairs, their pedicels 2 mm long or less. Sepals glabrous, orbicular to subreniform, retuse, the outer ones about 2 mm, the inner 3 mm in diameter. Fruits globose, 5 mm in diameter; styles 3, nearly free, about 1 mm long.


A species in the general alliance with Eurya japonica Thunb., but distinguished by many characters, notably in its thicker, prominently and rather densely reticulate leaves. Among the Philippine species it is most closely allied to Eurya coriacea Merr., from which it is distinguished by its shorter petioles and much smaller, entirely glabrous sepals.

Eurya Pachyrhachis sp. nov.

Arbor parva, circiter 5 m alta, glabra, ramis et ramulis crassi, internodiis brevibus, circiter 5 mm longis; foliis crasse coriaceis, ellipticis ad ovato-ellipticis, olivaceis vel brunneo-olivaceis, nitidis, usque ad 6 cm longis, aequilateralibus, basi obtusis, apice breviter acuminatis, acuminis retusis, margine minute crenulato-serrulatis, nervis utrinque 7 ad 9, tenuibus, distinctis, anastomosantibus; petiolo 3 ad 5 mm longo; inflorescentiis axillaribus et e axillis defoliatis, rhachibus crassis, 2 ad 4 mm longis, cicatribus multis instructis, ad apice 1- vel 2-floris; floribus brevissime pedicellatis, sepalis margine minute ciliatis; stylis 3, usque ad $\frac{1}{4}$ connatis.

A small tree, about 5 m high, entirely glabrous except the minutely ciliate margins of the sepals. Branches and branchlets dark-gray, rather stout, the ultimate branchlets 2 to 3 mm in diameter, the internodes short, usually 5 mm long or less.
Leaves thickly coriaceous, elliptic to ovate-elliptic, 3.5 to 6 cm long, 2.3 to 3 cm wide, shining, olivaceous or brownish-olivaceous, base obtuse to rounded, apex shortly acuminate, the acumen retuse, margins minutely crenulate-serrulate; lateral nerves 7 to 9 on each side of the midrib, slender, distinct, anastomosing, the reticulations distinct; petioles 3 to 5 mm long. Racemes axillary, and in the axils of fallen leaves, solitary, the rachis stout, 2 to 4 mm long, marked with numerous scars of fallen pedicels, each bearing at one time one or two flowers at the apex, subsessile or the pedicels 1 to 1.5 mm long. Sepals orbicular to reniform, the inner ones up to 2 mm long and 3.5 mm wide, their margins ciliate. Ovary ovoid, glabrous; styles 3, about 2 mm long, united for one-half their length.


A species resembling Eurya coriacea Merr., but with shorter petioles and an entirely different inflorescence. The short, stout, scarred rachis of the axillary racemes is characteristic.

**DIPTEROCARPACEAE**

**VATICA** Linnaeus

**VATICA PACHYPHYLLA** sp. nov.

Arbor circiter 20 m alta; foliis crasse coriaceis, ellipticis ad oblongo-ellipticis, glabris, olivaceis, nitidis, usque ad 14 cm longis et 8 cm latis, apice acuminatis, basi subacutis ad rotundatis, nervis primariis utrinque circiter 12, subtus prominulis; paniculis terminalibus, anguste pyramidatis, usque ad 18 cm longis, densissime stellato-furfuraceis, indumento luteo; floribus numerosis; petalis oblongis, circiter 11 mm longis; antheris 15; ovario glabro; stylis circiter 0.7 mm longis, glabris, stigmate obscurissime 3-lobato.

A tree about 20 m high, glabrous except the younger parts. Branches terete, brownish, wrinkled when dry, about 5 mm in diameter, glabrous or nearly so, the branchlets densely ferruginous-furfuraceous. Leaves thickly coriaceous, elliptic to oblong-elliptic, 11 to 14 cm long, 5 to 8 cm wide, the apex rather prominently acuminate, base acute to rounded, when dry olivaceous, shining, the very young ones more or less stellate-puberulent, the indumentum caducous, the leaves soon entirely glabrous; lateral nerves about 12 on each side of the midrib, prominent, curved, the reticulations not conspicuous; petioles 1.5 to 2 cm long, when young densely and minutely furfuraceous, in age glabrous or nearly so. Panicles terminal, pyramidal, up to 18 cm in length, the lower branches up to 9 cm in length, all parts
densely stellate-furfuraceous, the indumentum usually lemon-yellow, on the younger parts shading to pale-gray. Flowers numerous. Sepals oblong, obtuse, about 4 mm long and 1 to 1.5 mm wide, densely pale-gray puberulent. Petals narrowly oblong, about 11 mm long, 3 mm wide, densely puberulent. Stamens 15, the anthers less than 1 mm long. Ovary subglobose, glabrous; style 0.7 mm long or less, glabrous; stigma subcapitate; very obscurely 3-lobed.

LUZON, Camarines Province, Paracale, Cabcabin, For. Bur. 27102 Alambra, March 12, 1918, in dipterocarp forests of the yacal-lauan type, altitude about 40 meters, with the local name hagachac na itim.

This species is well characterized by its elliptic, thickly coriaceous leaves, from which it is readily distinguished from the other Philippine forms of the genus. The ferruginous indumentum of the young branchlets and the lemon-yellow to pale-gray indumentum of the inflorescences are characteristic.

**THYMELAEACEAE**

**WIKSTROEMIA** Endlicher

**WIKSTROEMIA FENICIS** sp. nov.

Frutex circiter 2 m altus, inflorescentiis parcissime pubescen-tibus exceptis glaber; foliiis lanceolatis ad ovato-lanceolatis, chartaceis, usque ad 13 cm longis, olivaceis, utrinque nitidis, sursum angustatis, acuminatis, basi rotundatis ad subacutis, nervis pri-mariis utrinque circiter 12, distinctis; inflorescentiis terminali-bus; floribus sessilibus, confertis, 1 cm longis. Species *W. meyenianae* affinis, differt foliiis crassioribus, nervis distinctio-ribus et magis numerosis, et floribus brevioribus.

A shrub about 2 m high, entirely glabrous except the very sparingly pubescent inflorescences. Branches terete, pale-brownish, the branchlets slender, brown or somewhat reddish-brown. Leaves chartaceous, olivaceous, shining, lanceolate to ovate-lanceolate, 10 to 13 cm long, 3 to 4.5 cm wide, gradually narrowed upward to the acuminate apex, base rounded to sub-acute; primary lateral nerves about 12 on each side of the mid-rib, distinct, raised on the lower surface, anastomosing, the reticulations distinct; petioles about 3 mm long. Inflorescences terminal, the racemes forming a somewhat leafy panicle, the leaves associated with the inflorescence greatly reduced, 2 to 3 cm long. Individual racemes 2 to 3 cm long, each bearing 7 to 10 sessile flowers crowded at the tip of the rachis. Flowers pale-green, 1 cm long, externally very slightly pubescent with widely scattered, short, appressed hairs, the perianth-lobes 4, elliptic, rounded, 2 mm long. Stamens 8, in two series. Ovary oblong-ovoid, sparingly pubescent at the tip; style 0.3 mm long.
LUZON, Pangasinan Province, Mount San Isidro, Labrador, Bur. Sci. 29843 Féniz, November 10, 1917, in damp forests, altitude about 400 meters.

This species resembles Wikstroemia meyeniana Warb. and is manifestly allied to it. It differs notably in its thicker, more-prominently and numerously nerved leaves and especially in its shorter flowers.

WIKSTROEMIA BRACHYANTHA sp. nov.

Frutex circiter 2 m altus, ramulis junioribus parce pubescentibus exceptis glaber; foliis lanceolatis ad oblongo-lanceolatis, usque ad 12 cm longis, chartaceis, in siccitate plerumque brunneis, nitidis, basi acutis, apice tenuiter acuminatis, nervis primariis utrinque 12 ad 15, distinctis, juxta marginem anastomosantibus; racemis terminalibus et in axillis superioribus, brevibus, paucifloris; floribus breviter pedicellatis, extus parcissime pubescentibus, circiter 6.5 mm longis.

A shrub about 2 m high, glabrous except the sparingly appressed-pubescent younger branchlets, the branches and branchlets terete, dark-brown to reddish-brown when dry. Leaves rather firmly chartaceous, usually brown or brownish when dry or the upper surface olivaceous-brownish, shining, the lower distinctly paler than the upper, lanceolate to oblong-lanceolate, rather distinctly variable even on the same branchlet, 8 to 12 cm long, 1.5 to 4 cm wide, the base acute, the apex slenderly acuminate; primary lateral nerves 12 to 15 on each side of the midrib, rather distinct and somewhat projecting on the lower surface, somewhat ascending, anastomosing close to the margin with the rather distinct marginal veins, the secondary veins often about as prominent as the primary ones; petioles about 3 mm long. Racemes terminal, or sometimes also in the upper axils, solitary, simple, the axis and peduncle 5 mm long or less, the former with rather numerous scars of fallen pedicels, each inflorescence presenting but 5 or 6 flowers at one time. Flowers green, about 6.5 mm long, externally very slightly pubescent, the lobes 4, subreniform, about 1 mm long and 1.5 mm wide, their pedicels 1 to 1.5 mm long. Stamens 8. Ovary elongated, villous at the tip. Glands 2, narrowly oblong, about 1 mm long. Fruit red, ellipsoid to somewhat obovoid, up to 1 cm long.


This species is well characterized by its relatively thick leaves, which are distinctly variable in shape, but prevailingly lanceolate; its distinct marginal veins; short inflorescences; and unusually short flowers. It is perhaps as closely allied to Wikstroemia fenicus Merr. as to any other species but has entirely different inflorescences and smaller flowers.
BEGONIACEAE

BEGONIA Edanoii sp. nov § Diploclinium.

Species B. aquatae affinis, differt capsulis multo majoribus, apice truncatis, basi late rotundatis, usque ad 1.8 cm longis et 1.5 cm latis; petiolo circiter 5 mm longo.

A slender, scandent, glabrous plant growing on tree trunks. Leaves inequilateral, oblong-ovate, membranaceous, olivaceous, and shining when dry, 4 to 5 cm long, 1.5 to 2 cm wide, base rounded or obtuse, not at all cordate, apex acuminate, somewhat falcate, margins rather coarsely and irregularly toothed; petioles about 5 mm long. Capsules axillary, usually in pairs, equally 3-winged, truncate at the apex, scarcely narrowed below, the base broadly rounded; up to 1.7 cm long and 1.5 cm wide; pedicels slender, about 1.5 cm long.

Luzon, Rizal Province, Mount Susong Dalaga, Bur. Sci. 29374 Ramos & Edano, August 8, 1917, in damp forests.

This species belongs in the characteristic group of Begonia aequata A. Gray, the type of which was from Mount Maquiling, the other closely allied forms being Begonia wenzelii Merr., B. lagunensis Elm., and B. elegans Elm. It differs from Begonia aequata in its very much larger capsules, and from B. lagunensis Elm., to which it is also closely allied, in its very short petioles, and somewhat smaller, distinctly differently shaped capsules, which are not gradually narrowed below but which are abruptly rounded at the base.

MELASTOMATACEAE

MEMECYLON Linnaeus

MEMECYLON ELLIPTIFOLIUM sp. nov. § Eumemecylon.

Arbor circiter 12 m alta, glabra, ramulis teretibus; foliiis ellipiticis, sessilibus, coriaceis, usque ad 14 cm longis, utrinque rotundatis vel apice latissime et breviter acuminatis, nervis primariis tenuibus, indistinctis vel interdum subobsoletis, marginalibus nullis; inflorescentiis axillaribus, brevibus, 1 ad 1.5 cm longis, breviter pedunculatis; floribus confertis, calycis infundibuliformibus, 5 mm diametro.

A tree about 12 m high, glabrous throughout. Branches terete, smooth, grayish, the branchlets brownish, terete, about 2 mm in diameter. Leaves opposite, sessile, elliptic, thickly coriaceous, yellowish to yellowish-green or brown when dry, shining, brittle, 9 to 14 cm long, 5 to 6.5 cm wide, subequally rounded at both ends or the apex very broadly and shortly acuminate; primary lateral nerves about 20 on each side of the midrib, slender, indistinct, sometimes obsolete or nearly so, with
no marginal veins. Inflorescences axillary, solitary or fascicled, 1 to 1.5 cm long, cymose, their peduncles 4 mm long or less. Flowers white, crowded, comparatively large, the funnel-shaped calyces about 5 mm in diameter, the pedicels usually about 3 mm long.

LUZON, Camarines Province, Paracale, Calaburnay, For. Bur. 27060 Magistrado, July 24, 1917, on slopes, altitude about 100 meters, with the local name calasgas.

This species greatly resembles Memecylon sessilifolium Merr., but differs radically in its terete, not prominently 4-angled branches and branchlets. Its much more numerous lateral nerves, shorter, dense inflorescences, and its leaves not narrowed upward distinguish it from Memecylon pachyphyllum Merr. to which it is probably most closely allied.

EVERETTIA Merrill

EVERETTIA OCTODONTA sp. nov.

Species E. pulcherrimae similis, differt foliis laevis, glabris, calycibus 8-dentatis. Arbor, partibus junioribus plus minusue castaneo-pubescentibus exceptis glabra; foliis subcoriaceis, rigidis, in siccitate viridis, anguste oblongis, longe petiolatis, usque ad 13 cm longis, nervis primariis utrinque 20 ad 25, patulis, distinctis, haud prominulis, utrinque acutis vel apice leviter acuminatis; fructibus turbinatis, circiter 2 cm diametro, calycis dentibus 8, oblongis ad oblongo-ovatis, acuminatis, usque ad 8 mm longis.

A tree about 6 m high, entirely glabrous except the more or less castaneous-pubescent very young parts. Branches terete, glabrous, with few large lenticels. Leaves numerous, subcoriaceous, rigid, brittle, narrowly oblong, 10 to 13 cm long, 2.5 to 4 cm wide, subequally narrowed to the acute base and apex, or the apex somewhat acuminate, greenish or yellowish-green and very minutely verruculose when dry, the nerves not at all impressed or projecting; primary lateral nerves 20 to 25 on each side of the midrib, slender, spreading, anastomosing close to the margin with the slender, nearly straight marginal nerve, distinct, not projecting; petioles 3 to 4 cm long. Inflorescence terminal, peduncled, the fruits few, turbinate, about 2 cm in diameter, base truncate-rounded, the tube scarcely constricted, the persistent teeth 8, coriaceous, oblong to oblong-ovate, acuminate, often somewhat recurved, up to 8 mm in length.

CATAANDUANES, in forests at low altitudes along the Santo Domingo River, Bur. Sci. 30556 Ramos, December 3, 1917.

While in general appearance this species resembles Everettia pulcherrima Merr., the only other known species of the genus, it differs radically in that the nerves are not at all impressed or raised, while the calyx is prominently 8-toothed.
ARALIACEAE

ACANTHOPHORA genus novum

Calycis margo 5- vel 6-dentatus. Petala 5 vel 6, imbricata, acuta vel obtusa, basi lata affixa. Stamina 5 vel 6; filamenta filiformia; antherae ovoidae, in alabastro inflexae. Discus convexus. Ovarium 5- vel 6-loculare; styli 5 vel 6, erecti, a basi distincti; stigmata terminalia, parva. Fructus ovoideus, in siccate obtuse 5- vel 6-angulatus.—Frutex alte scandens aculeis parvis armatus. Folia ampla, alterna, tripinnata. Umbellulae paniculatae. Pedicelli sub flore articulati. Flores hermaphroditici.

ACANTHOPHORA SCANDENS sp. nov.

Frutex scandens, ramis et paniculis et foliis ad petiolo rhachibusque primariis et secundariis et ad costa subtus spinis numerosis parvis recurvatis armatis; foliis amplis, tripinnatis, usque ad 1.5 m longis; foliolis numerosis, ovatis ad ovato-lanceolatis, acuminatis, submembranaceis, 7 ad 14 cm longis, basi rotundatis vel subcordatis, margine spinuloso-dentatis; paniculis terminalibus, amplis, usque ad 1 m longis; umbellulis numerosis, circiter 20-floris, pedunculatis; floribus 5- vel 6-meris, petalis imbricatis.

A scandent, sparingly branched, aculeate vine, sprawling over thickets, the stems about 2.5 cm in diameter, these, the petioles, primary and secondary leaf-rachises, petiolules, midribs of the leaflets beneath, and the inflorescences armed with short, stout, sharp, scattered but numerous, recurved spines, otherwise entirely glabrous. Leaves alternate, 1 to 1.5 cm long, triangular in outline, at least tripinnate, the lower primary pinnae long, the upper ones gradually shorter; petioles stout, aculeate, the lower 6 to 8 cm split on the upper side and with 1 cm wide wings (stipules) which surround the stem at the base, the lower ultimate divisions of the leaf odd-pinnate, the upper ones trifoliolate. Leaflets ovate to elliptic-ovate or ovate-lanceolate, submembranaceous, 7 to 14 cm long, 3 to 5 cm wide, the apex strongly acuminate, the base broad, rounded or subcordate, the margins rather finely spinulose-denticate, glabrous and somewhat shining, the midrib beneath and more rarely also on the upper surface with few, scattered, recurved spines; nerves 5 to 7 on each side of the midrib, rather prominent, anastomosing; petiolules 3 to 10 mm long. Panicles terminal, ample, pinnately compound, up to about 1 m in length, the branches alternate, opposite, or somewhat whorled, the primary ones up to 40 cm in length. Umbels numerous, racemously arranged on the ultimate branchlets, each about 20-flowered, their peduncles 1 to
4 cm long, the subtending bracts lanceolate, acuminate, less than 1 cm long; pedicels slender, about 1 cm long, the bracteoles lanceolate, acuminate, 2 to 3 mm long. Calyx jointed with the pedicels, about 3 mm long, the teeth 5 or 6, short, acute. Petals 5 or 6, narrowly ovate, obtuse or acute, 1-nerved, attached by a broad base, the margins overlapping, about 3 mm long, the base about 1.5 mm wide. Stamens 5 or 6; filaments 4 mm long; anthers inflexed in bud, about 1 mm long. Ovary 5- or 6-celled; styles 5 or 6, erect, free or very slightly connate at the base, 0.5 to 0.7 mm long. Fruit ellipsoid or ovoid, 5- or 6-ridged, 5- or 6-celled, about 5 mm long, crowned by the radiately spreading styles.


Preliminary work was done on this peculiar species in 1906, and again in 1908, but on account of the rather fragmentary material then available it was impossible to determine the exact nature of the entire leaves and the inflorescences. Mr. Elmer later collected the same form on Mount Apo, and kindly submitted his copious material and notes for my examination, which have enabled me to complete my description regarding some details of the plant. Mr. Elmer’s field note is as follows:

“Sprawling amongst thickets of dense growth in fertile moist soil of an open slope at 3250 feet. Stem terete, 1 inch thick, covered with thin brownish bark and provided with sharp spines, very sparingly branched, the upper leaf-bearing portion green but quite as thick as the parts below. Leaves alternate, one foot apart more or less, horizontally spreading or descending, all the stalks greenish-brown, provided with recurved hooks, especially along the lower side. Petiole a foot long or longer. Sheath 3 inches long, fully one-half inch deep, adnate to the upper portion of the peduncle and clasping the stem, smooth, turning brownish. Leaves proper 3 to 5 feet long, triangular in outline. Leaflets horizontally recurved, sub-membranaceous, the upper surface somewhat shining. Inflorescence spreading similar to the leaves but much shorter and terminating the stem; simbar.”

The genus is well characterized by its habit, its very large decamninate leaves, its ample terminal inflorescence, and its 5- or 6-merous flowers, the petals being imbricate, not valvate. It seems to me to be most closely allied to Aralia, although in habit, and more especially in its recurved spines, it recalls Acanthopanax; in Acanthopanax, however, the petals are valvate.

I strongly suspect that this form is identical with the Celebes material referred by Koorders to Aralia ferox Miq. I saw Koorders’s specimens in the Buitenzorg Herbarium in January, 1914, but had no opportunity of

* Meded. Lands Plantent. 19 (1899) 488; Syst. Verzeich. 2° (1914) 99.
studying them critically or comparing them with Philippine material. Koorders states that the Celebes plant is a climber, attaining a height of 10 meters; the Javan Aralia ferox Miq. is an erect shrub. Thus we have another characteristic species added to the already long list of Philippine-Celebes forms, the list of genera and species having this special and restricted distribution being increased as collections from the two regions are studied and compared. It is now thoroughly established that the Celebes and Moluccan floras are distinctly more closely allied to the flora of the Philippines than is that of any other region, indicating clearly that land connections undoubtedly existed in previous geologic times between the Philippines and the islands to the south and southeast.

The species affords an excellent illustration of one marked line of distribution of species within the Philippines, and that is the extension of the Mindanao flora to the north, through Leyte, Samar, and along the eastern parts of Luzon. This distribution is probably limited by certain climatic conditions, chiefly the seasonal distribution of the rainfall throughout the year. Many parts of Mindanao have no sharply defined dry season, and the geographic distribution of the species characteristic of such regions to the north is limited to those regions having a similar seasonal distribution of the rainfall, such as Samar, Leyte, Catanduanes, and the eastern parts of Luzon generally. The San Antonio region in Luzon is a region that is continually wet, due to its proximity to the east coast range of mountains.

**BOERLAGIODENDRON** Harms

**BOERLAGIODENDRON CATANDUANENSE** sp. nov.

Frutex circiter 1 m altus, inflorescentiis exceptis glaber; foliis longe petiolatis, palmatim 7-foliolatis, foliolis longe petiolulatis, usque ad 20 cm longis, grosse lyrato-lobatis, utrinque acuminatis; inflorescentiis parcissime furfuraceis, radiis primariis circiter 10, dichotomis; floribus capitatis, sessilibus, 4-meris; fructibus ovoideis, 4-sulcatis vel 4-angulatis, 7 mm longis.

A shrub about 1 m high, entirely glabrous except the sparingly furfuraceous inflorescences. Ultimate branches pale-grayish, about 1 cm in diameter. Leaves palmately 7-foliolate, leaflets olivaceous, shining, 15 to 20 cm long, chartaceous to subcoriaceous, in general lanceolate, coarsely and irregularly lirately lobed, the lobes few, the larger ones broadly ovate to oblong-ovate, 2 to 3 cm long, apex and base acuminate, the apex slenderly so; petiolules mostly 3 to 4 cm long; petioles about 25 cm long, the basal crests few, short, coriaceous, recurved, not at all pectinate. Inflorescences sparingly furfuraceous, the primary branches about 10, these about 2 cm in length, each bearing two branches as long as the primary ones, these subtended by broadly ovate bracts 5 mm in length or less, the secondary branches with a pair of similar but smaller bracts at about their middle; each primary branch bears between the two secondary ones a sessile or shortly peduncled group of sterile
flowers, the flowers few-pedicelled. Flowers capitate, sessile, 4-merous, about 15 at the end of each secondary branch. Fruits ovoid, about 7 mm long, 4-celled, 4-sulcate or 4-angled, sessile.

**Catanduanes, Bur. Sci. 30438 Ramos, November 18, 1917, on forested slopes, altitude about 350 meters.**

The alliance of this species is with *Boerlagiodendron yatesii* Merr., of Luzon, and *B. heterophyllum* Merr., of Mindanao. It is well characterized by its compound leaves and differs from *B. yatesii* in its lyrate-lobed, longer, petiolulate leaflets; and from *B. heterophyllum* in its smaller, long-petiolulate leaflets and in the basal crests of the petioles not being at all pectinate.

**Schefflera** Forster

**Schefflera Catanduanensis** sp. nov. § *Cephaloschefflera*.

Frutex epiphyticus, glaber; foliis 9-12-foliolatis, foliolis coriaceis, oblongis ad oblongo-ovatis, integris, usque ad 12 cm longis, nitidis, apice abrupte subcaudato-acuminatis, basi obtusis ad acutis, nervis primariis utrinque circiter 15, tenuibus; inflorescentiis glabris, ramis 20 ad 25 cm longis, crassis; capitulis racemose dispositis, breviter pedunculatis, ovoideis ad depressoglobosis, 1.5 ad 2 cm diametro; fructibus junioribus plerumque 6-vel 7-locellatis.

A shrub or tree, entirely glabrous. Ultimate branches up to 1 cm in diameter. Leaves 9- to 12-foliolate, their petioles 16 to 18 cm long, inflated and clasping at the base, the petiolules 2 to 3.5 cm long; leaflets coriaceous, dark-olivaceous and shining on the upper surface, the lower surface somewhat paler, oblong to oblong-ovate, entire, 8 to 12 cm long, 4 to 5.5 cm wide, the apex rather abruptly subcaudate-acuminate, the acumen 1 cm long or less, the base obtuse to acute; primary lateral nerves about 15 on each side of the midrib, slender, scarcely more prominent than are the secondary ones. Inflorescences reduced to one or few raceme-like branches 20 to 25 cm in length, each bearing from 8 to 10 dense heads in the upper one-half, the rachis and peduncle stout, 5 to 7 mm in diameter, the peduncles of the heads stout, 5 mm long or less. Heads dense, ovoid to depressed-globose, 1.5 to 2 cm in diameter, dark-brown when dry, composed of very many connate carpels, the apical part of each individual fruit conical or subconical; young fruits mostly 6- or 7-celled.

**Catanduanes, Mount Mariguidon, Bur. Sci. 20841 Ramos, November 26, 1917, epiphytic in dense damp forests, altitude about 400 meters.**

This species is most closely allied to *Schefflera ovoida* Merr., of Mindanao, from which it is readily distinguished by its much smaller leaflets, smaller heads, and fewer-celled fruits.
SCHEFFLERA ELLIPTIFOLIOULA sp. nov. § Euschefllera.

Frutex epiphyticus, inflorescentiis plus minusve pallide pubescentibus; foliiis longe petiolaris, 9- ad 11-foliolatis, foliolis chartaceis ad subcoriaceis, ellipticis ad obovato-ellipticis, usque ad 13 cm longis, breviter abruptique acuminatis, basi rotundatis, nervis utrinque circiter 12, tenuibus, utrinque distinctis. Paniculis amplis, multifloris, rhachibus productis, ramis primariis 15 ad 20, racemose dispositis, usque ad 20 cm longis; floribus 5-meris, umbellatis, umbellis in ramis primariis racemose dispositis; fructibus subellipsoides, 3 ad 4 mm longis, 5-sulcatis, 5-locellatis.

An epiphytic shrub, glabrous except the more or less pale-pubescent inflorescences. Leaves 9- to 11-foliolate, their petioles 13 to 16 cm long, inflated and clasping at the base, the petiolules 3 to 5.5 cm long; leaflets elliptic to obovate-elliptic, chartaceous to subcoriaceous, entire, pale and shining when dry, 7 to 13 cm long, 4.5 to 7 cm wide, the apex shortly and abruptly acuminate, base rounded; primary lateral nerves about 12 on each side of the midrib, slender, distinct on both surfaces. Panicles terminal, ample, peduncled, the peduncle 4 to 10 cm long, with few to many bracts resembling the inflated petiolar bases, the rachis produced, in large panicles attaining a length of 20 cm, the younger parts more or less pale-pubescent, the indumentum deciduous on the older parts; primary branches racemously disposed, 15 to 20 on each panicle, up to 20 cm in length. Flowers umbellate, the umbels racemously disposed on the primary branches, the peduncles 5 to 8 mm long. Flowers 5-merous, small, 8 to 12 in each umbel, their pedicels, just after anthesis, 2 to 4 mm in length. Fruit subellipsoid, 3 to 4 mm long, 5-sulcate, 5-celled.


This species is especially well characterized by its ample inflorescences, the rachis being greatly prolonged, and the numerous primary racemously disposed branches; and by the umbels being racemously disposed on the primary branches.

SCHEFFLERA MYRIANTHELLA sp. nov. § Euschefllera.

Frutex epiphyticus, inflorescentiis distincte furfuraceis exceptis glaber; foliiis 6- ad 8-foliolatis, foliolis obovatis, integris, usque ad 12 cm longis, breviter acuminatis, nitidis, nervis utrinque circiter 12, tenuibus; paniculis terminalibus, pedunculatis, amplis, quadripinnatim-paniculatis, rhachibus valde elongatis, ramis primariis racemose dispositis, usque ad 23 cm longis, ramis secondariis numerosis, 2.5 ad 3.5 cm longis; floribus sub-
capitato-umbellatis, umbellulis breviter pedunculatis, paucifloris, in ramis secondariis racemose dispositis; floribus 5-meris, brevissime pedicellatis vel subsessilibus, petalis 1.8 mm longis.

An epiphytic shrub, glabrous except the inflorescence. Leaves 6- to 8-foliolate, their petiolules 6 to 8 cm long, inflated and clasping at the base, the petiolules 2.5 to 5 cm long; leaflets obovate, subcoriaceous, rather pale and prominently shining when dry, 7 to 12 cm long, 5 to 6 cm wide, entire, the apex rather abruptly and shortly acuminate, base acute; primary lateral nerves about 12 on each side of the midrib, slender, distinct. Panicles terminal, quadripinnate, peduncled, pale-furfuraceous, the indumentum more or less deciduous on the older parts, the peduncles up to 6 cm in length, the rachis and peduncle at least 20 cm in length; primary branches up to 23 cm long, numerous, racemously arranged, each subtended by an ovate to oblong-ovate, acuminate, 5 to 8 mm long bract; secondary branches numerous, slender, 2.5 to 3.5 cm long, racemously disposed on the primary ones; flowers small, 5-merous, capitate-umbellate, the umbels 5- to 8-flowered, numerous, shortly peduncled, racemously arranged, their peduncles about 2 mm long. Petals about 1.8 mm long. Flowers 5-merous, subsessile or the pedicels up to 0.5 mm in length.

**MYRSINACEAE**

**MAESA Forskal**

*Maesa brunnea* sp. nov. § *Eumaesa.*

Frutex glaber; foliis chartaceis ad subcoriaceis, late ovatis ad oblongo-ovatis, usque ad 14 cm longis, apice breviter acuminatis, basi subtruncato-rotundatis ad subacutis, margine undulatis et distantier calloso-crenatis, utrinque lineis nervilliformibus praeditis, supra subolivaceis, subtus brunneis, nervis primariis utrinque 5 vel 6, conspicuis, reticulis obsoletis vel subobsoletis; infrutescentiis axillaribus, depauperato-paniculatis, usque ad 4 cm longis; fructibus elliptico-ovoideis, circiter 5 mm longis, sepalis latissime ovatis, obtusis, obscurissime punctatis, margine minutissime ciliatis.

A glabrous shrub, the branches dark-brown, terete, lenticel-
late. Leaves broadly ovate to oblong-ovate, chartaceous to subcoriaceous, dull or slightly shining when dry, the upper surface subolivaceous, the lower brown, both surfaces supplied with slender, obscure, irregular, longitudinal, nerve-like lines, 9 to 14 cm long, 5 to 9 cm wide, the apex shortly and obtusely acuminate, base subtruncated-rounded to subacute, margins coarsely undulate, each undulation tipped with a thickened crenate callosity; lateral nerves 5 or 6 on each side of the midrib, prominent, curved, very obscurely anastomosing, the reticulations obsolete or nearly so; petioles 1.5 to 3 cm long. Infructescences axillary, solitary, depauperate-paniculate, 3 to 4 cm long, the branches few, spreading, 3 cm long or less. Fruits ellipsoid-ovoid, about 5 mm long, their pedicels about 3 mm long. Calyx-teeth broadly ovate, obtuse, about 1 mm long and 1.5 mm wide, very obscurely punculate, not lineate, the margins very minutely and obscurely ciliate.


This species manifestly belongs in the group with *Maesa denticulata* Mez, from which species it is distinguished by its thicker, larger leaves which are prominently undulate, brown beneath when dry, and by its obsolete or nearly obsolete reticulations. *Maesa platyphylla* Elm. is distinguished by its more numerous ly nerved, nearly entire leaves, while *M. megaphylla* Merr. has much larger, more numerous ly nerved, entire leaves and very much longer inflorescences.

**EBENACEAE**

**Diospyros** Linnaeus

**Diospyros Streptosepala** sp. nov.

Arbor parva, foliis subtus ad costa, ramulis, petiolis, et fructibus parce longissimé ciliatis; foliis oblongo-ovatis ad ovato lanceolatis, usque ad 17 cm longis, basi late rotundatis, plerumque leviter cordatis, sursum angustatis, acuminati, supra glabris, brunneo-olivaceis, subtus pallidis, nervis utrinque circiter 8, tenuibus, distinctis, reticulis laxis; fructibus ovoideis, circiter 2 cm longis, pericarpio fragile, extus perspicue longissime ciliato; seminibus 2, ovato-ellipticis, plano-convexis, circiter 1 cm longis, albumine aequabile; sepalis 4, persistentibus, circiter 1 cm longis, longe filiformiter caudatis.

A small tree, 5 m high *fide* Ramos, the leaves beneath especially near the midrib, the branchlets, and the petioles with few, widely scattered, slender, spreading, about 3 mm long hairs, these more numerous on the fruits. Branches dark-brown or nearly black, terete, glabrous, the branchlets slender. Leaves chartaceous, oblong-ovate to ovate-lanceolate, 9 to 17 cm long,
2.5 to 5 cm wide, the base broadly rounded and usually slightly cordate, narrowed upward to the rather slenderly acuminate apex, the upper surface brownish-olivaceous, somewhat shining, glabrous, the lower much paler; primary lateral nerves about 8 on each side of the midrib, slender, distinct, laxly anastomosing, the reticulations lax, distinct; petioles 5 mm long or less. Fruits solitary, in the uppermost axils, their pedicels long-ciliate, about 5 mm long, the mature fruits ovoid, apex rounded or obtuse, about 2 cm long, the pericarp thin, fragile when dry, dark-brown, with many, long, slender, ciliate hairs similar to those on the vegetative parts. Seeds 2, ovate-elliptic, plano-convex, about 1 cm long, distinctly narrowed upward, obtuse or apiculate, smooth, castaneous and shining when dry, the albumen uniform. Persistent sepals 4, up to 1 cm long, ciliate, long filiform-caudate from a somewhat broadened base.

**CATANDUANES, Mount Mariguidon, Bur. Sci. 30481 Ramos, November 25, 1917, in forests near the summit of the mountain, altitude apparently about 400 meters.**

This species is strongly characterized by its indumentum of scattered, elongated, very slender hairs and especially by its very slender filiform-caudate, elongated sepals. It is not at all closely allied to any other species known to me.

**SAPOTACEAE**

**BASSIA** Koenig

**BASSIA OBLONGIFOLIA** sp. nov.

_Arbor circiter 18 m alta, subtus foliis dense adpresseque puberulis; foliis coriaceis, oblongis, usque ad 20 cm longis, breviter obtuse acuminis, basi acutis vel subacutis, in siccate supra pallidis, nitidis, subtus subcupreis, nervis utrinque 22 ad 27, tenuibus, distinctis, patulis, leviter curvatis; floribus fasciculatis, in axillis defoliatis, pedicellis sursum incrasatiss, 2 ad 2.5 cm longis; sepalis extus adpresse-pubescentibus, late ovatis, leviter acuminatis, circiter 7 mm longis, fructibus junioribus glabris._

_A tree about 18 m high, the branches terete, glabrous, rugose, the branchlets up to 6 mm in diameter, somewhat pubescent. Leaves oblong, coriaceous, 15 to 20 cm long, 4.5 to 7 cm wide, the upper surface glabrous, pale and shining when dry, the lower subcupreous and rather densely appressed-puberulent, the apex shortly blunt-acuminate, base acute, the midrib impressed on the upper surface, very prominent on the lower surface; lateral nerves slender, distinct, spreading, slightly curved, parallel, 22 to 27 on each side of the midrib, anastomosing close to the edge of the leaf, the reticulations not prominent; petioles_
3.5 to 5 cm long, when young slightly pubescent, soon becoming glabrous. Flowers fascicled in the axils of fallen leaves, their pedicels thickened upward, 2 to 2.5 cm long, appressed pubescent. Sepals 4, broadly ovate, somewhat acuminate, coriaceous, about 7 mm long and wide, pubescent externally. Very young fruits ovoid, glabrous; styles up to 1.7 cm long.

**Luzon**, Camarines Province, Paracale, Cabcabin, *For. Bur. 27101 Alamba*, March 12, 1918, in dipterocarp forests, altitude about 40 meters, with the local name *calacalachuche*.

This species is well characterized by its oblong leaves with numerous, slender but distinct, parallel primary nerves, by which characters it is readily distinguished from the other known Philippine representatives of the genus.

**Bassia mirandae** sp. nov.

Species *B. coriacea* affinis differt foliis majoribus, usque ad 23 cm longis et 8.5 cm latis, sepalis duplo majoribus.

A tree about 18 m high, glabrous. Branches pale-brownish, somewhat rugose, the ultimate ones about 8 mm in diameter, the branchlets glabrous, smooth, somewhat sulcate. Leaves oblong-ovate, coriaceous, 16 to 23 cm long, 5.5 to 8.5 cm wide, glabrous, shining, rather pale when dry, the apex obtuse to rounded or somewhat acuminate, narrowed below to the acute base; primary nerves about 12 on each side of the midrib, curved, somewhat ascending, distinct, anastomosing, 1 to 2 cm apart, the reticulations lax; petioles 2 to 2.5 cm long. Fruits apparently few, in the axils of fallen leaves, their pedicels about 2.5 cm long, glabrous. Sepals 4, coriaceous, glabrous, broadly ovate, rounded, about 5 mm long, the outer two up to 8 mm in width. Fruit (immature) ovoid-ellipsoid, apiculate, 3 cm long, glabrous, very coarsely wrinkled when dry.

**Mindanao**, Zamboanga District, *For. Bur. 24161 Miranda*, July 6, 1915, on forested ridges, Mount Kaladis, altitude about 100 meters.

This species is closely allied to *Bassia coriacea* Merr., of Luzon, which it greatly resembles. It is distinguished by its much larger leaves and sepals.

**Oleaceae**

**Linociera remotinervia** sp. nov.

Arbor glabra; foliis crassissime coriaceis, in siccitate pallidis, usque ad 15 cm longis, anguste oblongo-ovatis, apice plerumque rotundatis, basi acuminatis, margine recurvatis; nervis primarisi utrinque circiter 5, distantibus, tenuibus, laxissime arcuato-anastomosantibus, reticulis obsoletis vel subobsoletis; in-
fructescentiis axillaribus, circiter 3 cm longis; fructibus ellipsoi-
deis, circiter 1.4 cm longis.

A glabrous tree about 12 m high, the branchlets smooth, pale. Leaves very thickly coriaceous, narrowly oblong-ovate, 12 to 15 cm long, 3.5 to 5.5 cm wide, pale, of about the same color on both surfaces, smooth and shining when dry, the apex usually rounded, sometimes retuse, or at times shortly acuminate, base acuminate, margins recurved; midrib very prominent on the lower surface; lateral nerves about 5 on each side of the midrib, slender, distant, forked and laxly arched-anastomosing distant from the margin, the reticulations obsolete or nearly so; petioles 1.5 to 2 cm long. Infructescences axillary, about 3 cm long, peduncled, the fruits few, ellipsoid, olivaceous when dry, smooth, about 1.4 cm long.

Luzon, Pangasinan Province, Mount San Isidro, Labrador, Bur. Sci. 29933 Féniex, on open grassy slopes near the edge of the forest, altitude about 300 meters.

This species is well characterized by its very thickly coriaceous leaves and its few, distant, obscure, laxly arched-anastomosing nerves, the reticulations obsolete or nearly so.

CORNACEAE

MASTIXIA Blume

MASTIXIA PACHYPHYLLA sp. nov. § Tetramastixia.

Arbor glabra (floribus ignotis); foliis stricte oppositis, crasse coriaceis, oblongis ad oblongo-ellipticis vel anguste obovato-
ellipticis, usque ad 14 cm longis, apice plerumque rotundatis, basi acutis, margine recurvatis, nervis utrinque 9 ad 11, dis-
tinctis; infructescentiis terminalibus, breviter pedunculatis, 6 ad 10 cm longis; fructibus ovoideis ad ellipsoideis, 2 ad 3 cm longis, sepalis 4, persistentiis, parvis.

A tree 6 to 8 m high, glabrous (flowers unknown). Leaves strictly opposite, thickly coriaceous, oblong to oblong-elliptic or narrowly obovate-elliptic, the apex usually rounded, the base acute, margins recurved, the upper surface smooth, greenish-
olivaceous, shining, the lower paler; lateral nerves 9 to 11 on each side of the midrib; petioles stout, about 1.5 cm long. In-
fructescences 6 to 10 cm long, glabrous, somewhat peduncled, branched, the bracteoles ovate, acute, about 1.5 mm long. Fruits ovoid to ellipsoid, pale-brownish and smooth when dry, 2 to 3 cm long, the persistent calyx-lobes 4, small, indistinct.

Catanduanes, Santo Domingo River, Bur. Sci. 30399 (type), 30418 Ramos, December 5, 1917, on forested slopes below an altitude of 100 meters.
This species of the section Tetramastixia is distinguished among the few Philippine forms by its relatively large and thickly coriaceous leaves. It is probably most closely allied to Mastixia tetrapetala Merr., but has much larger, more numerousily nerved leaves than that species, which, moreover, are strictly alternate. It is less closely allied to M. premnoides (Elm.) Hallier f., of Mindanao.

GESNERIACEAE

CYRTANDRA R. Brown

CYRTANDRA ALVAREZII sp. nov.

Frutex, novellis densissime ferrugineo-lanosis; foliis oppositis, late oblanceolatis, usque ad 38 cm longis, breviter petiolatis, apice acutis vel obscure acuminatis, basi longe angustatis, margine irregulariter dentatis, supra olivaceis, glabris, subitus subdense ferrugineo-villosis, nervis utrinque circiter 18, curvato-adscendentibus, distinctis; fructibus numerosis, oblongo-ellipsoidis, glabris, circiter 1.5 cm longis, utrinque angustatis, brunneis, umbellatis, umbellis distincte pedunculatis.

A shrub, the branchlets and young leaves very densely lanate with shining, appressed, ferruginous hairs, the ultimate branches 5 to 8 mm in diameter. Leaves opposite, subcoriaceous, apparently in equal pairs, broadly oblong-oblanceolate, up to 38 cm long and 12 cm wide, apex acute or obscurely acuminate, gradually narrowed from the middle or upper two-thirds to the base, margins irregularly dentate, or serrate-dentate, the teeth usually tipped with tufts of hairs, the upper surface in maturity entirely glabrous, olivaceous, dull, the lower rather densely ferruginous-villos; lateral nerves about 18 on each side of the midrib, distinct, ascending, curved, the reticulations lax; petioles stout, 1 cm long or less. Infructescence axillary, solitary, umbellate, its peduncle stout, about 1 cm long, each bearing from 10 to 20 fruits, the individual fruits oblong-ellipsoid, about 1.5 cm long, brown, glabrous, narrowed at both ends, their pedicels slender, about 1 cm in length. The inflorescence is apparently subtended by a large bract or by bracts.


A most characteristic species, distinguishable by its indumentum, its large, broadly oblong-oblanceolate leaves, and its umbellate fruits.

CYRTANDRA CASTANEA sp. nov. § Dissimiles.

Frutex circiter 1 m altus, partibus junioribus subitus foliis ad costa et nervis calycibusque dense castaneo-villosis; foliis alternis vel oppositis et dissimilis, subcoriaceous, oblongo-oblanceolatis, usque ad 15 cm longis, tenuiter acutissime acuminatis,
basi acutis, margine irregulariter undulato-serratis, nervis utrinque 6 vel 7, subitus valde perspicuis; floribus axillaribus, solitariis, breviter pedicellatis, circiter 4 cm longis, bracteis lineari-lanceolatis ad oblongo-lanceolatis, 6 ad 11 mm longis.

A shrub about 1 m high, apparently sparingly branched, the indumentum of characteristic, castaneous, subappressed, villous hairs. Branches terete, glabrous, pale-brownish, the young branchlets densely castaneous-villous. Leaves alternate or the upper ones opposite and dissimilar, oblong-oblongo lanceolate, subcoriaceous, 5 to 15 cm long, 1.8 to 4 cm wide, slenderly and acutely acuminate, base acute, margins irregularly sinuate-serrate, the upper surface dark-olivaceous, glabrous, the lower brownish-olivaceous, paler than the upper, the midrib, lateral nerves, and reticulations dark-brown, castaneous-villous, contrasting with the paler epidermis; petioles castaneous-villous, 0.7 to 1 cm long. Flowers axillary, solitary, about 4 cm long, their pedicels about 6 mm long, the subtending bracts linear-lanceolate to oblongo-lanceolate, castaneous-villous like the calyx, 6 to 11 mm long. Calyx 1.5 cm long, the tube 7 mm long, narrow, the lobes usually 3 or 4, lanceolate, slenderly long-acuminate, as long as the tube, externally characteristically castaneous-villous. Corolla white when fresh, 4 cm long, densely ferruginous-villous. Disk about 2 mm long, glabrous, irregularly lobed. Ovary and style about 2 cm long, ferruginous- or castaneous-villous, the immature fruits lanceolate, 2.5 cm long, appressed castaneous-villous.


This species in many characters resembles Cyrtandra incisa C. B. Clarke and C. multifolia Merr. and manifestly belongs in the same section with both. The upper leaves are opposite and dissimilar, the lower ones alternate. It is readily distinguished by its characteristic castaneous indumentum.

**CYRTANDRA** MULTIFOLIA sp. nov. **Dissimiles.**

Frutex ramosus, circiter 1 m altus, partibus junioribus ferrugineo-pilosus; foliis numerosis, oppositis, dissimilis, oblongo-lanceolatis, usque ad 9 cm longis, subcoriaceis, tenuiter acuminatis, basi acutis, margine distanter leviter undulato-serrulatis, nervis utrinque 7 vel 8; floribus axillaribus, solitariis vel binis, pedicellatis, circiter 4.5 cm longis, calycibus tubo 1 cm longo, laciniis 1 cm longis, caudato-acuminatis.

An erect much-branched shrub about 1 m high, the younger parts more or less densely covered with long, soft, weak, ferruginous hairs. Branches terete, brownish, glabrous, somewhat striate when dry, the internodes 1 to 2 cm long, the young
branchlets ferruginous-villous. Leaves opposite, numerous, oblong-lanceolate, those of each pair dissimilar in size, one usually about one-half as large as the other, subcoriaceous, 5 to 9 cm long, 1 to 2.5 cm wide, slenderly subcaudate-acuminate, base acute, margins distantly undulate-serrulate, the upper surface dark-olivaceous when dry, glabrous, the lower paler, brown, ferruginous-villous on the midrib and lateral nerves; lateral nerves 7 or 8 on each side of the midrib, prominent on the lower surface, the reticulations obsolete or nearly so; petioles ferruginous-villous, 5 to 8 mm long. Flowers axillary, solitary or in pairs, pink to white, about 4.5 cm long, their pedicels 1 to 1.5 cm long, sparingly villous, each subtended by a pair of leaflike bracts 0.7 to 2 cm long. Calyx 2 cm long, ferruginous-villous, the tube about 1 cm long, somewhat inflated, the lobes slenderly lanceolate, caudate-acuminate, about as long as the tube. Corolla 4.5 cm long, ferruginous-villous. Disk about 1.8 mm high. Ovary densely ferruginous-villous, including the style about 3 cm long.

Luzon, Nueva Ecija Province, Mount Umingan, Bur. Sci. 26459 Ramos & Edaño, August 12, 1916, on forested slopes at an altitude between 300 and 400 meters.

The alliance of this species is manifestly with Cyrtandra incisa C. B. Clarke, from which it is distinguished by its much smaller, but slightly toothed leaves and its larger flowers.

**Cyrtandra Microphylla** sp. nov.

Frutex circiter 1 m altus, ramosus, ramulis et petiolis et inflorescentiis leviter castaneo-ciliato-setosis, pilis adpressis; foliis oppositis, numerosis, oblongis ad late oblongo-oblanceolatis, usque ad 5 cm longis, firme chartaceis, acuminatis, basi acutis, undulato-serratis, glabris, in siccitate supra nigro-brunneis, subtus brunneis, nervis utrinque 4 vel 5, subtus prominentibus; inflorescentiis axillaribus, solitariis, tenuibus, usque ad 4 cm longis, umbellatim 1- ad 3-floris; calycis tubo 2 mm longo, dentibus linear-lanceolatis, 4 mm longis.

A much-branched shrub about 1 m high, the branchlets, petioles, and inflorescences with scattered, appressed, rather stiff, castaneous, ciliate-setose hairs, otherwise glabrous. Branches terete, grayish-brown, the branchlets slender. Leaves very numerous, opposite, firmly chartaceous, oblong to broadly oblong-oblanceolate, those of each pair more or less unequal in size, 2.5 to 5 cm long, 0.8 to 1.5 cm wide, acuminate, base acute, margins distantly undulate-serrate, the upper surface blackish-brown when dry, the lower much paler, brownish; lateral nerves 4 or 5 on each side of the midrib, rather prominent on the lower sur-
face, dark-brown in contrast with the paler epidermis; petioles 5 to 8 mm long. Inflorescences axillary, solitary, very slender, 2 to 4 cm long, umbellately 1- to 3-flowered, the pedicels about 3 mm long; bracts linear-spulate, about 6 mm long. Calyx glabrous, the tube cup-shaped, about 2 mm long, the lobes 5, linear-lanceolate, about 4 mm long. Ovary ovoid, glabrous; style 6 mm long. Corolla not seen.

LUZON, Nueva Ecija Province, Mount Umingan, Bur. Sci. 26250 Ramos & Edaño, August 12, 1916, on forested slopes at an altitude between 300 and 400 meters.

The alliance of this species is manifestly with Cyrtandra tenulipes Merr., from which it differs especially in its relatively narrower leaves and in its calyx-tube being but about one-half as long as the slender calyx-lobes.

CYRTANDRA LONGIPES sp. nov.

Frutex scandens, plus minusve ferrugineo-villosis; foliiis longissime petiolatis, in folii majoribus petiolis usque ad 14 cm longis, oblongis, chartaceis, laevis, usque ad 20 cm longis et 9 cm latis, apice breviter et obtuse acuminatis, basi leviter inaequilateribus, subacutis, margine superne undulato-crenatis, nervis utrinque circiter 8, curvatis, subtus prominulis, reticulis subobsoletis; inflorescentiis axillaribus, floribus in ramulis junioribus fasciculatis, in ramis vetustioribus in inflorescentiis ramosis elongatis usque ad 9 cm longis dispositis; floribus circiter 2 cm longis, calycis inflatis, 1.2 ad 1.4 cm longis, glabris, 5-lobatis, lobis oblongo-lanceolatis, acuminatis, circiter 6 mm longis.

A scandent shrub, the stems about 1 cm in diameter, usually root-bearing on one side, pale-brownish, terete, rather conspicuously ferruginous-villosus, the indumentum more or less deciduous, the internodes about 10 cm long. Younger parts of the slender branchlets rather densely ferruginous-villosus, the inflorescences slightly so. Leaves oblong, rather firmly chartaceous, 10 to 20 cm long, 4 to 9 cm wide, glabrous or nearly so, smooth, brittle when dry, the upper surface olivaceous, the lower pale, shining, the apex broadly and shortly blunt-acuminate, the base slightly inaequilater, subacute, the margins above undulate-crenate; petioles of the larger leaves 12 to 14 cm in length, glabrous or nearly so; lateral nerves about 8 on each side of the midrib, prominent on the lower surface, curved, with very few, widely scattered, slender, secondary veins, some of which scarcely anastomose. Inflorescences axillary, on the branchlets the flowers fascicled, on the stems arranged in branched inflorescences up to 9 cm in length; bracts narrowly oblong, acuminate, up to 1 cm in length; pedicels slender, 2 to 2.5 cm long. Flowers about
2 cm in length, glabrous or nearly so. Calyx somewhat inflated, 1.2 to 1.4 cm long, 5-lobed, the lobes oblong-lanceolate, acuminate, about 6 mm long.

Catanduanes, Bur. Sci. 30353 Ramos, December 10, 1917, climbing on tree trunks in forests at low altitudes, near Calolbong.

This species, among numerous other distinctive characters, can readily be recognized by its very greatly elongated petioles.

**CYRTANDRA TENUIPES** nom. nov.

* Cyrtandra longipedunculata Merr. in Philip. Journ. Sci. 10 (1915) Bot. 77, non Rechinger, 1908.

A new name is necessary for the Luzon form I described in 1915, as the specific name had already been utilized by Rechinger in 1908 for a Samoan species.

**ASCLEPIADACEAE**

**DISCHIDIA LANCIFOLIA** sp. nov.

Species *D. merrillii* affinis, differt foliis lanceolatis, usque ad 8 cm longis et 1 cm latis, tenuiter acuminatis, in siccitate utrinque rugosis sed tenuiter reticulatis.

A slender glabrous vine, the branches terete, grayish, about 1 mm in diameter. Leaves lanceolate, apparently fleshy when fresh, when dry coriaceous, pale-greenish, somewhat shining, wrinkled on both surfaces but not reticulate, the lateral nerves obsolete, 5 to 8 cm long, 8 to 10 mm wide, narrowed below to the acute or somewhat obtuse base and above to the slenderly acuminate apex; petioles about 5 mm long. Peduncles axillary, solitary, 1 cm long or less, few-flowered, the flowers subumbellately arranged at the apex of the peduncle, reddish, about 7 mm long, their pedicels 2 to 3 mm in length. Corolla-tube somewhat inflated below, narrowed above, at the most 3 mm wide when flattened. Follicles slender, linear-lanceolate, acuminate, about 3 mm long and 3 mm in diameter.

Catanduanes, back of Calolbong, Bur. Sci. 30874 Ramos, December 10, 1917, on tree trunks in damp forests at low altitudes.

A species well characterized by its lanceolate leaves, manifestly allied to *Dischidia merrillii* Schlr., but at once distinguished by the characters indicated in the diagnosis.

**HOYA PENTAPHLEBIA** sp. nov. § *Euhoya*.

Species *H. fischeriana* Warb. affinis, differt foliis late ovatis ad ellipticis. Ramis teretibus; foliis crasse coriaceis, 8 ad 16 cm longis, 6 ad 9 cm latis, palidis, nitidis, distincte acuminatis, basi rotundatis, perspicue 5-nerviis, nervis interioribus apicem
attingentibus, reticulis laxis, distinctis; petiolo crasso, 2 ad 5 cm longo; pedunculis 2 ad 5 cm longis, partibus superioribus incrassatis, 3 ad 4 mm diametro; floribus numerosis, flavidis, 7 ad 8 mm diametro, petalis intus papillosis, rhomboideis, leviter acuminatis; coronae lobis patulis, oblongo-ovatis, acutis, subplana- 
is, 2 mm longis.

A scandent plant entirely glabrous except the papillose corolla lobes. Branches terete, brownish or grayish, smooth, up to 5 mm in diameter, sometimes with roots along one side of the internodes, the internodes up to 12 cm in length. Leaves thickly coriaceous, pale and shining when dry, broadly ovate to elliptic, 8 to 16 cm long, 6 to 9 cm wide, the apex broadly and rather prominently acuminate, base rounded, prominently 5-nerved, the interior pair of nerves reaching the apex, the reticula-
tions very lax, distinct on both surfaces, the margins somewhat recurved; petioles stout, 2 to 5 cm long. Umbels axillary, soli-
tary or fascicled many-flowered, about 4 cm in diameter, the peduncles 2 to 5 cm long, the thickened upper part of the rachis cylindric, 3 to 4 mm in diameter, marked with numerous scars, this rachis on older inflorescences up to 4 cm in length. Flowers yellowish, 7 to 8 mm in diameter, rotate, the buds prominently 5-angled, 4 mm in diameter. Sepals membranaceous, oblong-
ovate, somewhat acuminate, 1.5 mm long. Corolla distinctly papillate within, the lobes rhomboid, somewhat acuminate, about 4 mm long and 3 mm wide. Staminal-column about 4 mm in diameter, the lobes spreading, oblong-ovate, acute, the upper surface nearly flat or slightly concave, the external apex not recurved, the internal one elevated, acute, short. Follicles about 12 cm long.


The alliance of this species is manifestly with Hoya fischeriana Warb., to which it conforms closely in its floral characters. It is distinguished by its very differently shaped leaves.

HOYA PUBICALYX sp. nov. § Euhoya.

Frutex scandens, inflorescentiis exceptis glaber, ramis sub-
teretibus, circiter 3 mm diametro; foliiis carnosis, in siccitate coriaceis, oblongis ad oblongo-obovatis, usque ad 14 cm longis, pallidis, nitidis, basi obtusis, apice acuminatis, in siccitate verruculosis, pinnatinerviis, nervis utrinque circiter 6, utrinque valde obscuris; pedicellis tenuibus, leviter pubescentibus, circiter 3.5 cm longis; floribus rotatis, in siccitate bruneis, circiter 1.8 cm diametro, sepalis oblongis, subacutis, extus leviter pubescentibus,
4 mm longis; corollae lobis late triangularibus, acuminatis, ciret 6 mm longis, alte connatis, indus dense papillosis, apice leviter reflexis; coronae lobis coriaceis, oblongo-ovatis, 5 mm longis, acuminatis vel acutis, patentibus, apice leviter retusis, subplanis.

A scandent shrub, entirely glabrous except the inflorescence, the branches subterete, rather pale when dry, about 3 mm in diameter, the internodes up to 20 cm in length. Leaves opposite, fleshy, when dry coriaceous, pale and shining on both surfaces and more or less wrinkled, oblong to oblong-ovate, 10 to 14 cm long, 3 to 5 cm wide, base obtuse, distinctly acuminate; lateral nerves pinnately arranged, indistinct, about 6 on each side of the midrib, ascending, scarcely more evident than are the lax, indistinct reticulations; petioles about 1 cm long. Umbels many-flowered, 8 to 9 cm in diameter, the thickened rachis about 4 mm in diameter above, the pedicels spreading, slender, about 3.5 cm long, sparingly appressed-pubescent. Flowers fragrant, about 1.8 cm in diameter, brown when dry. Calyx-segments oblong-ovate to ovate-lanceolate, acute or subacute, externally somewhat pubescent, about 4 mm long. Corolla-lobes broadly triangular, about 6 mm long and wide, spreading, rotate, externally glabrous, internally densely papillose, the acuminate apex somewhat recurved. Corona 10 to 12 mm in diameter, stellate, the lobes spreading, coriaceous, brown, shining, oblong-ovate to ovate-lanceolate, acuminate, about 5 mm long, the external tip slightly retuse, the internal one ascending, the upper surface plano-convex and somewhat keeled in the median portion.

Luzon, Tayabas Province, Mauban, Bur. Sci. 1913, on trees along streams in damp forests.

The alliance of this species is with Hoya luzonica Schltr., from which it is readily distinguished by its larger flowers, its pubescent pedicels and sepals, and its differently shaped, longer, acuminate, and slightly retuse corona-segments.

**CUCURBITACEAE**

**TRICHOSANTHES** Linnaeus

**TRICHOSANTHES ELLIPSOIDEA** sp. nov. § Eutrichosanthes.

Herbacea, scandens, glaberrima, caulis tenuibus. Foliis chartaceis, oblongo-ovatis, usque ad 14 cm longis, integris vel obscure repandis, apice acuminatis, basi profunde cordatis, supra albido-punctatis, subtus verruculosus, nervis reticulisque perspicuis; floribus 2 axillaribus, solitariis, pedicellatis, ebracteolatis, tubo 6 ad 7 cm longo; calycis lobis lanceolatis, acuminatis, 6 ad 7 mm longis; petalis puberulis, obovatis, circiter 3 cm longis,
\[
\frac{1}{4} \text{ fimbriatis; fructibus junioribus ellipsoideis, seminibus compressis, oblongo-lanceolatis, circiter 1.3 cm longis.}
\]

A scandent, glabrous, slender, herbaceous plant, the branches terete, slightly sulcate. Leaves chartaceous, oblong-ovate, 11 to 14 cm long, about 7 cm wide, olivaceous, shining, the upper surface somewhat scabrid by the whitish-punctate dots, the lower verruculose, the apex rather slenderly acuminate, base deeply cordate, the sinus narrow, the basal lobes somewhat angular or repand, the margins otherwise entire or very obscurely undulate, the nerves and reticulations prominent; petioles about 3.5 cm long; tendrils up to at least 15 cm in length, glabrous. Pistillate flowers solitary, axillary, ebracteate, their pedicels 1.5 to 3 cm long, the tube slender, cylindric, including the ovarian part 6 to 7 cm long. Sepals lanceolate, acuminate, 6 to 7 mm long. Petals obovate, puberulent, about 3 cm long, white, split to the middle or beyond into numerous very slender fimbriae. Immature fruits ellipsoid, about 5 cm long, deeply wrinkled when dry, glabrous, castaneous when dry. Seeds oblong-lanceolate, compressed, about 1.3 cm long.

**Catanduanes, Bur. Sci. 30364 Ramos, November 27, 1917, border of forests near abacá (Manila hemp) plantations, slopes of Mount Mari-guidon.**

This species is well characterized by its oblong-ovate, deeply cordate leaves, which are entire or slightly undulate, not at all lobed, and its ellipsoid fruits.

[Vol. XIII, Sec. C, No. 3, including pages 123 to 200, was issued July 16, 1918; and No. 4, including pages 201 to 262, was issued September 21, 1918.]
NEW OR NOTEWORTHY PHILIPPINE PLANTS, XV

By E. D. Merrill

(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

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NEW OR NOTEWORTHY PHILIPPINE PLANTS, XV

By E. D. Merrill

(From the Botanical Section of the Biological Laboratory, Bureau of Science, Manila, P. I.)

This series of papers was commenced in 1904, the present contribution being essentially like the preceding ones. In the series have been included the descriptions of new genera and species, notes on nomenclature and on obscure species, and records of known genera and species not previously reported from the Philippines. Fourteen genera and about one thousand one hundred fifty-five species, including those of the present paper, have been described as new.

The present paper consists chiefly of the descriptions of one hundred new or presumably new species, with the records of eighteen previously known ones not hitherto recorded from the Philippines. Nine genera are for the first time recorded as Philippine; namely, Tripogon, Festuca (introduced), Cryptocoryne, Haematocarpus, Citriobatus, Erodium (introduced), Villaresia, Sloanea, and Cloëzia. Of these Citriobatus and Cloëzia are of special interest from the standpoint of phytogeography. Cloëzia has hitherto been known only from New Caledonia, where it is represented by six species, the seventh species occurring in the mountains of northeastern Mindanao. Citriobatus

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is an interesting Australian type, the genus being confined to Australia with the exception of the Javan C. javanicus Boerl. & Koord., which is now also recorded from Luzon. Another interesting Australian type, previously known only from Australia and Formosa, is Ipomoea polymorpha Roem. & Schultes, now recorded from two localities in northern Luzon.

PANDANACEAE

PANDANUS Linnaeus

PANDANUS PANAYENSIS sp. nov. § Vinsonia.

Erectus, circiter 5 m altus; foliiis crassissime coriaceis, rigidi, circiter 2.5 m longis, 7 cm latis, basi leviter inflatis et 11 cm latis, apice angustatissimis, vix acuminatis, margine, basi et apice exceptis, dentibus rigidis armatis; infructescentiis pendulis, syncarpiis 4, ellipsoidis ad oblongis, racemose dispositis, 12 ad 20 cm longis, 8 ad 10 cm diametro; drupis numerosis, ½ superioribus liberis, utrinque subaequaliter angustatis, obscure 5-angulatis, circiter 4 cm longis, 5- ad 10-locellatis, apice truncatis, 5 ad 8 mm diametro, inter loculis leviter sulcatis; stigmatibus planis, subreniformibus, circiter 1.5 mm diametro.

Erect, about 5 m high. Leaves very thickly coriaceous, rigid, about 2.5 m long, the base slightly inflated, about 11 cm wide, soon narrowed to about 7 cm and about this width for most of their length, apex narrowed, scarcely acuminate, the apical and basal margins unarmed, the margins otherwise with distinct, sharp, rigid teeth which gradually decrease in size upward, the midrib on the lower surface armed with short scattered teeth in the median and upper parts. Infructescences peduncled, pendulous, their peduncles up to 40 cm in length, 3-angled, about 1.5 cm in diameter. Syncarps 4, ellipsoid to oblong, 12 to 20 cm long, 8 to 10 cm in diameter, the peduncles of the lateral ones stout, very short, of the terminal one up to 8 cm in length. Drupes very numerous, the upper one-half free, subequally narrowed to both base and apex, about 4 cm long, 1.5 to 2 cm in diameter, somewhat 5-angled, usually 5- to 10-celled, the apex truncate, 5 to 8 mm in diameter, slightly sulcate between the loculi, the sulci about 1 mm deep. Stigmas plane, orbicular to somewhat reniform, about 1.5 mm in diameter.

PANAY, Capiz Province, Mount Macosolon, Bur. Sci. 30796 Ramos & Edaño, April 22, 1918, on forested slopes.

This species resembles Pandanus philippinensis Merr., from which it is distinguished especially by its differently shaped syncarps, the drupes of which are free in the upper one-half
and scarcely sulcate between the loculi. In *Pandanus philippinensis* the stigmas are distinctly oblique, while in the present species they are plane and not at all elongated, so that the two species scarcely belong in the same section of the genus.

**PANDANUS CAMARINENSIS** sp. nov.

Frutex erectus, circiter 2 m altus; foliis coriaceis, circiter 2.4 m longis et 5.5 cm latis, margine perspicue armatis, sursum angustatis et tenuiter caudato-acuminatis; syncarpiis solitariis, circiter 30 cm longis et 13 cm diametro; drupis numerosis, obovoideis, circiter 5 cm longis et 2.5 ad 3 cm diametro, angulatis, plerumque 7-locellatis, apice truncatis, laevis, stigmatibus planis, haud productis.

An erect shrub, about 2 m high, the leaves about 2.4 cm long and 3.5 cm wide, gradually narrowed upward to the slenderly caudate-acuminate apex, the margins armed with rather prominent antrorse teeth. Syncarps solitary, erect, at maturity nearly enclosed by the leaflike bracts, oblong-cylindric, about 30 cm long and 13 cm in diameter. Drupes numerous, obovoid, somewhat angled by mutual pressure, narrowed below, usually 7-celled, about 5 cm long, 2.3 to 3 cm in diameter, the upper 1 cm free, very slightly narrowed, the apex truncate, flat, smooth, about 2 cm in diameter. Stigmas usually 7, obscure, not at all projecting.


This species is closely allied to *Pandanus esculentus* Martelli from which it is distinguished chiefly by its much larger, differently shaped syncarps.

**GRAMINEAE**

**ANDROPOGON Linnaeus**

**ANDROPOGON PHILIPPINENSIS** sp. nov. § *Isozygi, Arthrolepis.*

Culmis erectis, tenuibus, usque ad 80 cm longis; foliis usque ad 20 cm longis ef 4 mm latis, leviter scabridis; racemis longe exsertis, solitariis multifloris, 7 ad 10 cm longis, vagina vix inflata; spiculis sessilibus lanceolatis, 9 mm longis, gluma II aristata, IV longe aristata, arista circiter 3 cm longa; spiculis pedicellatis ♂, circiter 8 mm longis, haud aristatis.

An erect, rather slender, glabrous, apparently tufted grass, 60 to 80 cm high, unbranched, the culms 1 to 1.5 mm in diameter. Leaves up to 20 cm long, about 4 mm wide, slightly scabrid, very slenderly acuminate; nodes glabrous; ligule bearded. Raceme solitary, long-exserted, many flowered, 7 to 10 cm long,
the uppermost sheath scarcely inflated, the rachis rather fragile, its joints about 4 mm long, deeply sulcate on one side, the margins prominently white-bearded, obliquely ciliate at their tips. Spikelets green or green and purple, the sessile ones perfect, lanceolate, about 9 mm long; first glume firm, lanceolate, acuminate, 9 mm long, 2-keeled, the margins inflexed; second glume thinner, 7 mm long, acuminate, keeled above and with a slender, 10 to 12 mm long, apical awn; third glume hyaline, oblong, 5 mm long; fourth glume hyaline, 4 mm long, cleft, about 1 mm wide, the awn geniculate, about 3 cm long. Pedicelled spikelets lanceolate, acuminate, about 8 mm long, not awned, their pedicels 3 to 3.5 mm long, sulcate, margins bearded; first glume lanceolate, acuminate, 2-keeled, usually 7-nerved, the inflexed margins ciliate in the upper part; second glume as long as the first one, hyaline, 1-nerved; third and fourth glumes shorter and narrower, the latter subtending a staminate flower.


This species is well characterized by its solitary, long-exserted racemes and is distinctly anomalous in the section *Arthrolepis* by this character and also by its sulcate rachis-joints and pedicels; the second glume of the sessile spikelet is long-awned and hence the present species cannot be placed in any of the other subgenera of the series *Isozygi*. The sessile spikelets are all alike throughout the entire length of the raceme, hence it cannot be placed in any of the subgenera of the series *Heterozygi*. So far as I am able to determine it is most closely allied to *Andropogon longipes* Hack., of British India, from which it is readily distinguished by its solitary racemes as well as by its floral characters.

**ANDROPOGON GRYLLUS** Linn. var. **PHILIPPINENSIS** var. nov.

Glaberrima, circiter 75 cm alta; foliis 15 ad 27 cm longis, 5 mm latis; paniculis oblongis 12 ad 15 cm longis, purpureis, rachibus ramulisque laevis; spiculis lanceolatis, ♀ circiter 6 mm longis, callo 1.5 mm longo, fulvo-barbato, gluma II breviter aristata, arista 2 ad 3.5 mm longa, ♂ lineari-lanceolatis, 5 ad 6 mm longis, vacuis, gluma II acuminata, vix aristata.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 30964 Ramos & Edaño*, April 10, 1918, on bowlders and ledges in stream beds, observed only in this habitat.

*Andropogon gryllus* Linn. extends from southern Europe to Australia and was recorded from the Philippines by F.-Villar, Novis. App. (1883) 316, as *Chrysopogon gryllus* Trin. The typi-
cal form of the species certainly does not occur in the Archi-
pelago, nor can I refer the specimens cited above to any of the
described varieties of it. It is apparently most closely allied to
the Australian Andropogon gryllus Linn. subsp. genuinus Hack.,
var. pallidus (R. Br.) Benth., but has distinctly smaller spikelets
than this variety, while the pedicellate spikelets are empty and
not awned.

**ANDROPOGON SANGUINEUS** (Retz.) Merr. in Philip. Journ. Sci. 12
(1917) Bot. 101.

Rottboellia sanguinea Retz. Obs. 3 (1783) 25.
Thelephogon sanguineus Spreng. Syst. 1 (1825) 299.

August 5, 1918, on open grassy slopes at low altitudes.

Southern China, India, Ceylon, and Madagascar.

**FESTUCA** Linnaeus

**FESTUCA MYUROS** Linn. Sp. Pl. (1753) 74; Hook. f. Fl. Brit. Ind. 7
(1897) 356.

Luzon, Benguet Subprovince, Pauai, *Bur. Sci. 31913* Santos,
April 25, 1918, in open grassy places, altitude about 2,300
meters.

A grass of wide distribution in the North Temperate Zone, a
native of Europe or Asia, now also abundant in North America;
undoubtedly a recently introduced plant in Benguet.

**TRIPOGON** Roth

**TRIPOGON CHINENSIS** (Franch.) Hack. in Bull. Herb. Boiss. II 3
(1903) 503.

Nardurus filiformis Steud. var. chinensis Franch. in Nouv. Arch.

33237* Ramos, August 8, 1918, on dry, open, rocky slopes.

This genus is new to the Philippines, the specimen cited above
agreeing perfectly with the descriptions and with a series of
specimens from Chili Province, collected by Mrs. Clemens. It
is reported from as far south as Formosa.

**CYPERACEAE**

**MARISCUS** Gaertner

**MARISCUS NIVEUS** (Murr.) comb. nov.

Schoenus niveus Murr. in Linn. Syst. Veg. ed. 13 (1774) 81.
Scirpus glomeratus Linn. Sp. Pl. (1753) 52, excl. syn. Gronov., non
Mariscus glomeratus Barton.

Schoenus coloratus Linn. var. β Linn. Sp. Pl. ed. 2 (1762) 64.
Cyperus kyllingiaeoides Vahl Enum. 2 (1806) 312.

Mariscus dregoanus Kunth Enum. 2 (1837) 120; C. B. Clarke in Hook. f. Fl. Brit. Ind. 6 (1893) 620.

LUZON, Ilocos Norte Province, Burgos, Bur. Sci. 32826 Ramos, July 24, 1918, on rocky open slopes at low altitudes, abundant.

This species has previously not been reported from the Philippines. India to tropical Africa, the Malay Peninsula, Singapore, and Borneo.

ELEOCHARIS R. Brown


LUZON, in swamps between Manila and Caloocan, Merrill 9788, December, 1914.

India to Ceylon, Burma, Indo-China and ? Mauritius. Not previously reported from the Philippines. It is to be noted that R. Brown does not make the actual combination, Eleocharis spiralis, Prodr. (1810) 224, but merely indicates that Scirpus spiralis Rottb. belongs in the genus Eleocharis.

ARACEAE

CRYPTOCORYNE Fischer

CRYPTOCORYNE APONOGETIFOLIA sp. nov.

Herba glabra, aquatica, demersa; foliis membranaceis, anguste oblongo-lanceolatis, perspicue bullatis, utrinque angustatis, basi acutis vel obtusis, apice acutis et apiculatis, 25 ad 35 cm longis, 3 ad 5 cm latis; petiolo usque ad 30 cm longo; spathis anguste cylindraceis, haud contortis, circiter 25 cm longis, lamina glabra, lanceolata, caudato-acuminata, 6 cm longa, deorsum 1 cm lata.

An entirely glabrous submerged herb from short, rather stout, nearly erect rhizomes about 1 cm in diameter. Leaves membranaceous, narrowly oblong-lanceolate, conspicuously bullate, the midrib very prominent, subequally narrowed to the acute or obtuse base and to the acute and slightly apiculate apex, 25 to 35 cm long, 3 to 5 cm wide; lateral nerves slender, ascending, 5 or 6 on each side of the midrib; petioles up to 30 cm long. Peduncles 4 to 7 cm long. Spathe cylindric, not twisted, slender, including the limb about 25 cm long, slightly inflated at the base, not at all contracted below the limb, the limb lanceolate, glabrous, caudate-acuminata, 6 cm long, about 1 cm wide in the lower part. Carpels usually 6, the slender stipe of the staminate inflorescence about 6 mm long; staminal
inflorescence oblong, about 4 to 5 mm long, the sterile tip 1.2 mm in length.


This species is manifestly allied to *Cryptocoryne ciliata* Fisch. from which it is readily distinguished by its membranaceous, conspicuously bullate leaves, which resemble those of some species of *Aponogeton*; and by its much narrower, differently shaped, caudate-acuminate limb of the spathe, which is entirely glabrous.

**CRYPTOCORYNE PYGMAEA** sp. nov.

Herba glabra, depauperata; foliis membranaceis, oblongis ad oblongo-ovatis, 1.5 ad 4 cm longis, acutis, basi perspicue auriculato-cordatis, nervis utrinque 2, tenuis; spathis circiter 3.5 cm longis, inflatis, tubo oblongo, supra contracto; lamina tubo aequantibus, lanceolatis, caudato-acuminatis, planis, haud contortis.

An entirely glabrous dwarfed plant from short stout rhizomes. Leaves membranaceous, oblong to oblong-ovate, 1.5 to 4 cm long, 1 to 1.5 cm wide, the apex acute, base conspicuously auriculate-cordate; lateral nerves very slender, ascending, about 2 on each side of the midrib; petioles in young plants shorter than the leaves, in mature plants up to 5 cm long, slender, sheathing at the base. Peduncles in anthesis 8 mm long or less, in fruit up to 3 cm long. Spathe greenish white, about 3.5 cm long, the tube and limb of equal length; tube somewhat inflated, oblong, contracted at the apex; limb lanceolate, caudate-acuminate, about 6 mm wide at the base, 1.8 cm long, dark-purple on the inner surface. Carpels usually 6; stigma obtuse; staminate inflorescence ovate, 3 mm long, its sterile tip oblong, 2 mm in length, the slender stipe 6 to 7 mm long.

MINDANAO, Zamboanga District, Sax River, *Merrill 8174*, December 6, 1911 (type); *Copeland s. n.*, in fruit. This species grows in the crevices of ledges, in stream beds, in very damp shaded ravines, in situations subject to overflow, at an altitude of about 300 meters.

This species is manifestly very closely allied to the Bornean *Cryptocoryne auriculata* Engl. but is smaller in size, with much slenderer, longer, less conspicuously sheathing petioles and fewer nerves; while the tube of the spathe equals the limb in length and is conspicuously contracted at the apex.
ELATOSTEMA PANAYENSE sp. nov.

Herba erecta, 15 ad 40 cm alta, ramis subadpressae hirsutis; foliis inaequilateralibus, oblongo-ovatis, 2.5 ad 7 cm longis, subsessilibus, superne perspicue dentatis, subtus ad costa nervisque perspicue adpressae hirsutis; inflorescentiis ♂ 1 ad 1.5 cm diametro, longe pedunculatis, bracteis exterioribus late ovatis, circiter 7 mm longis, perspicue corniculatis; inflorescentiis ♀ sessilibus vel brevissime pedunculatis, confertis, circiter 8 mm diametro; floribus, 4-meris.

An erect, simple or sparingly branched herb, 15 to 40 cm high, the basal parts of the stems often prostrate and rooting, the stems and branches subappressed-hirsute. Leaves membranaceous and olivaceous when dry, inaequilateral, oblong-ovate, 2.5 to 7 cm long, 1.5 to 4 cm wide, sessile or subsessile, the apex rounded to acute, the terminal tooth usually acute, the broader side with 8 to 10, prominent, acute teeth, the narrower side usually with about 5 similar teeth, the margins in the lower one-half entire, base auriculate-rounded on the broader side, acute on the narrower side, somewhat obliquely cordate, the upper surface with numerous, conspicuous, irregularly arranged cystoliths, sometimes with a few long hairs, more often glabrous, the lower surface appressed-hirsute on the conspicuous nerves and reticulations, the cystoliths obscure or obsolete; petioles 2 mm long or less, appressed-hirsute; stipules membranaceous, oblong, glabrous, about 5 mm long. Staminate inflorescences in full anthesis 1 to 1.5 cm in diameter, their pedicels slender, glabrous, 1 to 1.5 cm long; outer bracts very broadly ovate, about 7 mm long, 6 mm wide, conspicuously coriaceous, the apical projection 1.5 to 2.5 mm long, the margins ciliate, the inner bracts oblong-ovate, apiculate, 2.3 mm wide; bracteoles spatulate, membranaceous, 4 to 5 mm long, 1 to 1.5 mm wide, ciliate. Staminate flowers 4-merous, very numerous, their pedicels 4 to 5 mm long. Sepals elliptic to elliptic-ovate, 2 to 2.3 mm long, with a few long white hairs near the apex, two of them minutely cucullate and obscurely apiculate. Pistillate inflorescences axillary, sessile, or subsessile, densely many-flowered, up to 8 mm in diameter, the bracteoles spatulate, ciliate, about 3 mm long.

Panay, Antique Province, Culasi, Bur. Sci. 32396 (type), 31032, 31032, 31083, 31084, 30921, 30924, 30925 Ramos & Edaño, April and May, 1918, in damp forests along streams.
This species belongs in the group with *Elatostema obovatifolia* Wedd. and in many characters is similar to *Elatostema elmeri* nom. nov. (*E. pictum* Elm., non Hallier f.), from which it is easily distinguished by its appressed-hirsute branches, nerves, and reticulations on the lower surface of the leaves; *Elatostema elmeri* is glabrous.

**ELATOSTEMA MACGREGORII** sp. nov.

Herba prostrata, usque ad 16 cm longa, ramis et subtus foliis ad costa nervisque perspicue hirsutis; foliis subsessilibus, obovatis ad oblongo-obovatis, 6 to 12 mm longis, inaequilateralibus basi leviter oblique cordatis, dentibus in partibus superioribus 4 vel 5, conspicuis; inflorescentiis 5 tenuiter pedunculatis, bracteis exterioribus late ovatis, corniculatis, 9 sessilibus, bracteolis perspicue ciliatis; floribus, 4-meris.

A slender, prostrate or somewhat ascending, simple or sparingly branched herb, the stems 16 cm long or less, the latter with scattered, ascending or somewhat spreading, hirsute hairs. Leaves green when dry, sessile or subsessile, obovate to oblong-obovate, inequilateral, 6 to 12 mm long, 5 to 8 mm wide, the apex obtuse to subacute, the apical part with 4 or 5 conspicuous, usually rounded teeth, the margins in the lower two-thirds to three-fourths entire, base rounded-auriculate on the broader side, obtuse on the narrower side, somewhat obliquely cordate, the upper surface glabrous and with scattered cystoliths, the lower surface somewhat appressed-hirsute on the midrib and nerves, the latter 2, rarely 3, on each side of the midrib, the cystoliths obsolete; stipules membranaceous, oblong, glabrous, about 2 mm long. Staminate receptacles axillary, solitary, 4 to 5 mm in diameter, their peduncles slender, glabrous, 1 to 2 cm long; outer bracts broadly ovate, about 4 mm long and wide, the apex rounded or retuse, prominently keeled and corniculate, the apiculus about 1.2 mm long, glabrous or nearly so, the inner bracts oblong-ovate, somewhat ciliate; bracteoles spatulate, sparingly ciliate, 3 mm long. Flowers 4-merous, shortly pedicelled. Sepals oblong to oblong-elliptic, 1.5 mm long, two slightly cucullate and minutely apiculate, usually with a few long ciliate hairs above. Pistillate inflorescences sessile, densely many-flowered, about 4 mm in diameter, the bracteoles linear-lanceolate, about 2 mm long, prominently ciliate. Flowers minute, shortly stalked. Achenes 0.8 mm long.

**PANAY,** Antique Province, Culasi, *Bur. Sci.* 32396 (type), 32407, 32438, 32538 McGregor, May 24 and June 14, 1918, in damp forests, altitude 800 to 1,300 meters.
This species is very similar in appearance to *Elatostema filicaule* C. B. Rob., from which it is easily distinguished by its hirsute stems and the hirsute midrib and nerves on the lower surface of the leaves.

**ELATOSTEMA ZAMBOANGENSE** sp. nov.

Herba erecta, ramis et petiolis et pedunculis dense pallide pubescentibus; foliis plerumque oblongo-ovatis, 7 ad 13 cm longis, in siccitate viridibus, chartaceis ad subcoriaceis, valde inaequilateralibus, utrinque cystolithis numerosis perspicui instructis, apice acuminatis, margine sursum grosse dentatis; receptaculis ♂ axillaribus, solitariis, pedunculatis, 1 ad 1.5 cm diametro, pedunculo usque ad 2 cm longo, bracteis exterioribus pubescentibus, late rotundatis, bracteolis sepalisque glabris.

An erect, simple herb, attaining a height of 35 cm, the stems, very short petioles, and peduncles rather densely pubescent with short, somewhat appressed, pale hairs. Leaves variable, green when dry, chartaceous to subcoriaceous, very inequilateral, mostly oblong-ovate, 7 to 13 cm long, 3 to 5.5 cm wide, both surfaces with very short, numerous, irregularly disposed, elongated cystoliths, distinctly visible to the naked eye, the apex somewhat acuminate, base broadly rounded on one side, narrowly rounded on the other and laterally cordate, margins entire near the base, rather coarsely toothed above, the teeth broadly triangular; lateral nerves above the basal ones 3 or 4 on each side of the midrib, very prominent on the lower surface, the reticulations lax, prominent; stipules linear-lanceolate, acuminate, 1 to 1.2 cm long. Staminate receptacles axillary, solitary, 1 to 1.5 cm in diameter, their peduncles up to 2 cm long; outer bracts pubescent, apparently reniform and more or less grown together, broadly rounded, about 1 cm wide, somewhat pubescent externally and with numerous, very densely disposed cystoliths; bracteoles narrowly oblong, membranaceous, 4 mm long, glabrous. Staminate flowers very numerous, their pedicels 3 to 4 mm long, glabrous. Sepals 4, membranaceous, glabrous, oblong, two of them distinctly cucullate and more or less cornicate, 2 to 2.5 mm long.

**MINDANAO**, Zamboanga District, Sax River, back of San Ramon, *Merrill 8228*, November 27, 1911, in a damp, shaded ravine, altitude about 200 meters.

Among the Philippine species with peduncled staminate receptacles this species is apparently most closely allied to *Elatostema cariniol* W. R. Shaw, but is readily distinguished by its pubescent stems and its much elongated pubescent peduncles.
ELATOSTEMA ACUMATISSIMUM sp. nov.

Herba erecta, circiter 50 cm alta, ramulis junioribus pubescentibus, foliis subtus ad costa nervisque parce pilosis; foliis lanceolatis ad anguste lanceolatis, membranaceis, 9 ad 16 cm longis, leviter falcatis, apice tenuiter caudato-acuminatis, margine grosse dentatis, dentibus numerosis, plerumque leviter acuminatis; receptaculis axillaribus, solitariis, sessilibus, subglobosis, bracteis exterioribus late ovatis ad reniformi-ovatis, 9 mm latis, leviter carinatis, haud corniculatis; bracteolis spatulatis, hirsutis.

An erect, usually unbranched herb, about 50 cm high, the tips of the branches slightly pubescent, the leaves with scattered, rather weak, spreading, pale hairs on the lower surface, the nerves and reticulations beneath dark brown in contrast with the greenish epidermis. Leaves lanceolate to narrowly lanceolate, membranaceous, 9 to 16 cm long, 2 to 3.5 cm wide, olivaceous when dry, somewhat falcate, the upper surface with numerous, irregularly disposed, somewhat elongated cystoliths, these obsolete on the lower surface, the apex slenderly caudate-acuminate, the base slightly inequilateral, both sides of the lamina acute to obtuse, the margins very coarsely toothed, the teeth usually 20 or more on each side, somewhat ovate, their tips usually somewhat acuminate and often incurved, those of the acumen extending at least half way to the midrib; lateral nerves above the basal ones, about 10 on each side of the midrib, very prominent on the lower surface, the reticulations lax, prominent. Staminate receptacles sessile, axillary, solitary, subglobose, about 9 mm in diameter; outer bracts broadly ovate to reniform-ovate, about 9 mm wide, somewhat hirsute, more or less keeled, but scarcely coriaceous, the inner bracts oblong, hirsute, keeled, about 4 mm long; bracteoles spatulate, hirsute, as long as the inner bracts. Staminate flowers numerous, pedicelled, the sepals oblong-elliptic, about 2 mm long, their apices prominently ciliate with long white hairs.

Luzon, Tayabas Province, Umiray, Bur. Sci. 29015 Ramos & Edano, June 2, 1917, in damp forests along the river at low altitudes.

The alliance of this species is with Elatostema angustatum C. B. Rob. and Elatostema contiguum C. B. Rob., but more especially with the latter from which it is especially distinguished by its much larger and more prominently toothed, caudate-acuminate leaves.
ELATOSTEMA ROBINSONII sp. nov.

Herba glabra, erecta, ramosa, 15 ad 30 cm alta; foliis numerosis, chartaceis, viridibus, oblongo-ovatis ad oblongo-ellipticis, sessilibus, 7 ad 15 mm longis, utrinque cystolithis numerosis instructis, acutis, basi 3-plinerviis, inaequilateralibus, margine in \( \frac{1}{2} \) inferiore parte integris, superne dentatis, dentibus paucis; inflorescentiis axillaribus, solitariis, in siccitate flavido-viridibus, brevissime pedicellatis, 5 mm diametro; bracteis exteriores late ovatis, carinatis, vix corniculatis, vel admodum obscure corniculatis.

An erect, much-branched, glabrous herb, 15 to 30 cm high, the stems apparently succulent when fresh, hard when dry, and about 4 mm in diameter, somewhat sulcate; lower branches up to 20 cm in length, yellowish green when dry. Leaves numerous, chartaceous, green when dry, oblong-ovate to oblong-elliptic, sessile, 7 to 15 mm long, 4 to 7 mm wide, green when dry, both surfaces with numerous, large, irregularly disposed cystoliths, apex acute, base inaequilateral, 3-plinerved, one side rounded or obtuse, the other acute, the margins entire in the lower one-half, above with 3 or 4 teeth on one side and 3 to 5 on the other, the teeth distinct, blunt, usually less than 1 mm long; stipules linear-lanceolate, 2 to 2.5 mm long. Staminate receptacles axillary, solitary, numerous, yellowish green when dry, very shortly pedicellate, turbinate, about 5 mm in diameter, with as many as 14 flowers, but few developing at one time; pedicels about 1 mm long; outer two bracts very broadly obovate, densely longitudinally striate, broadly rounded, 3.5 to 4 mm long, keeled, firm, sometimes very slightly corniculate; bracteoles membranaceous, oblong-ovate, about 3 mm long, somewhat thickened in the median part. Pedicels in anthesis 2 mm long. Sepals 4, membranaceous, oblong to elliptic-oblong, 2 mm long, two distinctly corniculate at their apices, the other two acute.

Luzon, Ifugao Subprovince, Mount Polis, Bvr. Sci. 19727 McGregor, January 30, 1913, altitude not indicated.

This species apparently belongs in the group with Elatostema benguetense C. B. Rob., but is entirely different from that and all other species known to me; the yellowish-green color of the branchlets and staminate receptacles is very characteristic. The late C. B. Robinson has indicated on the sheet “Elatostema sp. nov. = Vidal 8857.”

ELATOSTEMA PILOSUM sp. nov.

Herba erecta, sublignosa, ramosa, saltem 40 cm alta, ramulis densissime pilosis, subtus foliis ad costa nervisque perspicue
longe pilosis; foliis oblongis, chartaceis, 1 ad 1.5 cm longis, utrinque angustatis, apice leviter acuminatis, basi inaequilaterallybus, margine deorsum integris, superne utrinque 2- vel 3-dentatis; inflorescentiis axillaribus, solitariis, sessilibus, circiter 4 mm diametro; bracteis exterioribus oblongo-ovatis, acutis, pilosis, hau splinatis; bracteolis linearis, ciliatis.

An erect, woody, much-branched plant, at least 40 cm high, the branchlets densely cinereous-pilose with long spreading hairs, the leaves conspicuously pilose beneath on the midrib and nerves. Old stems about 5 mm in diameter, sparingly pilose with weak hairs. Leaves oblong, chartaceous, 1 to 1.5 cm long, 4 to 7 mm wide, narrowed to the inequilateral base and to the somewhat acuminate apex, the upper surface dark brownish-olivaceous when dry, with numerous irregularly scattered short cystoliths, the margin in the lower two-thirds entire, in the upper one-third usually with two teeth on the narrower side and three on the broader side, base inequilateral, one side of the lamina longer than the other, acute to obtuse, the narrower side acute; stipules linear-lanceolate, about 1.2 mm long. Staminate heads solitary, axillary, sessile, about 4 mm in diameter, the flowers in each head up to 20; outer two bracts oblong-ovate, acute, pilose, 2 mm long, not keeled or cornicate; bracteoles linear, ciliate, membranaceous, 1.5 mm long; pedicels ciliate, as long as the bracteoles. Sepals oblong, membranaceous, ciliate, 1.3 mm long, acute or obtuse, not keeled or cornicate.


In habit and general appearance this species is similar to Elatostema halconense C. B. Rob., from which it differs especially in the dense indumentum on the branchlets, the midrib and nerves beneath being pilose with long spreading hairs, and its distinctly smaller, less prominently toothed leaves.

**Elatostema suborbiculare** sp. nov.

Herba prostrata, ramosa, usque ad 15 cm longa, ramulis leviter adpresse hirsutis; foliis orbicularis ad orbiculari-ovatis, inaequilaterallybus, 5 ad 13 mm longis, apice rotundatis vel obtusis, basi valde inaequilateralibus, margine superne utrinque paucidentatis; receptaculis axillaribus, solitariis, sessilibus, circiter 5 mm diametro, bracteis exterioribus obovatis, leviter hirsutis, perspicue carinatis, vix coriculatis, interioribus cum bracteolis oblongo-spatulatis et cum sepalis plus minusve hirsutis vel ciliatis.

An apparently prostrate, more or less branched herb, the main
stems at least 15 cm long, the branches 1.5 to 5 cm long, slender, sparingly appressed hirsute. Leaves suborbicular to orbicular-ovate, inequilateral, 5 to 13 mm long, brownish when dry, the apex rounded or obtuse, base strongly inequilateral and shallowly laterally cordate, entire below, the upper two-thirds on the broader side with about 4 rounded teeth, the narrower side in the upper one-third with 2 or 3 similar teeth, upper surface with irregularly scattered, distinct, elongated cystoliths, these obsolete on the lower surface; stipules oblong-elliptic, membranaceous, glabrous, usually obtuse to acute, 3 mm long. Stamine receptacles axillary, solitary, sessile, about 5 mm in diameter; bracts broadly obovate, about 5 mm long, sparingly hirsute, prominently keeled, scarcely corniculate, the apex broadly rounded, the inner ones thinner, somewhat hirsute, truncate, keeled, as long as the outer ones, about one-half as wide; bracteoles membranaceous, hirsute, oblong-spatulate, narrowly oblong-ovate, 4 mm long, obtuse; sepals oblong-elliptic, membranaceous, about 2 mm long, two acute, two distinctly corniculate, all sparingly ciliate at their apices. Pistillate receptacles axillary, solitary, 5 mm in diameter.


The alliance of this species is with *Elatostema obovatum* Wedd., from which it is especially distinguished by its smaller, suborbicular leaves, which have much fewer teeth.

**Elatostema Diversilimbus** sp. nov.

Herba erecta, usque ad 30 cm alta, e basi decumbente, simplex vel leviter ramosa, caulis adpressae hirsutis; foliis valde variabilis, 1 ad 9 cm longis, 1 ad 4 cm latis, inaequilateralibus, plerumque obovatis ad oblongo-ovatis, glabris, cystolithis utrinque numerosis, apice acuminatis, basi 3-plinervis, leviter inaequilateraliter cordatis, margine grosse dentato-serratis; receptaculis axillaribus, solitariis, sessilibus, 8 ad 10 diametro, bracteis exterioribus rotundatis vel reniformibus, glabris, haud corniculatis, bracteolis membranaceis, leviter ciliatis, spatulatis, 3 ad 4 mm longis; sepalis 2 ad 2.5 mm longis, 2 distincte corniculatis.

An erect or ascending herb from a decumbent base, up to 30 cm long, simple or sparingly branched, the stems succulent, when dry brownish, more or less hirsute. Leaves chartaceous, greenish-olivaceous when dry, exceedingly variable, strongly inequilateral, 1 to 9 cm long, 1 to 4 cm wide, the smaller ones on young plants and on the few branchlets, mostly obovate to oblong-ovate, distinctly acuminate, base somewhat narrowed, obtuse
and laterally cordate, the margins coarsely dentate-serrate, the teeth on the broader side 8 to 10, on the narrower side 4 to 6; nerves and reticulations prominent on the lower surface, the latter lax, brownish, the base 3-plinerved. Pistillate and staminate receptacles axillary, solitary, sessile, 8 to 10 mm in diameter. Outer bracts rounded to reniform, glabrous, not at all corniculate, the inner ones obovate to oblong-ovate; bracteoles spatulate, membranaceous, 3 to 4 mm long, slightly ciliate above. Sepals of the staminate flowers membranaceous, 2 to 2.5 mm long, two of them distinctly corniculate.

MINDANAO, Zamboanga District, mountains back of Zamboanga, Merrill 9127, December 6, 1911, in damp shaded ravines along small streams on banks and ledges, altitude 200 to 400 meters.

This species is most strikingly characterized by its very diverse leaves, which vary enormously in size, even on the same plant; in the larger specimens they are as much as 9 cm long and 4 cm wide, but on some of the smaller specimens and on the branches they are very much smaller, sometimes not more than 1 cm long and wide. The general alliance of the species appears to be with Elatostema carinoi W. R. Shaw.

**ELATOSTEMA APPENDICULATUM** sp. nov.

Herba erecta e basi decumbente, usque ad 30 cm alta, ramis et subtus foliis ad costa nervisque hirsutis; foliis membranaceis, inaequilateralisibus, leviter falcatis, oblongis, 6 ad 11 cm longis, acutis, basi inaequilateralisibus, 3-plinerviis, margine grosse dentato-serratis, pagina superiore cystolithis multis instructis, in siccitate olivaceis, nervis reticulisque subtus brunneis, valde perspicuis; receptaculis 3 axillaribus, solitariis, sessilibus, subglobose, 6 ad 8 mm diametro, bracteis exterioribus orbicularibus, leviter ciliatis, 8 mm diametro, longe corniculatis, bracteolis membranaceis, oblongis ad oblanceolatis, perspicue longe ciliatis, dorso longe tenuiter appendiculato; sepalis 2 ad 2.5 mm longis, sursum ciliato-hirsutis, 2 distincte corniculatis.

An erect unbranched herb, 25 to 30 cm high, the stems and the leaves beneath on the nerves and reticulations conspicuously hirsute with spreading, pale or brown hairs. Leaves membranaceous, olivaceous or greenish-olivaceous when dry, somewhat falcate, oblong, inequilateral, 6 to 11 cm long, 2 to 3 cm wide, the prominent nerves and lax reticulations on the lower surface dark brown in contrast to the greenish epidermis, the apex acute, base inequilateral, rounded on one side, acute on the other, 3-plinerved, the margins in the lower one-fourth entire, otherwise
rather coarsely dentate-serrate, usually 10 to 12 teeth on each side, the upper surface glabrous, with numerous, irregularly disposed, elongated cystoliths; petioles 2 mm long or less; stipules lanceolate, about 8 mm long. Staminate receptacles axillary, solitary, sessile, globose, 6 to 8 mm in diameter, the two external bracts orbicular, somewhat ciliate, broadly rounded, prominently ciliate, the appendage 2 to 3 mm long; bracteoles variable, oblong to oblanceolate, membranaceous, 4 to 5 mm long, prominently ciliate with long white hairs and with a very slender, ciliate, 2 to 3 mm long appendage from the back at or above the middle. Sepals of the staminate flowers 4, membranaceous, ciliate above, 2 to 2.5 mm long, two of them distinctly corniculate; Luzon, Tayabas Province, Mount Tuloag, Bur. Sci. 29129 Ramos & Edano, May 25, 1917, along small streams in damp forests at low altitudes.

The alliance of this species is not entirely clear, although, with the exception of the indumentum and its bract and floral characters, it resembles Elatostema carinoid W. R. Shaw. It is readily distinguished by its laxly reticulate leaves, the nerves and reticulations being dark brown in contrast to the green epidermis, and distinctly ciliate, as well as by its peculiarly appendaged bracteoles.

ELATOSTEMATOIDES C. B. Robinson

ELATOSTEMATOIDES SAMARENSE sp. nov.

Planta erecta, saltem 50 cm alta, sublignosa; foliis chartaceis vel subcoriaceis, inaequilateraliter oblongo-ovatis, circiter 15 cm longis et 6 cm latis, apice tenuiter acuminatis, margine distanter grosse dentatis, inferne plerumque integris vel subintegris, subtus ad nervis et nervulis perspicue molliter pilosis; cymis 2 sessilibus, circiter 1.5 cm diametro, floribus numerosis, confertis, perianthii segmentis 5, bracteolis oblongo-lanceolatis, pubescentibus.

An erect, apparently unbranched, woody plant, at least 50 cm high, the stems nearly glabrous below, above more or less pilose with rather long spreading hairs. Leaves chartaceous or subcoriaceous, inequilateral, oblong-ovate, about 15 cm long and 6 cm wide, dark brown when dry, the upper surface with numerous, irregularly disposed, short cystoliths, the lower surface softly pilose with rather long spreading hairs on the nerves and reticulations, apex slenderly acuminate, base narrowed, inequilateral, rounded on the broader side, acute or somewhat rounded on the narrower side, the more prominent nerve on the narrower side leaving the midrib well above the base, margins distinctly
and rather coarsely toothed, at least in the upper part, below often entire or nearly so, nerves prominent, arched, anastomosing, the primary ones above the basal pair 3 or 4 on each side of the midrib. Staminate cymes axillary, sessile, about 1.5 cm in diameter, the flowers numerous, crowded, the subtending bracteoles oblong-lanceolate, 1.5 to 2 mm long, pubescent; pedicels pubescent, about 1.5 mm long. Perianth segments of the staminate flowers 5, oblong to oblong-elliptic, 2 mm long, somewhat ciliate, some of them distinctly corniculate or keeled-corniculate at the apex.

Samar, Yabong, Bur. Sci. 17468 Ramos, March 16, 1914, in damp forests near small streams at low altitudes.

The alliance of this is manifestly with Elatostematoides manilense C. B. Rob., from which it is especially distinguished by its prominently pilose midrib, nerves, and reticulations on the lower surface of the leaves.

BOEHMERIA Jacquin


Weddell’s species was based on a Javan specimen. It has been also recorded from Formosa by C. H. Wright, who, however, identified the Formosan material from the description alone. The Philippine specimens agree closely with our rather full series of Formosan ones.

ARISTOLOCHIACEAE

ARISTOLOCHIA Tournefort

ARISTOLOCHIA MEMBRANACEA sp. nov. § Diplolobus.

Frutex parvus, ut videtur erectus, ramulis 1 ad 2 mm diametro; foliis membranaceis, oblongis ad oblongo-lanceolatis, 8 ad 15 cm longis, acuminatis, basi cordatis, lobis rotundatis, utrinque ad costa nervisque leviter pubescentibus, nervis utrinque 8 ad 10, tenuibus; inflorescentiis axillaribus, paucifloris; floribus circiter 3 cm longis, leviter pubescentibus; capsulis obovoideis, 1 cm longis, glabris.

Slender, apparently erect, the branchlets somewhat zigzag, 1 to 2 mm in diameter, pubescent with short spreading hairs. Leaves membranaceous, oblong to oblong-lanceolate, 8 to 15 cm long, 3 to 5 cm wide, mostly equilateral, base broadly rounded and prominently cordate, the sinus up to 1 cm wide and deep, rounded, narrowed upward to the acuminate apex, olivaceous and shining when dry, both surfaces sparingly pubescent on the mid-rib and nerves; basal nerves usually two pairs, not however sharply distinguished from the lateral nerves, all of the nerves rather slender, distinct, curved, anastomosing, up to 10 on each side of the midrib; petioles 3 to 5 mm long, somewhat pubescent. Inflorescences axillary, about as long as the petioles, somewhat pubescent, few-flowered, but one flower developing at a time; bracts oblong to spatulate, 3 to 5 mm long. Flowers about 3 cm long, pubescent externally with scattered spreading hairs, the ovarian part of the tube about 4 mm long, the globose part about 4 mm long, somewhat curved above the globose part, the tube about 10 mm long, the short lobe broadly ovate, rounded, about 4 mm long, the long one about 15 mm in length, acute or acuminate. Stamens apparently 8. Column with 6 flattened lobes. Capsule glabrous, obovoid, about 1 cm long. Seeds triangular in outline, 3 mm long, concavo-convex; convex surface distinctly papillate.

Luzon, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33338 Ramos, August 22, 1918, on dry slopes and ridges, altitude about 350 meters.

This species is allied to Aristolochia sericea Blanco (A. imbri-cata Mast.) from which it is distinguished especially by its prominently cordate, thinner, less pubescent leaves, its much less pubescent flowers, and its glabrous capsules.

CARYOPHYLLACEAE

STELLARIA Linnaeus


Luzon, Benguet Subprovince, Baguio, Merrill 9699, May, 1914; Pauai, Bur. Sci. 31861 Santos, May 4, 1914, altitude 1,500 to 2,300 meters.

A universally distributed weed in the north temperate regions, a native of Asia; unquestionably a recently introduced plant in Benguet.
MENISPERMACEAE

HAEMATOCARPUS Miers

HAEMATOCARPUS SUBPELTATUS sp. nov.

Frutex scandens, glaber; foliis coriaceis, basi rotundatis et leviter peltatis, oblongis ad oblongo-ellipticis, 9 ad 14 cm longis, apice tenuiter acuminatis; inflorescentiis axillaris vel depauperato-paniculatis, 3 ad 8 cm longis; floribus circiter 8 mm diametro, sepalis plerumque 12, lineolatis, exterioribus minoribus; petalis 6, quam sepalis interioribus minoribus, basi inflexo-auriculatis.

A scandent woody vine, glabrous except the very slightly pubescent sepals, the branches up to 4 mm in diameter. Leaves coriaceous, oblong to oblong-elliptic, pale and shining when dry, 9 to 14 cm long, 3.5 to 5.5 cm wide, base rounded and slightly peltate, the petiole inserted 1 to 2 mm from the margin, the apex rather slenderly acuminate; basal nerves 2 on each side of the midrib, nearly as prominent as the midrib and extending nearly to the apex, the secondary nerves slender, spreading at nearly right angles and with the reticulations distinct on both surfaces; petioles about 2 cm long. Staminate inflorescences axillary, solitary, racemose or depauperate-paniculate, 3 to 8 cm long. Staminate flowers yellow, about 6 mm in diameter, their pedicels 2 to 5 mm long. Outer 2 or 3 sepals less than 1 mm long, broadly ovate, the next three sepals ovate, obtuse, about 1.2 mm long, the inner six elliptic, rounded, 3 to 3.5 mm long, all of the sepals prominently lineolate, their margins slightly ciliate. Petals 6, somewhat thicker than the sepals, broadly elliptic to elliptic-obovate, rounded, 2.5 to 3 mm long, base inflexed-auriculate, stamens 6, free, their filaments 1 mm long; anthers broadly ovate, acuminate, 1 to 1.2 mm long, the connectives broad, produced.

Luzon, Camarines Province, Paracale, Bur. Sci. 33750 Ramos & Edano, December 22, 1918, in forests along streams at low altitudes.

This is the first representative of this small genus to be found in the Philippines; its alliance is with Haematocarpus comptus Miers, from which it is distinguished by its much shorter racemose, axillary inflorescences, and its smaller leaves which are rounded and slightly peltate at the base.

ANNONACEAE

ARTABOTRYS R. Brown

ARTABOTRYS MONOGYNUS sp. nov.

Frutex scandens, inflorescentiis exceptis glaber; foliis subcoriaceis, oblongo-ellipticis, nitidis, usque ad 18 cm longis, obtuse
acuminatibus, basi acutis, nervis utrinque circiter 12, patulis, distinctis, anastomosantibus; inflorescentiis usque ad 5 cm longis, paucifloris; petalis omnibus aequalibus, linearis, basi inflatis, circiter 1.6 cm longis, pubescentibus; carpellis solitariis, glabris.

A scandent shrub, glabrous except the inflorescence. Branches and branchlets terete, smooth, dark reddish-brown when dry. Leaves subcoriaceous, rather pale when dry, of the same color and shining on both surfaces, oblong-elliptic, 15 to 18 cm long, 5 to 5.7 cm wide, subequally narrowed to the acute base and to the shortly blunt-acuminate apex; lateral nerves about 12 on each side of the midrib, spreading, distinct, anastomosing, the primary reticulations lax; petioles dark-colored and rugose when dry, 5 to 8 mm long. Inflorescences leaf-opposed, up to 5 cm long including the flowers, few-flowered, stout, the peduncle 3 to 4 mm in diameter, sparingly pubescent, ultimately glabrous, strongly hooked, slightly compressed. Flowers white, their pedicels usually about 1 cm long, thickened upward, slightly pubescent. Sepals broadly ovate, thickly coriaceous, black when dry, prominently acuminate, about 3.5 mm long, very slightly pubescent with widely scattered hairs. Petals all similar, the inflated basal portions broadly ovate, 3.5 to 5 mm in diameter, rather densely pubescent, the linear limb up to 16 mm long, about 1.5 mm wide, somewhat pubescent, blunt. Stamens numerous, nearly 2 mm long. Carpel solitary, broadly ovoid, narrowed upward, glabrous, somewhat angled, 1-celled, 2-ovuled. Fruit ellipsoid, brown, about 2 cm long.


A species manifestly in the alliance with Artabotrys suaveolens Blume, but with larger leaves. It is readily distinguished from all described species by its solitary carpels.

**Artabotrys cagayanensis** sp. nov.

Frutex scandens, floribus exceptis glaber; foliis oblongis ad oblongo-oblanceolatis, usque ad 20 cm longis, subcoriaceis, in siccitate pallidis, basi acutis, apice distincte acuminatis, nervis utrinque 12 ad 14, distinctis; floribus solitariis, flavidis, circiter 5 cm diametro, petalis utrinque dense pubescentibus, interioribus obovatis, circiter 2.5 cm longis et 1.5 cm latis, exterioribus ovatis ad elliptico-ovatis, 3 cm longis et 2 cm latis, obtusis; carpellis circiter 14, pubescentibus, 2 mm longis.

A scandent shrub, glabrous except the flowers. Branches terete, rugose, brownish or reddish-brown. Leaves oblong to
oblong-oblanceolate, subcoriaceous, rather pale and shining when dry, 16 to 20 cm long, 3.5 to 7 cm wide, base acute, apex distinctly acuminate, the acumen 1 cm long or less, blunt; lateral nerves 12 to 14 on each side of the midrib, distinct, curved, anastomosing, the reticulations slender; petioles reddish-brown, about 8 mm long. Hooks rather stout, strongly recurved, about 2 cm to the bend, glabrous. Flowers yellow, solitary, about 5 cm in diameter, their pedicels densely pubescent, 2 to 2.5 cm long. Sepals coriaceous, narrowly ovate, obtuse, densely pubescent, about 11 mm long and 8 mm wide. Petals spreading above the united portions, the flowers about 5 cm in diameter, coriaceous, rather densely pubescent on both surfaces, the outer ones ovate to elliptic-ovate, obtuse, about 3 cm long and 2 cm wide, the inner ones obovate, about 2.5 cm long and 1.5 cm wide, obtuse or obtusely acuminate, the inflated base formed by the united lower parts of the petals about 8 mm in diameter. Stamens indefinite, 2 mm long. Carpels about 14, oblong, about 2 mm long, pubescent.


A species well characterized among the Philippine forms by its unusually large flowers and broad petals.

**GONIOTHALAMUS** Hooker f. and Thomson

**GONIOTHALAMUS LANCIFOLIUS** sp. nov.

Arbor circiter 7 m alta, novellis et floribus exceptis glabra; foliiis lanceolatis, chartaceis, usque ad 33 cm longis et 5 cm latis, nitidissimis, acuminatis, basi acutis, nervis utrinque 25 ad 30, distinctis; floribus axillaribus et cauliniis, solitariis, tenuiter pedunculatis, petalis exterioribus ovato-lanceolatis ad oblongo-lanceolatis, 7 ad 8 cm longis, acuminatis, extus ad basi dense fulvo-pubescentibus, interioribus circiter 1.2 cm longis, densissime pallide pubescentibus.

A tree, about 7 m high, entirely glabrous except the growing tips of the branchlets and parts of the flowers. Branches terete, pale brownish, glabrous. Leaves chartaceous, lanceolate, 19 to 33 cm long, 3 to 4 cm wide, the upper surface greenish olivaceous, very strongly shining, the lower somewhat brownish, the apex slenderly acuminate, base acute; primary lateral nerves 25 to 30 on each side of the midrib, slender, distinct, anastomosing, the reticulations lax; petioles about 8 mm long. Flowers 7 to 8 cm long, greenish-yellow, dark-brown when dry, odorless, solitary, axillary and from tubercles on the trunk, their pedicels 2.5 to 3
cm long, often appressed fulvous-pubescent at the base. Calyx about 1 cm in diameter, somewhat pubescent, the lobes short. Outer three petals ovate-lanceolate to oblong-lanceolate, 7 to 8 cm long, 2.5 to 3.5 cm wide, narrowed upward to the acuminate apex, glabrous except for the densely fulvous-pubescent basal portion outside; inner three petals about 1.2 mm long, conniving over the stamens, densely pale-pubescent externally.

LUZON, Pangasinan Province, Mount San Isidro, Labrador, Bur. Sci. 29992 Fénix, November 4, 1917, in forests near the summit, altitude about 400 meters. This species belongs in the group with Goniothalamus malayanus Hook. f. & Th., but is well characterized by its elongated, narrow, strongly shining leaves, and its large, solitary, axillary and cauline flowers.

GONIOTHALAMUS LONGISTYLUS sp. nov.

Arbor parva, floribus exceptis glabra; foliis oblongis, in siccate olivaceis, usque ad 16 cm longis, acuminatis, basi acutis, nervis utrinque 9 ad 11, patulis, tenuibus; inflorescentiis truncifloris, floribus pedicellatis, fasciculatis, circiter 4 cm longis, petalis exterioribus glabris, oblongo-ovatis, acuminatis, interioribus late ovatis, 2 cm longis, extus leviter, intus densissime pubescentibus; carpellis numerosis, oblongis, pubescentibus, 2 mm longis, stylis valde elongatis, falcatis, acuminatis, 4 ad 4.5 mm longis.

A small tree, glabrous except the flowers and the slightly pubescent fruits. Branches and branchlets slender, terete, black when dry. Leaves oblong, chartaceous, 13 to 16 cm long, 3.5 to 4.5 cm wide, shining, of the same color on both surfaces, subequally narrowed to the acuminate apex and to the acute base; lateral nerves slender, 9 to 11 on each side of the midrib, spreading, anastomosing, the reticulations lax; petioles black when dry, about 1 cm long. Flowers black when dry, reddish-pink, fascicled on small tubercles on the trunk, about 4 cm long, their pedicels about 2 cm in length. Sepals glabrous, broadly ovate, obtuse, obscurely reticulate, about 8 mm long. Outer three petals submembranaceous, glabrous, oblong-ovate, prominently acuminate, about 4 cm long and 2 cm wide, narrowed upward; inner three petals thickly coriaceous, scarcely clawed, cohering, broadly ovate, acuminate, about 2 cm long and 1.3 cm wide, outside sparingly pubescent, inside very densely so. Stamens indefinite, about 2 mm long, the connectives rounded. Carpels many, oblong, pubescent, 2 mm long; styles simple, cylindric, falcate, 4 to 4.5 mm long, glabrous, acuminate. Fruits eight or more on each peduncle, the peduncles up to 6 cm in
length, the fruits oblong or oblong-ovoid, 4 to 4.5 cm long, 2 to 2.5 cm in diamter, obtuse, base acute, glabrous, black or dark-brown when dry, 1- or 2-seeded.


This strongly marked species is not closely allied to any other known Philippine form. It is readily recognized by its cauline, fascicled flowers and its greatly elongated, falcate styles.

MITREPHORA Hooker f. and Thomson

MITREPHORA CAGAYANENSIS sp. nov.

Frutex vel arbor parva (4 m alta fide Castillo), plus minusve ferrugineo-pubescentibus; foliis chartaceis, oblongo-ovatis ad oblongo-ellipticis, usque ad 17 cm longis, basi acutis, apice obtuse acuminatis, nervis utrinque circiter 13, distinctis; floribus paucis, circiter 5 cm diametro, petalis exterioribus lanceolatis, acumina- tis, patulis, leviter pubescentibus, circiter 3 cm longis, interioribus circiter 9 mm longis, longe unguiculatis, lamina latissime hastato-ovata, circiter 4 mm longa, intus densissime ciliato-hirsuta.

A shrub or small tree, 4 m high according to Castillo, the branchlets, inflorescences, and lower surface of the leaves on the midrib and nerves more or less ferruginous-pubescent or brownish-pubescent with short hairs. Branches slender, terete, glabrous, rugose when dry, brownish-gray. Leaves chartaceous, oblong-ovate to oblong-elliptic, olivaceous and somewhat shining when dry, 12 to 17 cm long, 5 to 9 cm wide, base acute, apex obtusely acuminate, the upper surface glabrous except the pubescent midrib; lateral nerves about 13 on each side of the midrib, distinct, curved; petioles pubescent, stout, 5 mm long or less. Inflorescences leaf-opposed, short, few-flowered, but a single flower developing at one time, ferruginous-pubescent, the simple axis 5 mm long or less, the pedicels shorter. Bracts ovate, densely pubescent, prominently acuminate, about 6 mm long. Flowers yellow, about 5 cm in diameter. Sepals similar to the bracts in size, shape, and appearance. Outer petals spreading, lanceolate, acuminate, dark-brown or nearly black when dry, appressed-pubescent on both surfaces with rather scattered hairs, the hairs much fewer on the inside, about 3 cm long and 8 mm wide. Inner petals erect, arched, about 9 mm long, their claws about 6 mm long and 1.2 mm wide, glabrous or slightly ciliate, the limbs broadly ovate-hastate, 3 to 4 mm long, 4 to 5 mm wide, externally pubescent with short hairs, inside densely ciliate with dark-brown hairs, acute, base lobed. Stamens inde-
finite, about 1 mm long. Carpels about 8, oblong, appressed-hirsute, about 1 mm long; ovules about 4.

Luzon, Cagayan Province, near Tuguegarao, Bur. Sci. 22733 Castillo, April 15, 1915, in thickets at low altitudes; Peñablanca, Adduru 143, sterile, June, 1917.

This species is well characterized by its lanceolate, elongated exterior petals and its long-clawed interior ones, the limbs of the latter being broadly ovate-hastate.

**Oxymitra** Hooker f. and Thomson

**Oxymitra Multinervia** sp. nov.

Frutex scandens, partibus vetustioribus glaber vel subglaber; foliis ellipticis ad oblongo-ellipticis, subcoriaceis, in siccitate brunneis, nitidis, usque ad 20 cm longis, utrinque late rotundatis vel apice leviter retusis; nervis utrinque circiter 22, subtus valde prominulis; fructibus ellipsoideis ad obovoideis, 1 ad 1.5 cm longis, glabris.

A scandent shrub, in age nearly glabrous. Branches terete, brownish, nearly smooth, glabrous, the branchlets sparingly pubescent. Leaves elliptic to oblong-elliptic, subcoriaceous, brown when dry, shining, the lower surface a little paler than the upper, not at all glaucous, 13 to 20 cm long, 8 to 12 cm wide, broadly rounded at both base and apex, the lower surface very sparingly pubescent along the midrib and nerves; lateral nerves about 22 on each side of the midrib, very prominent on the lower surface, the reticulations subparallel, distinct; petioles 1 to 1.5 cm long. Fruits dark-brown when dry, glabrous, hard, ellipsoid to obovoid, 1 to 1.5 cm long, their pedicels 8 to 12 mm in length.


This species somewhat resembles Oxymitra longiflora Merr. and the very closely allied and perhaps identical *O. obtusifolia* Elm., but is readily distinguished by its much more numerous lateral nerves.

**Oxymitra Platypylla** sp. nov.

Frutex scandens partibus junioribus parce ferrugineo-pubescentibus; foliis obovatis ad ellipticis, usque ad 20 longis et 12 cm latis, basi cordatis, interdum leviter inaequilateralibus, apice late rotundatis, truncatis, vel obscure brevissime apiculatis, nervis utrinque circiter 13, subtus valde prominentibus, supra, costa exceptis, glabris, subtus ad costa nervisque leviter pubescentibus; fructibus numerosis, pedicillatis, subglabris, ovoideo-globosis, circiter 8 mm diametro, obscure apiculatis.
A scandent shrub, the younger parts, petioles, and leaves on the costa above and on the costa, nerves, and reticulations beneath more or less ferruginous-pubescent. Branches terete, slender, very dark-brown, somewhat rugose. Leaves obovate to elliptic, subcoriaceous, 14 to 20 cm long, 8 to 12 cm wide, base broadly rounded, distinctly cordate, sometimes slightly inequilateral, apex rounded, truncate, or shortly and obscurely apiculate, the upper surface olivaceous, shining, glabrous except the midrib, the lower surface brown, at times slightly glaucous; lateral nerves about 13 on each side of the midrib, very prominent on the lower surface, straight or slightly curved, anastomosing near the margins, the primary reticulations subparallel, prominent; petioles stout, about 4 mm long, more or less pubescent, ultimately nearly glabrous. Infrauctescences axillary, the peduncles 2.5 to 3 cm long, dark-brown, ultimately glabrous, each bearing 20 to 25 subglobose to ovoid-globose fruits, the infructescences rather dense, globose, about 3 cm in diameter; fruits red when mature, acid, about 8 mm in diameter, sparingly pubescent, apiculate, dark-brown when dry, their pedicels about 8 mm long.

LUZON, Laguna Province, Mount Maquiling, along Molauin River, For. Bur. 26360 Mabesa, in forests, altitude 400 to 500 meters.

The alliance of this species is with Oxymitra obtusifolia Elm. and O. longiflora Merr., from which it is distinguished by its much broader leaves and nearly globose fruits.

**PAPUALTHIA** Diels

**PAPUALTHIA HETEROPETALALA** sp. nov.

Frutex erectus, ramulis floribusque exceptis glaber; foliis oblongis ad oblongo-lanceolatis, usque ad 11 cm longis, chartaceis, acutis vel acuminatis, basi angustatis, leviter inaequilaterialibus et minute oblique cordatis, nervis utrinque 10, perspicuis; floribus extra-axillaribus, solitariis vel fasciculatis, pedicellis circiter 12 mm longis; sepalis ovatis, acuminatis, 4 ad 5 mm longis; petalis infra connatis, 3 ovatis, 8 mm longis, sursum angustatis, acuminatis, 3 oblongis, 9 ad 10 mm longis, plerumque acutis; carpellis circiter 5.

An erect shrub, glabrous, except the young branchlets and flowers, the branches slender, terete, nearly black when dry, sparingly lenticellate. Leaves oblong to oblong-lanceolate, chartaceous, pale and shining when dry, 7 to 11 cm long, 2 to 4 cm wide, apex usually acuminate, sometimes acute, base narrowed and slightly inequilateral, usually minutely and obliquely cordate;
lateral nerves about 10 on each side of the midrib, slender, prominent, anastomosing, the reticulations lax, distinct; petioles black when dry, about 2 mm long. Flowers yellowish, extra-axillary, solitary or few in a fascicle, but one flower developing at a time, their pedicels slender, about 12 mm long, appressed-pubescent, supplied with one or two, oblong, 2 mm long bracts below the middle. Sepals ovate, sparingly ferruginous-pubescent, 3 mm wide, 4 to 5 mm long, prominently acuminate. Petals united for the lower 2 to 3 mm, very unequal, three of the lobes ovate, about 5 mm long and 3 mm wide, much narrowed above to the acuminate apex, the three alternating lobes oblong, 6 to 7 mm long, 2 to 2.5 mm wide, sparingly appressed-pubescent outside, slightly narrowed upward, usually acute. Stamens indefinite, about 1.4 mm long. Carpels about 5, oblong, 1 mm long, appressed-pubescent; ovules apparently 3; stigma capitate.

PHAEANTHUS Hooker f. and Thomson

PHAEANTHUS PUBESCENS sp. nov.

Arbor parva, ramulis cinereo-pubescentibus, novellis ferrugineo-pubescentibus; foliis lanceolatis ad oblongo-lanceolatis, chartaceis, usque ad 18 cm longis, plus minusve acuminitis, basi acutis, nervis utrinque circiter 10, curvato-adscendentibus, supra in siccitate atro-brunneis, nitidis, glabris, subtus perspicue pubescentibus; fructibus oblongo-ovoideis, nigris, glabris, circiter 1.7 cm longis.

A tree, about 5 m high, more or less pubescent, the younger parts densely so. Branches terete, brownish, rugose, glabrous, the branchlets rather prominently cinereous-pubescent, the very young parts densely ferruginous-pubescent. Leaves lanceolate to oblong-lanceolate, chartaceous, 10 to 18 cm long, 2 to 5 cm wide, narrowed upward to the usually blunt-acuminate apex, the base acute, upper surface glabrous, blackish-brown when dry, shining, the lower somewhat paler, rather prominently cinereous-pubescent, the midrib densely so; lateral nerves about 10 on each side of the midrib, slender, curved-ascending, distinct; petioles pubescent, 3 to 6 mm long. Fruits oblong-ovoid,
glabrous, smooth, black when dry, about 1.7 cm long, apex very obscurely rostrate, the pedicels black when dry, 2 to 2.5 cm long.


This species is manifestly allied to *Phaeanthus ebracteolatus* Merr.; it is distinguished especially by its indumentum.

**Phaeanthus Villosus** sp. nov.

Frutex erectus, perspicue et molliter villosus; foliis chartaceis, oblongis, usque ad 22 cm longis, tenuiter caudato-acuminatis, supra glabris, subtus villosis, nervis utrinque circa 20, perspicuis; pedicellis villosis, 7 ad 9 cm longis; floribus solitariis, circiter 4.5 cm longis, petalis interioribus caudato-acuminatis.

A shrub, the branches, lower surface of the leaves and the pedicels softly and densely villous. Leaves chartaceous, oblong, 16 to 22 cm long, 6 to 8 cm wide, the apex slenderly caudate-acuminate, base acute to somewhat rounded, the upper surface glabrous, shining, the lower surface densely and softly villous on the midrib and nerves; lateral nerves about 20 on each side of the midrib, distinct; petioles densely villous, 7 to 10 mm long. Flowers yellow, extra-axillary, solitary, their densely villous pedicels 8 to 9 cm long. Sepals and the three outer petals minute, pubescent, triangular-ovate, about 1 mm long. Inner petals coriaceous-fleshy, oblong-elliptic, about 4.5 cm long, to 2.3 cm wide, somewhat pubescent outside and with slender longitudinal nerves, base somewhat narrowed, apex subcaudate-acuminate. Anthers numerous, oblong, about 3 mm long, the connectives oblique, somewhat concave. Carpels numerous, oblong, about 3 mm long, somewhat pubescent; style club-shaped, pubescent, about 1.5 mm long.


This species is well characterized by its rather dense soft indumentum, which is found on most parts of the plant. It is most closely allied to *Phaeanthus pubescens* Merr., from which it differs essentially in its much more numerous lateral nerves.

**Polyalthia** Blume

**Polyalthia Dolichophylla** sp. nov. § *Eupolyalthia*.

Frutex subglaber; foliis brevissime petiolatis, chartaceis, ob lanceolatis ad oblongo-ob lanceolatis, usque ad 50 cm longis, 11 ad 18 cm latis, basi perspicue cordatis, subamplexicaulis,
nervis utrinque circiter 18, valde perspicuis; floribus axillaribus, pedicellatis, circiter 4 cm longis; calycis lobis 1.5 ad 2 cm longis; petalis crasse coriaceis, exterioribus circiter 1.5 cm latis, interioribus angustioribus, infra contractis, basi leviter inflatis; carpellis anguste oblongis, pubescentibus, ovulis 2, superpositis.

A shrub, 2 to 3 m high, glabrous except the petioles and the midribs on the lower surface toward the base. Leaves chartaceous, oblanceolate to oblong-oblanceolate, about 50 cm long, 11 to 18 cm wide, the upper surface grayish when dry, shining, the lower surface brownish, apex somewhat acuminate, narrowed below the middle to the abruptly rounded and prominently cordate base, the base 5 to 8 cm wide, the basal lobes somewhat amplexicaul; lateral nerves about 18 on each side of the midrib, very prominent on the lower surface, curved, arched, anastomosing; petioles very stout, 8 to 10 mm long, pubescent. Flowers yellow or reddish-yellow, axillary, solitary, at maturity about 4 cm long, their pedicels up to 1.5 cm long, each with an ovate, acuminate, basal bracteole about 1 mm long. Calyx-lobes ovate to oblong-ovate, acute or obtuse, chartaceous, 1.5 to 2 cm long. Petals about 3.5 cm long, thickly coriaceous, glabrous, the outer three about 1.5 cm wide, the inner three about 1 cm wide, acute or obtuse and distinctly narrowed below the middle and above the slightly inflated base. Stamens indefinite, the anthers oblong, 2.8 mm long. Carpels numerous, narrowly oblong, pubescent, the stigmas densely pilose; ovules 2, superposed.

Panay, Capiz Province, Jamindan, Bur. Sci. 30933 (type), 36873 Ramos & Edano, April and May, 1918, along small streams in forests.

This remarkable species is prominently characterized by its unusually large leaves which are narrowed below to the abruptly rounded and prominently cordate, somewhat amplexicaul base; the petioles are unusually short, some of the leaves being subsessile. It has no close alliance among the Malayan species known to me.

**PSEUDUVARIA** Miquel

**PSEUDUVARIA GRANDIFLORA** sp. nov.

Arbor circiter 5 m alta, plus minusve cinereo-pubescentibus, novellis dense ferrugineo-pubescentibus; foliis oblongis, usque ad 20 cm longis, obtuse acuminatis, basi acutis ad subrotundatis, nervis utrinque 8 ad 11, curvato-adscendentibus, perspicuis; floribus axillaribus, numerosis, fasciculatis, longe pedicellatis, circiter 1.5 cm longis.

A tree, about 5 m high, the branches dark grayish-brown,
rugose, glabrous, the branchlets rather densely cinereous-pubescent, the young tips ferruginous-pubescent. Leaves chartaceous, oblong, 13 to 20 cm long, 4 to 5.5 cm wide, pale-olivaceous and somewhat shining on the upper surface when dry, the midrib pubescent, the lower surface paler, pubescent on the midrib and lateral nerves, base acute, apex blunt-acuminate; lateral nerves 8 to 11 on each side of the midrib, curved-ascending, prominent, anastomosing; petioles pubescent, 5 to 7 mm long. Flowers numerous, axillary, fascicled, about 1.5 cm long, usually two or three in each fascicle, their pedicels pubescent, 1.5 to 2.5 cm long. Sepals reniform, rounded, pubescent, about 1.8 mm long and 2 mm wide. Outer three petals suborbicular-ovate, pubescent, rounded, 3.5 to 4 mm long; inner three petals arched, the claw about 9 mm long, pubescent externally, glabrous within, the limb rhomboid, about 10 mm wide, pubescent externally and on the margins, glabrous within. Stamens very numerous, about 1 mm long. Female flowers unknown.


This species is readily distinguished from the only other known Philippine species, Pseuduvaria philippinensis Merr., by its very much larger flowers.

UVARIA Linnaeus

UVARIA PANAYENSIS sp. nov.

Frutex scandens, floribus dense griseo-puberulis exceptis glaber vel subglaber; foliis oblongis, chartaceis ad subcoriaceis, usque ad 28 cm longis, tenuiter acuminatis, basi cordatis, nervis utrinquæ circiter 15, perspicuis; floribus pallidis, circiter 4.5 cm diametro; sepalis reniformibus; petalis coriaceis, utrinquæ dense cinereo-puberulis, late ovatis, 2.5 cm longis; carpellis lineari-oblongis, glabris, pauciovulatis.

A scandent shrub, nearly glabrous except the densely grayish-puberulent flowers. Branches glabrous, the branchlets with very few, scattered, ferruginous, scarcely stellate hairs. Leaves oblong, firmly chartaceous or subcoriaceous, 25 to 28 cm long, 8 to 9 cm wide, entirely glabrous, grayish on both surfaces when dry, the apex slenderly and sharply acuminate, base rounded and distinctly cordate; lateral nerves prominent, curved, anastomosing, about 15 on each side of the midrib, the reticulations lax; petioles 5 mm long or less, black when dry. Flowers about 4.5 cm in diameter, apparently pale or yellowish, their pedicels about 3 cm long, glabrous or with very few, short, ferruginous,
obscurely stellate hairs, each with a broadly ovate, ferruginous-pubescent, 3 to 4 mm long bract at or below the middle. Sepals reniform, coriaceous, about 6 mm long, 9 mm wide, externally cinereous-pubescent. Petals coriaceous, densely cinereous-pubescent on both surfaces, the outer three broadly ovate, obtuse, about 2.5 cm long, 2 cm wide, the inner three somewhat smaller. Anthers very numerous, linear-oblong, 3.5 to 4 mm long, the connectives rounded-truncate, not oblique, very slightly produced. Carpels many, linear-oblong, glabrous, including the stigma 3 mm long; ovules few.

**PANAY, Capiz Province, Jamindan, Bur. Sci. 31367 Ramos & Edoño, May 22, 1918, in forests along small streams.**

This species is manifestly allied to *Uvaria leytensis* (Elm.) Merr., from which it is readily distinguished by its distinctly cordate leaves and its cinereous-puberulent flowers.

**UVARIA MACGREGORII** sp. nov.

Frutex scandens, inflorescentiis exceptis glaber; foliis chartaceis, oblongo-ovatis et ovato-ellipticis, usque ad 12 cm longis, griseo-olivaceis, apice obtusis, basi rotundatis et plerumque leviter cordatis, nervis tenuibus, utrinque circiter 10; floribus circiter 2 cm diametro, rubro-brunneis; sepalis margine ferrugineo-pubescentibus; petalis late ovatis, circiter 1 cm longis, margine ferrugineo-pubescentibus ceteroquin glabris; carpellis anguste oblongis, glabris.

A scandent shrub, glabrous except the axillary buds on the young branchlets, and parts of the inflorescences. Leaves firmly chartaceous, oblong-ovate to ovate-elliptic, 8 to 12 cm long, 3.5 to 6 cm wide, glabrous on both surfaces, grayish-olivaceous when dry, slightly shining, somewhat narrowed upward to the obtuse apex, base broadly rounded and usually slightly cordate; lateral nerves slender, not prominent, about 10 on each side of the midrib, anastomosing; petioles 5 mm long, black when dry, glabrous. Flowers dark reddish-brown, about 2 cm in diameter (somewhat immature) in short, usually 2-flowered, leaf-opposed inflorescences, the peduncles 3 mm long or less, the pedicels 5 to 10 mm long, rugose when dry, the subtending bracts oblong, 3 to 4 mm long, the bracts and pedicels with few, scattered, ferruginous hairs, the latter soon becoming glabrous. Sepals broadly ovate to reniform, about 4 mm long, rounded or subacute, coriaceous, rugose when dry, their margins ferruginous-pubescent. Petals broadly ovate about 1 cm long, obtuse to subacute, densely ferruginous-pubescent on the margins and toward the tip, otherwise glabrous. Anthers numerous, narrowly oblong, 1.5 mm long, the connectives oblique, slightly produced. Carpels numerous,
narrowly oblong, glabrous, 1.5 mm long; ovules usually 4; styles 0.5 mm long.


This species rather closely resembles *Cuming 1607* from Misamis Province, Mindanao, which has been referred to *Uvaria ovalifolia* Blume but which apparently is not referable to Blume’s species. Among the other characters the present species differs from *Uvaria ovalifolia* in its somewhat smaller, fewer-nerved leaves; in being nearly glabrous; and in its entirely glabrous carpels. It is well characterized by its sepals and petals being nearly glabrous except for their densely ferruginous-pubescent margins and apices.

**Lauraceae**

**Cryptocarya** R. Brown

**Cryptocarya Ramosii** sp. nov.

Arbor parva, ramulis inflorescentiisque exceptis glabra; foliis oblongis ad oblongo-lanceolatis, subcoriaceis, 6 ad 11 cm longis, acuminatis, basi acutis, nervis utrinque 7 vel 8, perspicuis, reticulis ultimis confertis, utrinque obscure foveolatis; fructibus ellipsoideis, 1.5 cm longis, nigris, nitidis, glabris, laevis, 1.5 cm longis.

A tree, 5 to 6 m high, glabrous, except the young branchlets and inflorescences which are ferruginous-pubescent. Branches reddish-brown, lenticellate. Leaves oblong to oblong-lanceolate, subcoriaceous, usually pale when dry, shining, 6 to 11 cm long, 1.5 to 4 cm wide, narrowed upward to the acuminate apex, base acute; lateral nerves usually 7 or 8 on each side of the midrib, rather prominent on the lower surface, pinnately arranged, curved, anastomosing, the ultimate reticulations very close, both surfaces very shallowly and minutely foveolate; petioles 5 to 8 mm long. Panicles in the uppermost axils, narrow, rather few-flowered, 6 to 8 cm long, the branches rather few, short, not exceeding 1.5 cm in length. Flowers subsessile, ferruginous-pubescent, about 4 mm long, the tube about 2 mm long. Perianth-lobes elliptic-ovate, as long as the tube. Fruit ellipsoid, black and shining when dry, 1.5 cm long, glabrous, smooth.


The description of the flowers is from *Bur. Sci. 33346 Ramos*,...
from Mount Palimlim, this specimen differing slightly from the
type in its relatively somewhat shorter and slightly fewer-nerved
leaves. The alliance of this species is manifestly with Cryptocarya
vidalii Merr., from which it is easily distinguished by its
much smaller fruits.

CRYPTOCARYA EUPHLEBIA sp. nov.

Arbor parva, ramulis et petiolis et inflorescentiis dense cast-
taneo-pubescentibus; foliis oblongis ad oblongo-ellipticis, sub-
coriaceis, usque ad 10 cm longis, costa excepta glabris, olivaceis,
nitidis, apice breviter acuminatis, basi acutis ad subrotundatis,
utorique, praesertim subtus, minute et dense foveolatus; nervis
utorique 6 ad 8, supra impressis, subtus valde priminulis, sub-
adscendentibus, vix anastomosantibus; paniculis axillaribus ter-
minalibusque sub fructu usque ad 10 cm longis; fructibus in
siccitate nigris, depresso-globosis, laevis, glabris, 10 ad 12 mm
diametro.

A small tree, the branchlets, petioles, and inflorescences dense-
ly and finely castaneous-pubescent. Branches terete, glabrous,
lucentellate, smooth, brownish. Leaves subcoriaceous, oblong to
oblong-elliptic, 6 to 10 cm long; 2.5 to 5 cm wide, olivaceous,
shining, glabrous except for the somewhat pubescent midrib, the
apex abruptly and distinctly acuminate, base acute to somewhat
rounded, both surfaces, but especially the lower one, densely and
shallowly foveolate; lateral nerves 6 to 8 on each side of the mid-
rib, impressed on the upper surface, very prominent on the
lower surface, somewhat ascending, slightly curved, not or but
very obscurely anastomosing; petioles 8 to 10 mm long. Panicles
axillary and terminal, in fruit up to 10 cm long. Fruits black,
glabrous, smooth, shining, depressed-globose, 10 to 12 mm in
diameter.

CATANDUANES, Bur. Sci. 20576 Ramos, November 20, 1917, on
the forested slopes of Mount Mariguidon.

This species is well characterized by its shallowly and densely
foveolate, glabrous, conspicuously nerved leaves and its de-
pressed-globose fruits. In the latter character it differs espe-
cially from Cryptocarya oblongata Merr. It seems to be most
closely allied to Cryptocarya zamboanguensis Merr. and C. inter-
media Elm.

CRYPTOCARYA ELLIPTIFOLIA sp. nov.

Arbor parva, inflorescentiis exceptis glabra; foliis ellipticis ad
elliptico-ovatis, chartaceis, subolivaceis, nitidis, usque ad 20 cm
longis, apice perspicue et obtuse acuminatis, basi leviter decurr-
rento-acuminatis, nervis utorique 5, distantibus, distinctis, cur-
vatis, vix elevatis; paniculis sub fructu axillaribus, circiter 7 cm longis; fructibus globosis, circiter 1.5 cm diametro, in siccitate nigris, nitidis, glabris, leviter longitudinaliter striatis.

A small tree, 6 m high fide Ramos, entirely glabrous except the inflorescences, which are apparently somewhat pubescent. Branches and branchlets smooth, terete, slender, smooth, brownish-olivaceous. Leaves elliptic-ovate to elliptic, chartaceous, sub-olivaceous, shining, 15 to 20 cm long, 7 to 9 cm wide, not at all foveolate, the apex prominently and obtusely acuminate, the acumen about 1.5 cm long, stout, the base somewhat decurrent-acuminate; lateral nerves 5 on each side of the midrib, prominent but scarcely projecting, somewhat curved, reticulations slender, distinct, rather close; petioles 1 to 2 cm long. Panicles in fruit axillary, about 7 cm long, the branchlets sparingly pubescent. Fruits globose, black when dry, shining, faintly ridged longitudinally, glabrous, about 1.5 cm in diameter.

CATANDUANES, Bur. Sci. 30330 Ramos, December 9, 1917, in forests along small streams back of Calolbong.

A species well characterized by its rather large, conspicuously acuminate leaves; lateral panicles; and rather large, globose, somewhat ridged, glabrous fruits.


This species has previously been reported from Java, where it is common and widely distributed, and from the Malay Peninsula. The Philippine material cited above closely matches a series of specimens from Java and the Malay Peninsula, and also conforms to the descriptions of Blume's species. The specimens collected by Mrs. Clemens were described by me in 1908 as a new species of Beilschmiedia, but the description was fortunately never published. Cryptocarya laevigata Elm., the type of which is a specimen with very immature fruits, is scarcely to be distinguished from Blume's species.

NEOLITSEA Merrill

NEOLITSEA LANCEOLATA sp. nov.

Arbor circiter 6 m alta, ramulis junioribus et petioliis dense adpresse pubescentibus, ramis glabris, teretibus, ramulis et foliis verticillatis; foliis lanceolatis, chartaceis ad subcoriaceis, in siccitate brunneis, nitidis, usque ad 7 cm longis et 1.5 cm latis, basi
acutis, apice tenuiter acuminatis, junioribus ad costa villosis, vetustioribus glaberrimis, penninerviis, nervis primariis utrinque circiter 10; fructibus axillaribus, fasciculatis, parvis, glabris, pedicellis adpresse pallide villosis, circiter 5 mm longis.

A tree, about 6 m high, the young branchlets and petioles densely pale or pale-ferruginous appressed-pubescent. Branches glabrous, terete, the branchlets verticillate, 3 to 6 at a node. Leaves verticillate, chartaceous to subcoriaceous, brownish when dry, lanceolate, 5 to 7 cm long, 1 to 1.5 cm wide, narrowed below to the acute base and above to the slenderly acuminate apex, shining, smooth, the older ones entirely glabrous, the younger ones pale appressed-villous along the midrib on both surfaces; nerves all pinnately arranged, the primary ones about 10 on each side of the midrib, slender, curved, somewhat ascending, obscurely anastomosing, the reticulations not prominent, the ultimate ones close and very obscurely foveolate; petioles 5 to 8 mm long, rather densely pubescent. Fruits fascicled on the ultimate branches below the leaves, 3 to 6 in a fascicle, the pedicels rather stout, somewhat thickened upward, pale appressed-pubescent, the persistent calyx-tube somewhat funnel-shaped, truncate, glabrous, about 5 mm in diameter.

Catanduanes, Mount Mariguidon, Bur. Sci. 30231 Ramos, November 27, 1917, in forests near the summit of the mountain.

This species is well characterized by its verticillate branchlets and its small, lanceolate, penninerved leaves. It does not appear to be very closely allied to any of the previously described species of the genus.

**NEOLITSEA PAUCINERVIA** sp. nov.

Species *N. zeylanicae* affinis. Arbor circiter 7 m alta, ramis et foliis glabris, ramulis dense pubescentibus; foliis alternis, oblongo-lanceolatis, subcoriaceis, in siccitate brunneis, nitidis, usque ad 8 cm longis et 3 cm latis, tenuiter acuminatis, basi acutis, 3-plinerviis, nervis lateralibus utrinque circiter 3, distinctis, curvato-anastomosantibus, adscendentibus, obscure anastomosantibus; fructibus axillaribus, ovoideis vel subglobosis, in siccitate nigris, rugosis, nitidis, circiter 5 mm diametro, calycis lobis 4, lanceolatis, acuminatis, villosis, pedicellis nigris, decidue villosis.

A tree, about 7 m high, the branches smooth, terete, glabrous, the branchlets and petioles densely pubescent with short hairs. Leaves alternate, rather more numerous near the tips of the branchlets and here sometimes pseudo-verticillate, oblong-lanceolate, subcoriaceous, brownish and shining when dry, both sur-
faces densely and shallowly foveolate, not at all glaucous, entirely glabrous, 7 to 8 cm long, 2 to 3 cm wide, narrowed below to the acute base and above to the slenderly acuminate apex, the base 3-plinerved, the lateral basal nerves leaving the midrib about 5 mm above the base of the leaf and extending to or beyond the middle, the lateral ones above the base 2 or 3, slender, distinct, curved-ascending; petioles 5 to 8 mm long. Fruits axillary and in the axils of fallen leaves, fascicled, 5 to 12 in a fascicle, ovoid to subglobose, about 5 mm in diameter, black and shining when dry, somewhat wrinkled. Pedicels about 5 mm long, black, covered with a brownish, more or less deciduous, appressed, villous indumentum, the persistent calyx-lobes lanceolate, acuminate, villous, about 2 mm long.

LUZON, Sorsogon Province, Mount Killibong, Bur. Sci. 23316 Ramos, August 17, 1915, in the mossy forest.

This species, among the Philippine forms, is probably as closely allied to Neolitsea villosa Merr. as any, but differs in its few-nerved, glabrous, not glaucous leaves. Its true alliance seems to be with N. zeylanica Merr., from which it is distinguished by its nonglaucous leaves and its villous pedicels. It also closely resembles some forms of the Javan N. cassiaefolia Merr.

**SAXIFRAGACEAE**

**POLYOSMA** Blume

**POLYOSMA VILLOSA** sp. nov.

Frutex, subitus foliis et ramis et inflorescentiis dense molliter villosus; foliis verticillatis, 4-natis, oblongis ad oblongo-ellipticis, chartaceis ad subcoriaceis, 7 ad 10 cm longis, apice acutis, margine distantior dentatis; nervis utrinque 12 ad 15, patulis, distinctis; petiolo 1.5 ad 2 cm longo; racemis axillaribus, 5 cm longis, paucifloris; fructibus ellipsoideis, 8 mm longis, plus minus pubescentibus, bracteolis subaequalibus, circiter 1 mm longis.

A shrub, the branches, branchlets, petioles, inflorescences, and the lower surface of the leaves, especially on the midrib and nerves, densely and softly villous. Leaves verticillate, usually 4 at each node, oblong to oblong-elliptic, chartaceous to subcoriaceous, 7 to 10 cm long, 2.5 to 4 cm wide, dark-olivaceous and shining when dry, the base rounded to acute, apex acute, sometimes with a very short mucro, the margins conspicuously villous, coarsely and distantly toothed, the upper surface more or less pubescent on the midrib and nerves; lateral nerves 12 to 15 on each side of the midrib, spreading at right angles, distinct, anas-
tomosing, the reticulations lax. Petioles 1.5 to 2 cm long. Racemes axillary, solitary, about 5 cm long, few-flowered, pubescent. Fruits ellipsoid, about 8 mm long, somewhat pubescent, their pedicels about 3 mm long, the subtending bracteoles subequal, oblong-ovate, pubescent, about 1 mm long. Persistent calyx lobes ovate, acute, 1 mm long.


This species apparently belongs in the group with *Polyosma verticillata* Merr., from which it is specially distinguished by its dense indumentum and its lateral, not terminal, few-flowered racemes.

**POLYOSMA LONGIPETIOLATA** sp. nov.

A shrub, about 5 m high, glabrous except the very young parts and the inflorescences. Branches terete, dark reddish-brown, smooth, glabrous, the branchlets more or less angled, the younger ones appressed-pubescent with very short hairs. Leaves verticillate, 4 or 5 at each node, oblong-elliptic to narrowly oblong-ovate, coriaceous, glabrous, the upper surface nearly black when dry, the lower surface dark-brown, 8 to 13 cm long, 2.5 to 5 cm wide, entire, base acute, apex very shortly and broadly acuminate, the acumen obtuse and with a blunt apiculus; lateral nerves 8 to 11 on each side of the midrib, spreading, distinct, anastomosing. Petioles unusually long, up to 6 cm in length, when young pubescent, soon becoming glabrous. Racemes terminal, in fruit up to 20 cm long, more or less pubescent; pedicels 3 to 5 mm long. Fruits narrowly ellipsoid, about 8 mm long, slightly pubescent, the subtending bracteoles very unequal, pubescent, linear-oblong, the middle one 3 to 4 mm long, at least twice as long as the two lateral ones. Persistent calyx-lobes triangular-ovate, acute, 1 mm long.

Among those species with verticillate leaves *Polyosma longipetiolata* is strikingly characterized by its glabrous branches; unusually long-petioled, glabrous, entire leaves; and its very unequal bracteoles.

**PITTOSPORACEAE**

**CITRIOBATUS** A. Cunningham

**CITRIOBATUS JAVANICUS** Boerl. & Koord. in Ic. Bogor. 1 (1901) t. 77.


With the exception of this one species the small genus *Citriobatus* is confined to Australia. The Philippine specimens were distributed unidentified, as without flowers I could not determine the group to which they belonged. I am now, however, able to name the material by a direct comparison with a series of five specimens from Java, including duplicates of three numbers of Koorders's collection on which the species was based. The Philippine specimens agree with the Javan ones in all respects.

**PITTOSPORUM** Banks

**PITTOSPORUM PSEUDOSTIPITATUM** sp. nov.

A glabrous shrub, about 3 m high, the branches and branchlets slender, terete. Leaves verticillate, usually 3 or 4 at a node, coriaceous, narrowly lanceolate, 4 to 6 cm long, 6 to 13 mm wide, narrowed below to the acute or acuminate base and above to the very slenderly acuminate apex, the tip with a distinct cartilaginous mucro, the upper surface olivaceous to black when dry, shining; lateral nerves slender, scarcely more distinct than are the reticulations; petioles about 5 mm long. Fruits fascicled at the tips of the branchlets, 2 to 4 in a fascicle, their pedicels slender, about 1 cm long, the capsule obovoid, black when dry, 2-valved, the lower part narrowed into a distinct pseudostalk, the thickened portion of the capsule 6 to 7 mm long, about 6 mm in diameter, the entire capsule, including the pseudostalk, about 1 cm long.

This species is readily distinguished by its narrowly lanceolate, very sharply acuminate and cartilaginous-mucronate leaves as well as by its terminal, fascicled fruits, these being obovoid and much narrowed below the middle to form a very distinct pseudostalk.

**Pittosporum Acuminatissimum** sp. nov.

Frutex epiphyticus vel pseudo-epiphyticus, glaber, ramulis tenuibus; foliis chartaceis, oblongis ad oblongo-ellipticis, nitidis, tenuiter acute acuminatis, usque ad 8 cm longis, nervis utrinque 7 ad 9, tenuibus; inflorescentiis solitariis, lateralibus et terminalibus, brevibus, 3-floris; floribus circiter 12 mm longis, ovario dense villoso; fructibus leviter compressis, 2-valvis, ellipsoideis, circiter 23 cm longis, valvis crasse carnoso-coriaceis, in siccitate rugosis.

An epiphytic or pseudoepiphytic shrub, entirely glabrous except the densely pubescent ovaries, the ultimate branches slender, 2 to 3 mm in diameter. Leaves chartaceous, oblong to oblongo-elliptic, brownish-olivaceous when dry, 5 to 8 cm long, 2 to 4 cm wide, the apex sharply and slenderly acuminate, base acute; lateral nerves 7 to 9 on each side of the midrib, slender as are the reticulations; petioles 2 to 3 cm long, slender. Inflorescences usually solitary, lateral, rarely terminal, usually 3-flowered, their peduncles 5 mm long or less, the pedicels 5 to 10 mm long. Calyx shallowly cup-shaped, about 4 mm in diameter, the lobes broadly ovate, obtuse, 1.5 to 1.8 mm long. Petals 5, narrowly oblong, 11 mm long, 3.5 mm wide, obtuse. Filaments 4 to 4.5 mm long. Ovary oblong-ovoid, densely villous; style glabrous, 1.5 mm long. Capsules ellipsoid, somewhat compressed, 2-valved, about 2.3 cm long, 1.8 cm wide, the valves thick, fleshy-coriaceous, rugose when dry.


This form has the same habit as *Pittosporum resiniferum* Hemsl. and is manifestly closely allied to that species. It differs in its smaller leaves and its usually solitary, lax, few-flowered inflorescences; in Hemsley’s species the flowers are borne in dense fascicles, while in the present species they are in depau-perate, 3-flowered, usually solitary cymes.

**Pittosporum Glaberrimum** sp. nov.

Frutex glaberrimus, ramulis tenuibus; foliis verticillatis, 3-vel 4-natis, oblongo-lanceolatis, utrinque angustatis, acutis vel leviter acuminatis, nervis utrinque 6 vel 7, tenuibus, distinctis;
capsulis terminalibus, solitariis, ellipsoideis vel obovoideis, 2-valvis, 2.5 cm longis, pedicellis 1 cm longis.

An entirely glabrous shrub, about 3 m high, the ultimate branchlets slender, terete, about 1.5 mm in diameter. Leaves verticillate, usually 3 or 4 at a node, oblong-lanceolate, shining subcoriaceous, those of each whorl more or less unequal, 3 to 6 cm long, 1 to 2 cm wide, subequally narrowed below to the acute base and above to the acute or slightly acuminate apex; lateral nerves slender, distinct, 6 or 7 on each side of the midrib, anastomosing, the reticulations lax; petioles 3 to 5 mm long. Capsules terminal, solitary, ellipsoid to somewhat obovoid, 2-valved, about 2.5 cm long, 1.5 to 2 cm in diameter, black when dry, orange-yellow when fresh, their pedicels about 1 cm long.

LUZON, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33309 Ramos, August 21, 1918, on forested slopes, altitude about 1,000 meters.

The alliance of this species is apparently with *Pittosporum odoratum* Merr., from which it is at once distinguishable by its solitary terminal fruits.

**ROSACEAE**

**PHOTINIA** Lindley


LUZON, Benguet Subprovince, Pauai, Bur. Sci. 4425 Mearns, Bur. Sci. 31560 Santos, Sandkuhl 258, altitude about 2,300 meters, in flower May to July, in fruit in February, Igorot name *itangan*.

This species has not previously been reported from the Philippines. The specimens cited above conform very closely with our series from Formosa, and from Kwangtung, Fokien, and Yunnan Provinces, China.

**CONNARACEAE**

**CONNARUS** Linnaeus

**CONNARUS CASTANEUS** sp. nov.

Frutex scandens, perspicue castaneo-pubescentibus; foliis circiter 30 cm longis, foliolis plerumque 7, coriaceis, oblongo-ellipticis, leviter acuminatis, 11 ad 18 cm longis, subtus densissime ferrugineo-pubescentibus; infructescentiis paniculatis, terminalibus, usque ad 25 cm longis, folliculis obovatis, compressis, leviter inaequilateralibus, 6 cm longis, extus densissime castaneo-pubescentibus, intus leviter villosis.

A scandent shrub, the branchlets, petioles, infructescences,
and fruits densely castaneous-pubescent, the leaflets beneath densely ferruginous-pubescent. Leaves about 30 cm long, the leaflets usually 7, alternate, coriaceous, oblong-elliptic, somewhat acuminate, base rounded, 11 to 18 cm long, 5 to 7 cm wide, the upper surface greenish, more or less pubescent with deciduous pale hairs; lateral nerves usually 7 on each side of the midrib, prominent on the lower surface, anastomosing, the reticulations rather lax; petiolules 5 to 8 mm long, densely castaneous-pubescent. Panicles terminal, in fruit up to 25 cm long, the primary branches up to 15 cm long. Fruits compressed, obovate, slightly inaequilateral, about 6 cm long and 4 cm wide, externally very densely castaneous-pubescent, inside sparingly villous with pale hairs.

Luzon, Camarines Province, Paracale, Bur Sci. 33600 Ramos & Edano, November 30, 1918, in damp forests at low altitudes, the fruits red, the lower surface of the fresh leaves red.

A species strongly characterized by the dense castaneous indumentum on the branchlets, petioles, infructescences, and fruits; and by the leaflets being densely ferruginous-pubescent on the lower surface and reddish-brown in contrast with the green upper surface. The indumentum is composed entirely of simple hairs.

ROUERA Aublet

ROUERA LUZONIENSIS sp. nov.

Frutex scandens, glaber; foliis circiter 10-foliolatis, 8 ad 12 cm longis, foliolis 2 ad 4 cm longis, subcoriaceis, ovatis ad oblongo-ellipticis, obtusis vel obscure breviterque acuminatis, basi plerumque rotundatis; infructescentiis axillaris, solitariis, racemosis, 8 ad 10 cm longis, fructibus paucis, tenuiter pedicellatis, subaequilateralibus, oblongo-ovoideis, 8 ad 10 mm longis.

A scandent glabrous shrub, about 3 m high. Leaves 8 to 12 cm long, about 10-foliolate; leaflets subopposite and alternate, subcoriaceous, ovate to oblong-elliptic, 2 to 4 cm long, 1.2 to 2.3 cm wide, base rounded, usually somewhat inequilateral, apex obtuse to shortly acuminate, both surfaces rather pale when dry, shining. Inflorescences axillary, solitary, racemose, 8 to 10 cm long, few-flowered. Fruits oblong-ovoid, nearly equilateral, acute or slightly apiculate, 8 to 10 mm long, their pedicels 6 to 10 mm long. Persistent sepals broadly ovate, glabrous, the outer ones acute or slightly acuminate, the inner ones broadly rounded, about 3.5 mm long.

Luzon, Camarines Province, Paracale, Bur. Sci. 33534 Ramos & Edano, November 29, 1918, in dry thickets at low altitudes.
This species is allied to *Rourea erecta* (Blanco) Merr., from which it is especially distinguished by its fewer, differently shaped, not slenderly acuminate leaflets; and its smaller, nearly equilateral, slenderly pedicelled fruits which are racemously arranged.

**LEGUMINOSAE**

**TRIFIDACANTHUS** Merrill


Pods straight, about 2 cm long, usually composed of three or four 1-seeded joints, flat, thin, reticulate, sparingly pubescent, the upper suture nearly straight, slightly indented between the joints, the lower suture rather deeply indented; joints usually 6 to 7 mm long, about 4 mm wide, the valves chartaceous or thinly coriaceous.


The original description of this new genus and species was based on flowering specimens, but the second collection, and this from the type locality, shows that I was correct in placing it in the *Papilionatae-Hedysareae-Desmodiinae*, the *Desmodiinae* being indicated in the original description with doubt. It is manifestly most closely allied to *Desmodium*, from which, among other characters, it is distinguished by its characteristic spines.

**INDIGOFERA** Linnaeus


*Indigofera pusilla* Lam. Encycl. 3 (1789) 248.


India to southeastern China, tropical and South Africa, and Madagascar: not previously reported from the Philippines.

**ORMOSIA** Jackson

**ORMOSIA ORBICULATA** sp. nov. § *Toullichiba, Macrodisca*.

Arbor, ramulis inflorescentiisque ferrugineo-pubescentibus exceptis glabra; foliis usque ad 30 cm longis, rhachibus productis; foliolis 7, subcoriaceis, glabris, oblongis ad oblongo-ellipticis, 8 ad 15 cm longis, apice acuminatis, nervis utrinque circiter 8; panicululis circiter 16 cm longis; floribus numerosis, circiter 2 cm
longis, calycis circiter 8 cm longis; ovulis 2; leguminis suborbicularibus ad ovatis, usque ad 7 cm longis, basi late rotundatis, apice apiculatis, valvis crassis, lignosis; seminibus solitariis, ellipsoideis, exarillatis, 2 cm longis.

A tree, attaining a height of at least 10 m, glabrous except the young branchlets, buds, and inflorescences, which are rather densely ferruginous-pubescent. Leaves up to 30 cm long, the rachis extended beyond the distal pair of leaflets; leaflets 7, subcoriaceous, oblong to oblong-elliptic, pale when dry, somewhat shining, 8 to 15 cm long, 3.5 to 7 cm wide, base acute to rounded, apex distinctly acuminate, the acumen usually blunt; lateral nerves about 8 on each side of the midrib, distinct on both surfaces as are the reticulations; petiolules about 5 mm long. Panicles about 16 cm long, densely ferruginous-pubescent, terminal, the primary branches few, the lower ones up to 6 cm long. Flowers white, about 2 cm long. Calyx externally densely ferruginous-pubescent, about 1.5 cm long, the tube broad, up to 8 mm long and 1 cm wide, the lobes oblong, usually obtuse, about 8 mm long, slightly pubescent inside. Standard broadly obovate, about 2 cm long, the claw stout, 4 to 5 mm long. Filaments glabrous. Ovary stipitate, oblong, very slightly pubescent with scattered hairs, soon becoming glabrous, the stipe stout, about 5 mm long; style glabrous, curved, about 1.3 cm long; ovules 2. Pod thick, woody, suborbicular to ovate, up to 7 cm long and 6 cm wide, base broadly rounded, apex prominently apiculate, the valves up to 1 cm in thickness. Seed solitary, ellipsoid, not arillate, red, shining, about 2 cm long.


This species closely resembles Ormosia macrodisca Baker, of the Malay Peninsula, but the flowers are much larger and the single specimen that I have with seeds shows no basal aril. From Ormosia paniculata Merr. it is at once distinguished by its entirely glabrous leaves.

Ormosia Clementis sp. nov. § Toulichiba, Macrodisca.

Arbor circiter 10 m alta, glabra (inflorescentiis ignotis); foliis circiter 40 cm longis, foliolis 5, rhachibus productis, foliolis chartaceis ellipticis ad oblongo-ellipticis, usque ad 20 cm longis; abrupte acute acuminatis, basi acutis, nervis utrinque 8 ad 10, distinctis; leguminis ligneis, subellipticis, circiter 7 cm longis, apice rotundatis vel obscurissime et late apiculatis vel
acutis; seminibus plerumque 2, exarillatis, coccineis, basi nigris, subellipticis, circiter 2 cm longis, 1.5 ad 2 cm latis, nitidis.

A tree about 10 m high, glabrous (inflorescences unknown). Leaves about 40 cm long, the rachis produced above the upper pair; leaflets chartaceous, rather pale when dry, elliptic to oblong-elliptic, 9 to 20 cm long, 3.5 to 8.5 cm wide, the apex rather abruptly and sharply acuminate, base acute; lateral nerves 8 to 10 on each side of the midrib, distinct, anastomosing. Pods woody, subelliptic, about 7 cm long, brown when dry, the valves recurved after dehiscence, base and apex rounded or the apex obscurely and broadly apiculate or merely subacute. Seeds usually 2, not arillate, crimson, with a black base, subellipsoid, about 2 cm long, 1.5 to 2 cm wide, hard, shining, slightly rugose when dry.

MINDANAO, Lanao District, Camp Keithley, Mrs. Clemens 1139, July, 1907, altitude about 900 meters.

This species is probably most closely allied to Ormosia orbicularata Merr., but the pods are usually 2-seeded and the seeds have a conspicuous black base.

Ormosia Basilanensis sp. nov. § Toilichaba, Macrodisca.

Arbor magna, partibus junioribus et inflorescentiis plus minusve ferrugineo-pubescentibus, ramis circiter 1 cm diametro; foliis circiter 40 cm longis, rhachibus et petiolis et subtus foliolis ad costa ferrugineo-pubescentibus, rhachibus productis; foliolis 9, oblongis ad oblongo-ellipticis, subcoriaceis, 12 ad 17 cm longis, basi acutis, apice acuminatis, nervis utrinoque circiter 8; leguminis orbiculari-ovatis, leviter inaequilateralibus, circiter 7 cm longis, valvis crassis, lignosis, apice breviter crasseque acuminatis; seminibus solitariis, 3 cm longis, ellipsoideis, rubris, nitidis, exarillatis.

A large tree, the younger parts, inflorescences, and leaves more or less ferruginous-pubescent, the leaflets only sparingly pubescent beneath along the midrib, the branches rather stout, about 1 cm in diameter, dark colored when dry, glabrous. Leaves about 40 cm long, the rachis and petioles more or less ferruginous-pubescent with rather long hairs, the rachis prolonged beyond the distal pair of leaflets; leaflets 9, oblong to oblongo-elliptic, subcoriaceous, shining, 12 to 17 cm long, 4.5 to 7 cm wide, subequally narrowed to the acute base and the distinctly acuminate apex; lateral nerves about 8 on each side of the midrib, distinct, ascending; petiolules 5 to 7 mm long. Pods orbicular-ovate, slightly inequilateral, about 7 cm long and wide, base rounded, apex with a short stout acumen, the valves woody,
much thickened, much swollen opposite the solitary seed. Seed about 3 cm long, ellipsoid, red, shining, not arillate.

**BASILAN, Maluno, For. Bur. 17893 Rafael, November 13, 1912, Hollier 508, January, 1904, in forests, altitude about 140 meters.**

This species like the others here described resembles *Ormosa macrodisca* Baker, but the seeds are not arillate. Among the Philippine species it is perhaps most closely-allied to *Ormosa orbiculata*, but the leaflets are more numerous, subequally narrowed at both ends, acute at the base, and sparingly pubescent beneath along the midrib.

**ORMOSIA GRANDIFOLIA** sp. nov. § Toullichiba, Macrodisca.

Arbor circiter 10 m alta, inflorescentiis foliisque plus minusve pubescentibus; foliis circiter 50 cm longis, rhachibus productis; foliolis 7, terminalibus late obovatis, lateralibus ellipticis, 13 ad 17 cm longis, subcoriaceis, apice abrupte obtuseque acuminatis, basi rotundatis, vel terminalibus acutis, nervis utrinque circiter 8; leguminis ellipticis, 6 ad 7 cm longis, apice late rotundatis, valvis crassis, lignosis; seminibus solitariis ellipsoides, coccineis, 3 cm longis, exarillatis.

A tree, about 10 m high, the inflorescences, petioles, and leaflets on the lower surface more or less pubescent, the indumentum on the leaflets obscure. Leaves about 50 cm long, the rachis extended beyond the distal pair of leaflets; leaflets 7, the terminal one broadly obovate, the lateral ones elliptic, 13 to 17 cm long, 8 to 10 cm wide, subcoriaceous, rather pale when dry, shining, the base usually rounded or that of the terminal leaflet acute, apex very abruptly and shortly acuminate; the lateral nerves about 8 on each side of the midrib, prominent; petiolules about 1 cm long. Pods elliptic, 6 to 7 cm long, about 5.5 cm wide, apex broadly rounded, scarcely apiculate, the valves thick, woody, recurved, apparently one-seeded. Seed solitary, ellipsoid, scarlet, shining, somewhat rugose when dry, 3 cm long, 2.2 cm wide, slightly compressed, not arillate.

**LUZON, Camarines Province, Magdoronganon River, For. Bur. 21172 Alvarez, March 23, 1914, in forests near the river, altitude about 100 meters.**

This species manifestly belongs in the same group as *Ormosa orbiculata*, but has much larger, differently shaped leaflets, which are somewhat pubescent beneath; differently shaped pods, which are broadly rounded and scarcely apiculate at their apices; and much larger seeds. The seed is not at all arillate. *Ormosa basilanensis* Merr. differs in its more numerous leaflets and its elliptic pods, which are broadly rounded at their apices.
DESMODIUM Desvaux

DESMODIUM ORMOCARPOIDES DC. Prodr. 2 (1825) 327; Gagnep. in Not. Syst. 3 (1916) 256; Merr. Interpret. Herb. Amb. (1917) 267, non auct. plur.

Desmodium ormocarpoides Desv. in Mém. Soc. Linn. Paris 1825 (1826) 307, non auct. plur.

Hedysarum adhaerens Poir. in Lam. Encycl. Suppl. 5 (1817) 15, non Vahl.

Desmodium dependens Blume ex Miq. Fl. Ind. Bat. 1 (1855) 248.

Jolo, Tagasip, F. L. Rola 118, May 27, 1917, in teak forests at low altitudes.

This Malayan species is new to the Philippines, the specimens agreeing perfectly with material from Celebes and Amboina. As Gagnepain notes all modern botanists have misinterpreted Desmodium ormocarpoides DC., an examination of the type showing that it is the form described by Blume as Desmodium dependens. Desmodium ormocarpoides of modern authors, including the Philippine specimens previously so named, is Desmodium zonatum Miq.

GERANIACEAE

ERODIUM L'Héritier


Luzon, Benguet Subprovince, Pauai, Bur. Sci. 31669 Santos, May 9, 1918, in waste places, altitude about 2,300 meters. A weed of wide distribution in temperate regions, unquestionably an introduced plant here.

RUTACEAE

EVODIA Forster

EVODIA MELIAEFOLIA (Hance) Benth. Fl. Hongk. (1861) 58.


Luzon, Benguet Subprovince, Pauai, Bur. Sci. 31968 Santos, June, 1918, altitude 1,800 meters, with the local name galiuyguiuan. Negros, Cuernos Mountains, Elmer 10120 (type of Eurycoma dubia Elml.).

The second collection of this species in the Philippines induced me to make a critical study of it, as it was perfectly evident that the form described by Mr. Elmer as Eurycoma dubia represented no simarubaceous plant. I cannot distinguish the Philippine form from Evodia meliaefolia Benth., which was previously known from southern Japan, the Liu Kiu Islands,
Formosa, and southern China. It is the only pinnate-leaved *Evodia* known from the Philippines.

**EVODIA SESSILIFOLIOLA** sp. nov.

An arbor usque ad 10 m alta, partibus junioribus inflorescentiisque plus minusve villosis; folii plerumque 3-foliolatis, interdum 1-foliolatis, foliolis chartaceis ad subcoriaceis, sessilibus, oblongo-ovatis, usque ad 20 cm longis, basi cuneatis, apice obtusis, subtus punctatis, nervis utrinque circiter 13, subtus perspicuis; inflorescentiis axillaribus, pedunculatis, usque ad 10 cm longis; floribus 4-meris, petalis circiter 2.5 mm longis.

A tree, 8 to 10 m high, the younger parts and the inflorescences more or less villous, the indumentum grayish, the older parts soon glabrous. Leaves mostly 3-foliolate, sometimes 1-foliolate ones on the same branchlets with the 3-foliolate ones, their petioles 5 to 7 cm long; leaflets sessile, chartaceous to subcoriaceous, brownish or rather pale when dry, somewhat shining, obovate to oblong-ovate, 9 to 20 cm long, 4 to 10 cm wide, the mature ones glabrous, beneath distinctly punctate, apex obtuse to rounded, base of the terminal leaflet usually cuneate, equilateral, of the lateral ones usually obtuse and distinctly inequilateral; nerves about 13 on each side of the midrib, prominent on the lower surface, anastomosing, the reticulations prominent. Inflorescences axillary, peduncled, up to 10 cm long, paniculate, rather many flowered. Flowers white, 4-merous, their pedicels up to 2 mm in length, densely villous. Sepals oblong, 0.5 mm long. Petals ovate, about 2.5 mm long. Disk densely villous. Fruit of 3 or 4 cocci, glabrous, the individual cocci about 3 mm in diameter.


Among the Philippine species the alliance of this form is with *Evodia semecarpifolia* Merr., and among the extra-Philippine forms with *E. lunur-ankenda* (Gaertn.) Merr. It is distinguished from both by its sessile leaflets. The combination of 3-foliolate and 1-foliolate leaves on the same branchlets is rather unusual in the genus.

**MELIACEAE**

**AGLAIA** Loureiro

**AGLAIA DIFFUSIFLORA** sp. nov. § *Euaglaia*.

An arbor parva, plus minusve brunneo-vel castaneo-lepidotis; foliis alternis, circiter 60 cm longis, 7-foliolatis, foliolis oblongo-
ellipticis, circiter 25 cm longis, chartaceis, obtusis vel obtuse acuminatis, nervis utrinque circiter 16; paniculis diffusis, laxis, foliis subaequantibus, multifloris, ramis inferioribus usque ad 30 cm longis; floribus racemose dispositis, 5-meris, calycis lobis orbicularibus, petalis obovato-ellipticis, 1.4 mm longis, tubo stamineo libero.

A small tree, the branchlets and inflorescences densely covered with closely appressed brown or castaneous scales with similar scattered ones on the lower surface of the leaflets. Leaves alternate, about 60 cm long, 7-foliolate; leaflets alternate or the upper pair opposite, chartaceous, rather pale when dry, oblong-elliptic, somewhat inequilateral, about 25 cm long, 9 to 11 cm wide, the apex obtuse or somewhat obtusely acuminated, base usually rounded on one side and acute on the other; lateral nerves about 16 on each side of the midrib, prominent; petiolules 1.5 to 2.5 cm long. Panicles diffuse, about 50 cm long, the branches spreading, the lower ones up to 30 cm in length, many flowered, the flowers laxly and racemosely arranged on the ultimate branchlets, their pedicels 1 to 2 mm long. Flowers white, 5-merous. Calyx-lobes orbicular, rounded, 0.5 mm in diameter. Petals elliptic-ovate to broadly elliptic, 1.4 mm long. Staminal-tube turbinated, glabrous, about 1 mm long, crenulate, the crenulations minutely puberulent, free, glabrous. Anthers 5, inserted below the rim of the tube, about 0.5 mm long, their tips minutely exserted.

PANAY, Capiz Province, Jamindan, Bur. Sci. 31098 Ramos & Edaño, May 16, 1918, in damp forests.

This species is allied to Aglaia pallida Merr., from which it is distinguished by its larger leaflets, the lepidote indumentum not being at all stellate, and by its very much longer petiolules.

ANACARDIACEAE

SEMECARPUS Linnaeus f.

SEMECARPUS SUBSESSILIFOLIA sp. nov.

Species S. gigantifoliae affinis, differt inflorescentiis terminalibus, inflorescentiis hypocarpiisque cinereo-pubescentes. Frutex vel arbor parva, simplex; foliis oblongo-oblanceolatis, usque ad 50 cm longis et 16 latis, acuminatis, deorsum longe angustatis, basi rotundatis vel obtusis, nervis utrinque 30 ad 35, perspicuis; paniculis circiter 20 cm longis; fructibus oblongis, circiter 1 cm longis.

A shrub or a small unbranched tree, glabrous except the inflorescences. Leaves oblong-oblanceolate, about 50 cm long, 12 to 16 cm wide, firmly chartaceous, shining, the upper surface
olivaceous, the lower pale when dry, apex shortly acuminate, gradually narrowed in the lower two-thirds to three-fourths to the narrow and abruptly rounded or obtuse base, which is at most 2.5 cm wide; midrib very stout, the primary lateral nerves 30 to 35 on each side of the midrib, somewhat curved, anastomosing, prominent, the reticulations rather lax, distinct, the secondary nervules leaving the nerves at about right angles; petioles very stout, about 1 cm long or less, panicles terminal, about 20 cm long, more or less pubescent, the primary branches few, up to 8 cm long. Immature fruits oblong, about 1 cm long, glabrous; hypocarp somewhat turbinate, about 4 mm long, black when dry, cinereous-pubescent.

Panay, Capiz Province, Mount Madiaas, Bur. Sci. 30711 Ramos & Edano, May 12, 1918, in forests.

This species is manifestly allied to Semecarpus gigantifolia F.-Vill. and like that species is unbranched. It differs essentially in its terminal, not cauline, inflorescences which are more or less pubescent and in its distinctly pubescent hypocarps.

**SEMERCARPS FERRUGINEA** sp. nov.

Arbor parva, ramulis inflorescentiisque ferrugineo-pubescentibus; foliis oblanceolatis ad oblongo-oblanceolatis, coriaceis, nitidis, acuminatis, basi angustatis, subtus glaucis, nervis utrinque 12 ad 14, perspicuis; paniculis terminalibus, usque ad 28 cm longis; fructibus oblique ovoideis, glabris, 1.2 cm longis, hypocarpio ferrugineo-pubescentibus.

A small tree, the branchlets, inflorescences, and hypocarps more or less ferruginous-pubescent. Leaves oblanceolate to oblong-oblanceolate, coriaceous, 12 to 16 cm long, 3 to 4.5 cm wide, apex slightly acuminate, somewhat narrowed below to the cuneate or obtuse base, the upper surface brownish-olivaceous, shining, glabrous except the pubescent midrib, the lower surface glaucous, slightly pubescent along the midrib and nerves; lateral nerves 12 to 14 on each side of the midrib, curved, anastomosing, the reticulations rather lax, distinct, the primary nervules leaving the nerves at nearly right angles; petioles stout, 7 to 10 mm long, sulcate on the upper side, pubescent. Panicles terminal, in fruit up to 28 cm long, the rachis and branches densely ferruginous-pubescent, the primary branches few, scattered, the longer ones about 6 cm in length. Fruits obliquely ovoid, glabrous, black and somewhat shining when dry, about 1.2 cm long, the very young ones with a few ferruginous hairs; hypocarps 5 to 7 mm long, ferruginous-pubescent, the indumentum somewhat deciduous; pedicels 5 to 8 mm long.
Panay, Capiz Province, Mount Macosolon, Bur. Sci. 30756 Ramos & Edaño, April 22, 1918, on forested slopes.

This species resembles Semecarpus philippinensis Engl., to which it is manifestly allied, but from which it is easily distinguished by its ferruginous-pubescent panicles and hypocarps.

ONCOCARPUS A. Gray

ONCOCARPUS OBOVATA (Elm.) comb. nov.


Luzon, Tayabas Province, Mount Banahao, Elmer 7931 (type), May, 1907, in fruit; Quisumbing 1346, May, 1918, with staminate flowers.

While it has long been realized by me that the form described by Mr. Elmer could be no dichapetalous plant, no study of it was previously made on account of the incomplete material representing it. Stamineate material from near the type locality shows that it is an anacardiaceous plant and is referable to Oncocarpus. It differs radically from the other Philippine species of this small genus in its very short inflorescences, the staminate ones being reduced to few-flowered, axillary fascicles; the staminate flowers are moreover 5- to 6-merous, with 5 calyx-lobes and 6 petals and stamens. The petals are oblong-lanceolate, reticulate, villous externally, about 3 mm long, 1 to 1.2 mm wide, obtuse or acute; the filaments are unequal in length and glabrous; the rudimentary ovary densely villous. In the type collection, which was distributed as Pterospermum, the single fruit I have seen is 1-celled and 1-seeded, although it is described as 2-celled with one seed in each cell. The pedicel is only slightly thickened in fruit. The alliance of this species is manifestly with Oncocarpus densiflora Merr.

PARISHIA Hooker f.

PARISHIA OBLONGIFOLIA sp. nov.

Arbor, inflorescentiis ferrugineo-tomentosis exceptis glabra; foliis usque ad 40 cm longis, foliolis 15 ad 17, coriaceis, aequilateralibus, oblongis ad oblongo-lanceolatis, acuminatis, usque ad 18 cm longis, nitidis, nervis utrinque circiter 20; infructescentiis quam foliis paullo longioribus, calycis accrescentiis usque ad 10 cm longis, ferrugineo-tomentosis, lobis anguste oblongis, obtusis, usque ad 9 cm longis et 1.5 cm latis, tubo inflato, in siccitate brunneis, fructibus densissime villosis.

A tree, with ultimate branches thickened, rugose, dark-brown, about 1.5 cm in diameter. Leaves up to 40 cm long; leaflets 15 to 17, coriaceous, oblong to oblong-lanceolate, 11 to 18 cm long,
8 to 6 cm wide, acuminate, base acute, shining, brown when dry, the lower surface paler than the other; lateral nerves about 20 on each side of the midrib, distinct; petiolules 7 to 10 mm long. Panicles equal to or longer than the leaves, ferruginous-tomentose. Accrescent calyx up to 10 cm in length, the lobes 4, narrowly oblong, up to 9 cm long, about 1.5 cm wide, obtuse, ferruginous-tomentose, at first membranaceous becoming coriaceous, the inflated base brown when fresh, the lobes more or less pink toward their tips, when dry uniformly brown. Young fruits ovoid, very densely ferruginous-villous with spreading hairs about 2 mm long.

Panay, Capiz Province, Jamindan, Bur. Sci. 31044 Ramos & Edaño, May, 1918 (type); Antique Province, Culasi, Bur. Sci. 32219 McGregor, May 24, 1918, on forested hillsides, altitude 900 meters. The same species is represented by a sterile specimen from Sibuyan Island, For. Bur. 27040 Sajor, November 7, 1917, with the Visayan name bulalog.

This species is the second one of the genus to be found in the Philippines and is readily distinguished from Parishia malabog Merr. by its narrower, differentially shaped, equilateral, more numerousy nerved leaflets and by its ferruginous-tomentose inflorescences and accrescent, much larger calyces, the lobes of which are much wider than the other species of Parishia malabog.

ICACINACEAE

VILLARESIA Ruiz and Pavon

VILLARESIA PHILIPPINENSIS sp. nov.

Arbor parva, inflorescentiis exceptis glabra; foliis crasse coriaceis, rigidis, ellipticis ad elliptico-oblongis, olivaceis, nitidis, usque ad 11 cm longis, integris, acuminatis, basi plerumque leviter inaequilateralibus, acutis, nervis utrinque circiter 4, perspicuis, petiolo 2 ad 3 cm longo; inflorescentiis terminalibus, 5 ad 8 cm longis, solitariis vel binis, ramis brevissimis; floribus circiter 6 mm longis, confertis; fructibus ovoideis, 2.5 ad 3 cm longis, inaequilateralibus.

A small tree, 4 to 5 m high, entirely glabrous except the inflorescences. Leaves thickly coriaceous, rigid, elliptic to elliptico-oblong, olivaceous and shining on both surfaces when dry, 6 to 11 cm long, 3 to 6.5 cm wide, entire, the apex rather prominently acuminate, base usually slightly inequilateral, acute; lateral nerves usually 4 on each side of the midrib, curved-ascending, arched-anastomosing, prominent on the lower surface, the reticulations lax, distinct; petioles black when dry, 2 to 3 cm long. Inflorescences terminal, 5 to 8 cm long, solitary or sometimes
in pairs, narrow, more or less hirsute with short, somewhat ferruginous hairs, the branches numerous, rather crowded, race-mosely arranged, 1 cm long or less, each bearing at the apex 5 to 8, densely crowded, cymosely arranged, sessile flowers. Sepals 5, subelliptic, rounded, imbricate, 1.5 to 2 mm long, sparingly hirsute. Petals 5, narrowly oblong, white, glabrous, 5 to 6 mm long, the tip inflexed, the margins slightly imbricate throughout, prominently keeled inside along the median portion. Filaments free, 5 mm long; anthers broadly ovoid, 1 mm long. Ovary gla-brous, ovoid, 1-celled; ovules 2, pendulous; style glabrous, about 3 mm long; stigma minute, obscurely 2-lobed. Fruit ovoid, glabrous, shining, 2.5 to 3 cm long, distinctly inequilateral, black, the pericarp 1 to 1.5 mm thick. Seed deeply sulcate.

LUZON, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33267 (type), 33308 Ramos, August 20, 1918, on forested slopes, alti-tude about 1,000 meters.

This species is apparently allied to Villaresia suaveolens (Blume) Val., the type of the genus Pleuropetalon Blume and of the genus Chariessa Miq., from which it is perhaps best dis-tinguished by its long petioles; I have seen no specimen of Blume's species and all of the published descriptions are in-complete.

VILLARESIA LATIFOLIA sp. nov.

Arbor alta, inflorescentiis exceptis glabra; foliis crasse coriaceis, nitidis, obovatis ad oblong-obovatis, usque ad 18 cm longis et 11 cm latis, integris, abrupte et brevissime acuminatis, basi acutis ad decurrento-acuminatis, nervis utrinque 5 vel 6, petiolo 1 ad 1.5 cm longo; infructescentiis anguste pyramidatis, 10 ad 15 cm longis, ramis inferioribus usque ad 5 cm longis; fructibus ovoideis, aequilateralibus, 2 cm longis.

A large tree, glabrous except the somewhat hirsute inflores-cences. Leaves thickly coriaceous, shining, obovate to oblong-obovate, 12 to 18 cm long, 6 to 11 cm wide, entire, the apex broad, abruptly and shortly acuminate, base acute to decurrent-acuminate, equilateral; lateral nerves 5 or 6 on each side of the midrib, curved-ascending, anastomosing, the reticulations lax; petioles 1 to 1.5 cm long. Infructescences terminal, solitary, narrowly pyramidal, 10 to 15 cm long, tripinnately paniculate, the primary branches racemosely arranged, numerous, rather crowded, the lower ones up to 5 cm in length, the uppermost ones simple, about 1 cm long. Fruits (not quite mature) ovoid, equi-lateral or nearly so, brown and shining when dry, about 2 cm long. Seed deeply longitudinally sulcate.
SAMAR, Catubig River at Pinipisakan, Bur. Sci. 24557 Ramos, March 21, 1916, in damp forests near the river at low altitudes, with the Visayan name malaampipi, distributed as an unidentified representative of the Menispermaceae.

The type of the genus Villaresia is a tropical American plant, and after a critical study of the two Philippine forms I am in entire agreement with Bentham and with Valeton in reducing to it the genus Chariessa Miquel, which was based on Pleuropetalon Blume (non Pleuropetalum Hook.), the type of which was a Javan specimen. Engler maintains Chariessa as a genus distinct from Villaresia chiefly on the basis that the petals of the latter are imbricate and those of the latter are valvate. Blume described the petals of the Javan form as imbricate, while in Villaresia philippinensis the petals are distinctly although not prominently imbricate throughout. There appears to be no other character by which the two genera can be distinguished. The genus Villaresia has about ten known species in tropical America, one in tropical Africa, one in Java, two in Australia, one in Polynesia, and two in the Philippines.

MIQUELIA Meissner

MIQUELIA PHILIPPINENSIS sp. nov.

Frutex scandens, ramulis junioribus hirsutis; foliiis membranaceis, ovatis, 7 ad 11 cm longis, basi late rotundatis et plus minusve cordatis, apice acuminatis, margine integris vel repandis; inflorescentiis 2 axillaribus, pedunculatis, floribus umbellatis dispositis; fructibus immaturis oblongo-ellipsoideis, 1 ad 1.3 cm longis, longe stipitatis.

A scandent shrub, the young branchlets hirsute. Leaves membranaceous, ovate, olivaceous, 7 to 11 cm long, 5 to 9 cm wide, base broadly rounded and usually shallowly cordate, apex somewhat acuminate, margins entire or somewhat repand; lateral nerves 5 or 6 on each side of the midrib, slender, distinct, the basal ones scarcely distinguishable from the others, reticulations lax; petioles pubescent when young, soon becoming glabrous, 3 to 7 cm long. Pistillate inflorescences axillary, their peduncles about 3 cm long, each bearing usually about 7 umbellately arranged flowers, their pedicels 5 mm long, each subtended by a lanceolate, acuminate, sparingly hirsute bracteole, 1 to 1.5 mm long. Sepals oblong, obtuse, 2.5 mm long. Fruits (immature) slightly pubescent, oblong-ellipsoid, 1 to 1.3 cm long, narrowed below into a pseudostalk as long as the fruit proper.

LUZON, Ilocos Norte Province, Burgos, Bur. Sci. 32885 Ramos, August 6, 1918, in rocky forests at low altitudes.
This is the second species of the genus to be found in the Philippines and differs from *Miquelia cumingii* notably in its umbellately arranged, not capitate, pistillate flowers.

**SAPINDACEAE**

**ALLOPHYLUS** Linnaeus

**ALLOPHYLUS STENOPHYLLUS** sp. nov.

Frutex erectus, ramulis foliisque plus minusve pubescens, ramis glabris, lenticellatis; foliiis 5-foliolatis, foliolis chartaceis, angustissime lanceolatis, 5 ad 10 cm longis, 1 ad 1.5 cm latis, tenuiter acuminatis, margine distantier serratis, supra subglabris, subtus ad costa nervisque leviter pubescentibus, subellipsoideis, circiter 5 mm longis.

A small erect shrub, the branches glabrous, brownish, distinctly lenticellate, the branchlets paler and somewhat appressed-pubescent. Leaves palmately 5-foliolate, their petioles 4 to 6 cm long, appressed-pubescent with short hairs; leaflets chartaceous, very narrowly lanceolate, 5 to 10 cm long, 1 to 1.5 cm wide, slenderly acuminate, base decurrent-acuminate, margins rather distantly serrate, the upper surface pale-olivaceous, shining, glabrous or very slightly pubescent especially on the midrib, the lower surface paler, sparingly pubescent on the midrib and nerves, densely bearded in the axils; petiolules of the central leaflets 5 to 10 mm long, the lateral leaflets subsessile. Racemes axillary, solitary, sparingly pubescent, 5 to 7 cm long. Fruits rather numerous, subellipsoid, brown when dry, very slightly pubescent, about 5 mm long.

**GUIOA** Cavanilles

**GUIOA PARVIFOLIOLA** sp. nov.

Frutex, partibus junioribus foliisque plus minusve pubescens; folii 10 cm longis, foliolis plerumque 6, anguste oblongis, obtusis, coriaceis, 2 ad 4 cm longis, 6 ad 15 mm latis, basi angustatis, apice obtusis, vetustioribus supra glabris, nervis utrinque
8 ad 10; capsulis late obovatis, 3-lobatis, circiter 1 cm longis et 1.3 cm latis, lobis late rotundatis, apice retusis apiculatisque. A shrub, the younger parts and the young leaves more or less pubescent, the older leaves glabrous or nearly so, at least on the upper surface. Leaves 10 cm long or less, the rachis and petiolules puberulent; leaflets usually 6, narrowly oblong, coriaceous, 2 to 4 cm long, 6 to 15 mm wide, obtuse, narrowed below to the somewhat decurrent-acuminate base, the upper surface dark-olivaceous, glabrous, the lower surface much paler and, at least when young, more or less pubescent with scattered short hairs; lateral nerves 8 to 10 on each side of the midrib, prominent on the lower surface; petiolules 2 to 5 mm long.Infrauctescences axillary, 3 to 5 cm long, pubescent, the branches few. Capsules broadly obovate, 3-lobed, apex more or less retuse and distinctly apiculate, about 1.3 cm wide and nearly 1 cm long, the lobes broadly rounded, red, glabrous. Seeds obovoid, smooth, shining, about 6 mm long.

Luzon, Ilocos Norte Province, Mount Nagapatan, Bur. Sci. 33187 Ramos, August 8, 1918, on dry slopes, altitude about 700 meters.

The alliance of this species is manifestly with Guioa obtusa Merr., from which it radically differs in its very much smaller, relatively much narrower leaflets.

ELAEOCARPACEAE
ELAEOCARPUS Linnaeus
ELAEOCARPUS ILOCANUS sp. nov. § Dicera.

Arbor parva inflorescentiis densissime ferrugineo-pubescentis; foliis ellipticis ad obovato-ellipticis, glabris, olivaceis, nitidis, 4 ad 7 cm longis, basi acutis, apice breviter obtuse acuminatis, margine distantier apiculato-crenatis, nervis utrinque circiter 7, distinctis; racemis numerosis, solitariis, plerumque e axillis de-foliatis, 5 cm longis; floribus 5-meris, 8 mm longis; sepalis lanceolatis, pubescentibus; petalis glaberrimis, usque ad J laciniatis, laciniae circiter 20; staminibus circiter 25, antheris oblongis, obtusis, apice parce ciliatis; ovario pubescente, 3-locculare; fructibus ellipsoides, 2.5 cm longis, 1-loccellatis.

A tree, about 5 m high, the inflorescences very densely ferruginous-pubescent, the branches terete, glabrous, the very young branchlets either more or less pubescent or glabrous. Leaves elliptic to obovate-elliptic, olivaceous and shining on the upper surface, the lower surface paler, 4 to 7 cm long, 2 to 3.5 cm wide, base acute, apex shortly and obtusely acuminate, margins distantly apiculate-crenate; lateral nerves about 7 on each side.
of the midrib, prominent; petioles glabrous, 1 to 1.3 cm long, racemes numerous, solitary, chiefly from the axils of fallen leaves, about 5 cm long, usually 6- to 10-flowered. Flowers pink, about 8 mm long, 5-merous, their pedicels 5 to 6 mm long, densely pubescent. Sepals lanceolate, 7 mm long, densely pubescent. Petals entirely glabrous, 7 to 8 mm long, cuneate, split to about the middle into three primary divisions, these again divided, the ultimate laciniae about 20, slender. Stamens about 25, filaments 1 to 1.5 mm long, anthers narrowly oblong, 1.5 to 1.8 mm long, minutely scabrid, the cells slightly unequal, obtuse, sparingly ciliate at their tips. Ovary ovoid, densely pubescent, 3-celled. Fruit ellipsoid, about 2.5 cm long, black when dry, one-celled.

**Luzon**, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33271 Ramos*, August 21, 1918, on forested slopes near the summit, altitude about 1,000 meters.

This species somewhat resembles both *Elaeocarpus cumingii* Turcz. and *E. forbesii* Merr., differing radically from the former in its very densely pubescent racemes and sepals and from the latter in its much longer racemes and entirely glabrous petioles.

**SLOANEA Linnaeus**


This species has previously been known only from Java, where it is apparently very rare, as until recently it was known only from trees cultivated in the botanical garden at Buitenzorg; it is now known from Depok, near Buitenzorg, **Koorders 42807**, a duplicate of Koorders’ specimen being before me. The Philippine specimens have somewhat larger and more prominently acuminate leaves than the Javan material, while the fruits are a little larger. In the absence of flowers I can detect no differential characters of sufficient importance to warrant the separation of the Philippine form from the Javan one. The genus is new to the Philippines.
Szyszyłowicz does not make the transfer of *Phoenicospermum javanicum* Miq. to *Sloanea* in his paper “Zur Systematik der Tiliaceen” as indicated by Koorders and Valeton, but merely reduces the genus *Phoenicospermum* to *Sloanea*.

**STERCULIACEAE**

**PTEROSPERMUM** Schreber

**PTEROSPERMUM MEGLANTHUM** sp. nov.

Arbor parva, subtus foliis et ramulis et inflorescentiis densissime ferrugineo-stellato-tomentosis; foliis oblongis, inaequilateralibus, integris, acuminatis, supra glabris, nitidis, usque ad 15 cm longis; inflorescentiis plerumque 2-floris, floribus longe pedicellatis, circiter 6.5 cm longis; sepalis anguste lanceolatis, 6 cm longis et 1 cm latis; petalis oblique obovatis, 3 cm latis, quam sepalis paullo longioribus.

A tree, 7 to 8 m high, the branchlets, petioles, inflorescences, and the lower surface of the leaves densely stellate-tomentose with ferruginous hairs. Branches at first stellate-pubescent, soon becoming glabrous, nearly black when dry. Leaves inequilateral, oblong, chartaceous to subcoriaceous, 9 to 15 cm long, 3 to 6.5 cm wide, entire, or the margins obscurely undulate, rather sharply acuminate, the upper surface olivaceous, glabrous and shining when dry, the basal lobe of the broader side broadly rounded, of the narrower side rounded to acute, the leaf somewhat obliquely cordate; lateral nerves about 6 on each side of the midrib, excluding those extending into the broader basal lobe; petioles densely ferruginous-stellate-pubescent, 5 to 10 mm long. Inflorescences in the uppermost axils and subterminal, usually 2-flowered, the peduncles 1.5 cm long or less, the pedicels in anthesis 3 to 4 cm long, densely ferruginous-pubescent; bracts linear-lanceolate, entire, deciduous. Flowers white, fragrant, about 6.5 cm long, 5-merous. Sepals coriaceous, narrowly lanceolate, about 6 cm long, 1 cm wide, slightly acuminate, externally densely ferruginous-stellate-pubescent, inside densely subpressed fulvous-hirsute. Petals obliquely obovate, membranaceous, glabrous, about 6.5 cm long, 3 cm wide. Staminal column glabrous, 1.5 cm long. Staminodes 3 cm long. Filaments and anthers each 1.5 cm long, sometimes 2, sometimes 3 between each pair of staminodes. Ovary ovoid, densely ferruginous-villous; style glabrous, 3 cm long.

April 7, 1916, along streams in open forests, altitude about 100 meters.

This species has almost exactly the vegetative characters of *Pterospermum blumeanum* Korth. (*P. javanicum* Jungh.) and the second specimen cited above, which has only immature buds, was originally so identified. While it is manifestly closely allied to Korthals's species, it differs remarkably in its larger flowers, somewhat longer and much broader sepals, and in its much larger petals, which exceed the sepals in length.

**DILLENIACEAE**

**DILLENIA** Linnaeus

**DILLENIA MEGALOPHYLLA** sp. nov. § *Wormia*.

Arbor, inflorescentiiis exceptis glabra, ramulis ultimus 1.5 ad 2 cm diametro; foliis coriaceis, ovatis ad elliptico-ovatis, usque ad 1 m longis, apice rotundatis, basi angustatis, margine undulatis vel obscure dentatis, nervis utrinque 15 ad 18, perspicuis, lamina decurrente, basi conduplicatis; inflorescentiiis axillaribus, longe pedunculatis, paucifloris, circiter 40 cm longis, dense pubescentibus; sepalis coriaceis, obovatis ad late ellipticis, 3 cm longis, extus molliter dense fulvo-pubescentibus; carpellis plerumque 8.

A tree, about 7 m high, nearly glabrous except the inflorescences, the ultimate branches 1.5 to 2 cm in diameter. Leaves coriaceous, ovate to elliptic-ovate, up to 1 m long and 60 cm wide, apex rounded, base gradually narrowed, margins somewhat undulate and obscurely toothed, glabrous on both surfaces, what is apparently the petiolar part of the leaf with the lamina continuous but with much slenderer nerves than the leaf proper, extending to the very base of the petiole, conduplicate, the upper surface for a distance of about 2.4 cm on each side of the midrib closely appressed and with a modified, brown, apparently absorbent epidermis, this region in some leaves inhabited by colonies of ants, the lower surface of this conduplicate area rather softly pubescent; lateral nerves above the modified petiolar part of the lamina very prominent, 15 to 18 on each side of the midrib. Inflorescences in the uppermost axils, long-peduncled, few-flowered, sparingly branched above, about 40 cm long, densely and softly pubescent; pedicels 3 to 5 cm long. Sepals coriaceous, obovate to broadly elliptic, rounded, concave, about 3 cm long, softly and densely fulvous-pubescent externally. Petals not seen. Stamens apparently equal or subequal. Carpels usually 8, glabrous, not twisted, the styles up to 3 cm long. Immature carpels coriaceous, about 3 cm long, apparently purplish, dehiscent; ovules about 11 in each carpel; immature seeds with a small basal aril.
LUZON, Ilocos Norte Province, between Bangui and Claveria, Bur. Sci. 33034 Ramos, August 21, 1918, in forests near the sea at low altitudes.

This species is remarkable for its exceedingly large leaves, which attain at least 1 meter in length. It belongs in the group with Dillenia suffruticoso Grieff. and like that species has a portion of the upper surface of the decurrent basal part of the lamina conduplicate and supplied with a modified, apparently absorbent, epidermal tissue. Among the Philippine species it is most closely allied to Dillenia papyracea Merr., of Basilan, from which it is readily distinguished by its very much larger leaves, softly pubescent inflorescences and sepals, and fewer carpels.

SAURAUIA Willdenow

SAURAUIA SANTOSII sp. nov.

Arbor 7 ad 9 m alta, S. eleganti affinis, differt floribus majoribus, 1.5 ad 2 cm diametro, confluitis, foliis subtus densissime fulvo-ferruginoso-lanatis.

A tree, 7 to 9 m high, the branches brown, setose, and densely ferruginous-tomentose, the setae comparatively few, filiform, 4 to 7 mm in length, ascending. Leaves thickly coriaceous, rigid, oblong, 13 to 18 cm long, 5.5 to 7 cm wide, obtuse, the base rounded, cordate, often somewhat oblique, the margins with small, thick, rounded teeth, these often terminating in filiform, deciduous setae, the upper surface brown, glabrous, shining, rugose-pustulate, the nerves impressed, the lower surface very densely fulvous-ferruginous-lanate, the indumentum covering the whole surface, midrib, and nerves, the midrib and nerves also with few, scattered, filiform setae; lateral nerves 25 to 30, prominent, projecting; petioles 2 to 4 cm long, setose and tomentose. Inflorescences axillary, long-peduncled, cymose, the flowers crowded, the peduncles 10 to 12 cm long, densely tomentose and rather sparingly setose, the cymes compact, 4 to 5 cm in diameter. Flowers white, 1.5 to 2 cm in diameter, their pedicels up to 5 mm in length, setose and tomentose. Sepals broadly ovate, obtuse or rounded, 5 mm in diameter, the outer ones thickly coriaceous, densely villous and setose, the setae slender, up to 2 mm in length, the inner ones thinner, rather sparingly villous and not setose. Petals oblong-obovate, rounded, about 11 mm long and 7 mm wide. Ovary glabrous; styles 2, free to the base, 4 mm long.

LUZON, Benguet Subprovince, Pauai, Bur. Sci. 31937 Santos, May 16, 1918, on slopes, altitude about 2,200 meters.

This species is manifestly allied to Saurauia elegans (Choisy)
F.-Vill., from which it is readily distinguished by its dense indumentum, its compact cymes, and its much larger flowers. The two styles are constant in all the flowers examined, *Saurauia elegans* normally having three styles, although in some flowers they are reduced to two.

**FLACOURTIACEAE**

**HOMALIUM Jacquin**

*HOMALIUM RAMOSII* sp. nov. § *Myriantheia.*

Arbor, inflorescentis exceptis glabra; foliis oblongis ad oblongo-ellipticis, subcoriaceis, integris nitidis, 6 ad 10 cm longis, basi acutis, apice obtuse acuminatis, nervis utrinque circiter 7; inflorescentiiis axillaribus terminalibusque, racemosis vel depauperato-paniculatis, usque ad 10 cm longis; floribus fasciculatis, 5-meris, 6 ad 7 mm diametro, petalis oblongis ad oblongo-obovatis; staminibus 15.

A small tree, glabrous except the inflorescences, the branches terete, brownish. Leaves oblong to oblong-elliptic, subcoriaceous, shining, entire, 6 to 10 cm long, 3 to 4.5 cm wide, subequally narrowed to the acute base and acuminate apex, the acumen blunt, short; lateral nerves about 7 on each side of the midrib, arched, anastomosing, distinct as are the reticulations; petioles 5 to 8 mm long. Racemes axillary and terminal, solitary or forming sparingly branched inflorescences, the individual ones up to 10 cm long, cinereous-pubescent, the flowers mostly fascicled at the nodes, usually 2 or 3 in a fascicle, their pedicels 3 to 4 mm long, jointed with the calyx; bracteoles narrowly lanceolate, about 2 mm long. Flowers white, 5-merous, 6 to 7 mm in diameter. Sepals and petals about 2.5 mm long, pubescent, rather densely so inside, oblong to narrowly oblong-obovate. Stamens 15, three opposite each petal, their filaments about 2 mm long, glabrous. Ovary very densely pubescent, styles about 1.8 mm long, villous below.


This species has much the vegetative characters of *Homalium multiflorum* Merr. but belongs in a different section of the genus and is most closely allied to *H. samarense* Merr., from which it differs in its much shorter indumentum on its inflorescences; its smaller flowers, which are fascicled and not solitary along the racemes; and its entire leaves. In the present species occasional leaves are found presenting very few greatly reduced marginal teeth, but most of the leaves are quite entire.
BEGONIACEAE

BEGONIA Collisiae sp. nov. § Diplodinium.

Herba, pedunculis foliisque utrinque ad nervis plus minusve ferrugineo-villosis; foliis longe petioliatis, in ambitu late ovatis, usque ad 20 cm longis, inaequilateralibus, basi lateraliter cordatis, apice leviter acuminatis, profunde subpalmatim lobatis, lobis numerosis, oblongis, 2 ad 5 cm longis, irregulariter et grosse dentato-serratis vel lobulatis; inflorescentiis longe pedunculatis, dichotome ramosis, parce glandulosis, paucifloris; floribus circiter 3 cm diametro; sepalis late ovatis, circiter 11 mm latis; petalis sepalis aequantibus, 6 ad 7 mm latis.

An herb, from short, rather stout, prostrate rhizomes about 1 cm in diameter. Leaves long-petioled, in outline broadly ovate, 15 to 20 cm long, 10 to 15 cm wide, when dry submembranaceous, the upper surface olivaceous, somewhat shining, the lower brownish, both surfaces more or less ferruginous-villosous on the nerves, when fresh the nerves beneath red, inequilateral, subpalmately and conspicuously lobed, the lobes oblong; 2 to 5 cm long, 2 to 3 cm wide below, all acute or acuminate and irregularly and coarsely dentate-serrate or lobulate, the primary lobes usually about 10, the base of the leaf laterally cordate, the sinus narrow, 2 to 4 cm deep, the basal lobes broadly rounded, often overlapping; petioles brown when dry, ferruginous-villosous. Peduncles nearly glabrous, up to 20 cm in length, the younger parts sparingly glandular, dichotomously branched at the apex, the primary branches about 4 cm long, few-flowered. Staminate flowers pink and white, about 3 cm in diameter. Sepals broadly ovate, about 14 mm long, 11 mm wide, rounded, with few, small, widely scattered, brown glands. Petals oblong-obovate, as long as the sepals, 6 to 7 mm wide. Stamens many, the anthers narrowly obovoid, 0.8 mm long, equaling or shorter than the filaments. Pistillate flowers and fruits unknown.


This species is remarkably distinct from all previously described Philippine ones in the section Diplodinium, and is strongly characterized by its deeply lobed leaves, the lobes being usually about 10 in number, up to 5 cm in length, and coarsely and irregularly toothed and lobulate.

BEGONIA Lancilimba sp. nov. § Diplodinium.

Herba glaberrima; foliis longe petioliatis, membranaceis, oblongis ad oblongo-lanceolatis, sub-aequilateralibus, usque ad
13 cm longis, basi rotundatis, leviter cordatis, apice tenuiter caudato-acuminatis, margine irregulariter dentatis; petiolo 15 cm longo; inflorescentiis foliis subaequantibus, paucifloris; floribus ♂ circiter 3 cm diametro.

An entirely glabrous herb, the rhizomes creeping, simple, about 5 mm in diameter, supplied with numerous, lanceolate, caudate-acuminate, brown stipules, 1 to 1.5 cm in length. Leaves pale-green on both surfaces when fresh, when dry membranaceous, somewhat shiny, oblong to oblong-lanceolate, nearly equilateral, 7 to 13 cm long, 2.5 to 4 cm wide, base rounded and very slightly cordate, narrowed upward from the lower one-third to the slenderly caudate-acuminate apex, the margin irregularly toothed, a few of the teeth rather large, most of them small; basal nerves about 8 ascending, a few lateral nerves leaving the midrib at and above the middle; petioles about 15 cm long. Peduncles of the staminate inflorescences 19 to 24 cm long, usually with 2 short branches at the apex, each bearing about 2 relatively large white flowers about 3 cm in diameter. Sepals 2, oblong-elliptic rounded, about 1.8 mm long, 10 mm wide. Petals narrowly oblong, equaling the sepals, 3 to 3.5 mm wide, rounded. Stamens about 35, the anthers oblong, about 1.5 mm long; filaments about 1 to 2 mm long.

**Panay, Antique Province, Culasi, Bur. Sci. 32232 (type), 32570, 32286 McGregor, June 14 and July 14, 1918, on forested slopes, altitude 900 to 1,000 meters.**

This species is not closely allied to any previously described Philippine form and is very strongly characterized by being entirely glabrous; by its nearly equilateral, oblong-lanceolate to lanceolate, caudate-acuminate leaves which are slightly cordate at the base; by its long peduncles; and its few, comparatively large, white flowers.

**Begonia obtusifolia** sp. nov. § *Diploclinium.*

Herba prostrata, petiolis et subtus foliis ad nervis adpressae ferrugineo-pubescentibus; foliis longe petioltatis, oblongis, inaequilateralibus, 7 ad 10 cm longis, apice obtuse rotundatis, basi leviter oblique cordatis, margine late lobatis vel undulatis, lobis rotundatis; inflorescentiis quam foliis longioribus, paucifloris; floribus ♂ circiter 3 cm diametro; capsulis aequaliter 3-alatis, junioribus circiter 14 mm latis et 10 mm longis, apice subtruncatis, basi rotundatis.

Rhizomes slender, creeping, the petioles and nerves on the lower surface of the leaves appressed ferruginous-pubescent.
Leaves oblong to oblong-ovate, distinctly inequilateral, 7 to 10 cm long, 3.5 to 4.5 cm wide, the upper surface glabrous, somewhat shiny, somewhat narrowed upward to the obtusely rounded apex, the base somewhat obliquely cordate, the sinus shallow, narrow, the margin on the narrower side usually with 1 or 2 short obtuse lobes, on the broader side with from 2 to 4 similar lobes or undulations; basal nerves usually 6, slender, distinct; petioles slender, 10 to 13 cm long. Peduncles 18 to 24 cm long, glabrous, dichotomously branched at the apex, the primary branches up to 3 cm in length, few-flowered. Flowers pink, the sepals of the staminate ones broadly ovate, rounded, about 14 mm long, 11 mm wide. Petals equaling the sepals, narrowly oblong, 4 mm wide. Pistillate flowers as large as the staminate ones, the young capsules equally 3-winged, about 14 mm wide and 10 mm long including the wings, base rounded, apex somewhat truncate.

**Panay, Capiz Province, Mount Macosolon, Bur. Sci. 30803, Ramos & Edaño, April 19, 1918,** on stones in damp forests.

In the form and characters of its leaves this species is remote from all other described ones of the section and is easily recognized by its usually oblong, rounded, obtuse leaves, which have a few short rounded lobes or undulations on each side.

**Begonia rubrifolia** sp. nov. § *Diploclinium.*

Herba prostrata, rhizomate brevibus, petiolis et subitus foliis ad nervis plus minusve ferrugineo-lanatis; foliis integris, inequilateralibus, late ovatis, chartaceis, in siccitate utrinque rubris, in vivo supra viridis, subitus rubris, usque ad 9 cm longis, basi lateraliter cordatis, palmatim 8-nervis, nervis conspicuis, apice late acutis; infructescentiis 20 ad 30 cm longis, quam foliis multo longioribus, dichotome ramosis; capsulis paucis, inaequaliter 3-alatis, circiter 12 mm longis et 2.3 mm latis, apice truncatis, basi rotundatis.

A prostrate herb, the rhizomes short, stout, brown, glabrous. Leaves chartaceous, when fresh green on the upper surface, red beneath, when dry uniformly reddish-purple on both surfaces, the upper surface glabrous, the lower densely white- or grayish-punctate, rather densely ferruginous-lanate on the nerves, broadly ovate, inequilateral, entire, 8 to 10 cm long and nearly as wide, the apex broadly acute, base laterally cordate and palmately 8-nerved, the nerves conspicuous, margins ciliate, the sinus narrow, basal lobes broadly rounded; petioles sparingly ferruginous-lanate, 7 to 11 cm long; stipules oblong-ovate, some-
what ciliate, about 1 cm long, and with a few fimbriate-ciliate paleae. Inflorescences long-peduncled, 20 to 30 cm long, nearly glabrous, dichotomously branched at the apex of the peduncle, the primary branches about 5 cm long. Capsules few, including the wings about 12 mm long and 23 mm wide, inequally 3-winged, one wing about twice as large as the other two, the apex subtruncate, base broadly rounded, the outer upper angles of the wings rounded or obtuse.

Panay, Antique Province, Culasi, Bur. Sci. 32430 McGregor, June 7, 1918, altitude about 1,000 meters.

This species is allied to Begonia copelandii Merr. and B. alvarezii Merr., but its indumentum is very different from both. The leaves are characteristically reddish-purple on both surfaces when dry.

Begonia Serpens sp. nov. § Diploclinium.

Herba prostrata, repens, leviter ciliatis, internodiis 1 ad 3 cm longis; foliis breviter petiolatis, irregulariter rhomboideis, inaequilateralibus, 1.5 cm diametro, basi leviter cordatis, apice acutis vel acuminatis, margine irregulariter lobatis; inflorescentiis paucifloris, circiter 3 cm longis; floribus ♂ circiter 1.5 cm diametro.

A very small, slender, prostrate, sparingly appressed-ciliate herb, the rhizomes 2 mm or less in diameter, attaining a length of at least 25 cm. Leaves irregularly rhomboid, inequilateral, base more or less cordate, apex shortly acuminate, 1.5 to 2.5 cm in diameter, margins shallowly and irregularly lobed, the upper surface usually mottled with gray, glabrous, the lower surface sparingly ciliate on the nerves with appressed brown hairs, the margins more or less ciliate with short spreading hairs; petioles 1 to 1.5 cm long, sparingly ciliate; stipules brown, 5 to 6 mm long, oblong-ovate, with a long slender tip. Peduncles slender, about 3 cm long, usually 2-flowered. Staminate flowers usually pink, about 1.5 cm in diameter. Sepals broadly obovate, rounded, 7 to 8 mm long, 6 to 7 mm wide. Petals equaling the sepals, oblong-ovate, rounded, 4 mm wide. Stamens about 35; anthers oblong-ovoid, 0.8 mm long; filaments 1 mm long or less.

Panay, Antique Province, Culasi, Bur. Sci. 32588 (type), 32541 McGregor, May and June, 1918, on damp forested slopes, altitude 500 to 900 meters.

This species is as closely allied to Begonia nigritarum Steud. as to any other but is readily distinguished by its smaller leaves, short petioles, and short, very few-flowered inflorescences as
well as by its very slender, greatly elongated rhizomes; the internodes vary from 1 to 3 cm in length.

**Begonia Panayensis** sp. nov. § Petermannia.

Herba suffruticosa, erecta, ramosa, glabra, circiter 1.5 m alta; foliiis in siccitate membranaceis, nitidis, oblongis, usque ad 20 cm longis, inaequilateralibus, apice angustatis, tenuiter acuminatis, basi rotundatis, hau’d cordatis, margine distanter et irregulariter dentatis; inflorescentiis terminalibus, cymoso-paniculatis, usque ad 17 cm longis; floribus ad numerosis, circiter 1.5 cm diametro; sepalis orbicularis, 7 ad 8 mm diametro; petalis 0; capsulis ellipticis vel obovato-ellipticis, circiter 2.5 cm longis et 2 cm latis, aequaliter 3-alatis, apice truncato-rotundatis, basi vix angustatis, rotundatis.

An erect, branched, glabrous, suffrutescent herb, about 1.5 m high, the stems and branches stout. Leaves when dry membranaceous, shining, inequilateral, oblong, 16 to 20 cm long, 4 to 6 cm wide, narrowed upward to the slenderly acuminate apex and somewhat narrowed below to the rounded base, or the narrower side of the lamina acute and the broader side rounded, not at all cordate, margins distantly and irregularly dentate, or that of the narrower side often nearly entire except near the apex; nerves prominent, ascending; petioles stout, 1 to 1.5 cm long; stipules membranaceous, oblong to oblong-lanceolate, acuminate, 1.5 to 2 cm long. Inflorescences terminal, cymose-paniculate, up to 17 cm in length, the staminate flowers numerous, the pistillate flowers apparently few and only at the base of the inflorescence, none present on the type, but represented by mature capsules. Staminate flowers pink, about 1.5 cm in diameter. Sepals orbicular, 7 to 8 mm in diameter. Petals none. Stamens about 35, the anthers narrowly oblong to oblong-ovoid, 1.2 to 1.5 mm long, longer than the filaments. Capsules one or two at the base of the inflorescence, including the three equal wings about 2.5 cm long, 2 cm wide, elliptic to obovate-elliptic, apex rounded-truncate, base scarcely narrowed, usually rounded; pedicels 1.5 to 2 cm long.

Panay, Antique Province, Culasi, *Bur. Sci. 32309 McGregor*, June 8, 1918, in forests along cool mountain streams, altitude about 250 meters.

This unusually robust species is manifestly allied to *Begonia longistipula* Merr., from which it is distinguished by its larger leaves and flowers and by its much larger, differently shaped capsules.
PHALERIA PLATYPHYLLA sp. nov.

Frutex glaber *Phaleria cumingiae* affinis differt foliis multo majoribus, circiter 25 cm longis et 9 ad 11 cm latis, floribus caulinis, fasciculatis.

An entirely glabrous shrub, the branches reddish-brown when dry. Leaves oblong to oblong-ovate, firmly chartaceous, about 25 cm long, 9 to 11 cm wide, brownish-olivaceous when dry, shining, apex slenderly acuminate, base broadly rounded; lateral nerves about 10 on each side of the midrib, distinct; petioles 1 cm long or less. Flowers white, 4-merous, in fascicles on the trunk, about 3 cm long. Perianth-lobes 4, elliptic, rounded, 8 to 9 mm long, 6.5 mm wide. Filaments 8, somewhat exserted. Immature fruit ovoid-ellipsoid, somewhat rostrate, 1.5 cm long.


This species has the vegetative characters of *Phaleria perrot-tetiana* F.-Vill., but the flowers are entirely glabrous and are moreover borne in fascicles on the trunk. It is distinguished from *Phaleria cumingii* F.-Vill. by its much larger leaves and cauline inflorescences.

MYRTACEAE

CLOEZIA Brongniart and Gris

CLOEZIA URDANETENSIS (Elm.) comb. nov.


Moron, Agusan Province, Mount Urdaneta, *Elmer 13694*, September, 1912, on exposed forested ridges in the mossy forest, altitude about 1,700 meters.

The genus *Cloëzia* has hitherto been known only from New Caledonia, where it is represented by six species. The discovery of a representative of it in the Philippines adds another genus to the now remarkable list of genera that are known only from the Philippines and the islands to the south and southeast of the Archipelago, including Celebes and the Moluccas generally, New Guinea, New Caledonia, and northeastern Australia. The present species was described by Mr. Elmer as a representative of the rosaceous genus *Photinia*, but a critical examination of the type collection shows that it agrees even to the most minute details with the myrtaceous *Cloëzia*. In the original description

of Mr. Elmer the stamens are described as "about 10," but I find them to vary from 15 to 20. The ovary is two-thirds to three-fourths superior, 3-celled, each cell with about 6 ovules ascending from the inner basal angle. The apical gland of the anthers, or continuation of the connective, is unusually conspicuous, being longer than the anther-cells. The fruits of the Philippine species are as yet unknown. The leaves are distinctly Eugenia-like and are glandular-punctate.

TRISTANIA R. Brown

TRISTANIA OBLONGIFOLIA sp. nov.

Species T. decorticatae similis, differt foliis junioribus utrinque dense ferrugineo-pubescentibus, inflorescentiis et floribus dense fulvo-pubescentibus, staminibus circiter 35. Arbor circiter 5 m alta, ramis teretibus, glabris; foliis coriaceis, oblongis, in siccitate bruneis, usque ad 9 cm longis, utrinque subaequaliter angustatis, basi cuneatis, apice leviter obtuse acuminatis, nervis primariis utrinque circiter 20, tenuibus; inflorescentiis axillaribus, corymbosis, circiter 3 cm longis; capsulis glabris, subovoideis, circiter 5 mm longis.

A tree, about 5 m high, the older parts glabrous, the younger leaves very densely ferruginous-tomentose on both surfaces, the inflorescences densely fulvous-tomentose. Branches brown, smooth, terete, glabrous, the younger branchlets dark-brown. Leaves oblong, coriaceous, brown when dry, shining, of about the same color on both surfaces, glandular beneath, 6 to 9 cm long, 1.8 to 2.4 cm wide, subequally narrowed to the cuneate base and to the slightly acuminate apex, the tip obtuse or subobtuse; primary lateral nerves about 20 on each side of the midrib, slender, about equally distinct on both surfaces, not much more prominent than are the secondary ones; petioles 5 mm long or less. Inflorescences axillary, about 3 cm long, rather stout, few-flowered, densely fulvous-pubescent. Flowers about 4 mm long, their pedicels stout, pubescent, 1 to 2.5 mm long, the buds ellipsoid. Calyx ovoid, the lobes 5, ovate, obtuse, 1.2 mm long. Stamens in 5 phalanges of about 7 each, inflexed in bud. Infrafruitsesces glabrous, 4 to 5 cm long. Capsules somewhat ovoid, dark-brown, glabrous, about 5 mm long.

Luzon, Tayabas Province, Mount Binuang, Bur. Sci. 28617 Ramos & Edano, May 28, 1917, on forested slopes, altitude at least 400 meters.

In the vegetative characters, other than the very densely ferruginous-tomentose young leaves, this species greatly resembles
Tristania decorticata Merr. It differs remarkably from that species in its densely pubescent, larger flowers and its stamens being arranged in phalanges of about 7 each, not in groups of threes.

MELASTOMATACEAE

MEDINILLA Gaudichaud

MEDINILLA OBLANCEOLATA sp. nov.

Frutex, ramulis et inflorescentiis et foliis subtus ad costa nervisque perspicue setoso-ciliatis; foliis ternatis, breviter petiolatis, chartaceis, oblongo-oblancoelatis, usque ad 38 cm longis, tenuiter acuminatis, deorsum valde angustatis, penninervis, nervis utrinque circiter 6, perspicuis; inflorescentiis lateralibus, circiter 10 cm longis, pedunculatis, cylindraceo-paniculatis, ramis numerosis, circiter 2 cm longis, patulis, dichotomis; floribus 4-meris, petalis oblongo-obovatis, circiter 13 mm longis, staminibus aequalibus.

A shrub, the stems about 2 cm in diameter, the young branchlets, inflorescences, and the midrib and nerves on the lower surface more or less setose-ciliate with long, spreading, pale-brownish hairs, the ciliae up to 5 mm in length. Leaves verticillate, 3 at each node, chartaceous, oblong-oblancoelate, 35 to 38 cm long, about 10 cm wide, the apex slenderly acuminate, narrowed in the lower one-half or two-thirds to the abruptly obtuse base which is 1 cm wide or less; lateral nerves about 6 on each side of the midrib, distant, ascending, somewhat curved, the primary reticulations subparallel, distant, distinct; petioles very stout, 1 cm long or less. Inflorescences lateral from the trunks, about 10 cm long, solitary, peduncled, panicle the primary branches numerous, densely arranged, spreading, about 2 cm long, dichotomous, sparingly ciliate, the bracteoles oblong, about 2 mm long. Flowers 4-merous, red, their pedicels about 5 mm long, petals oblong-obovate, 13 mm long. Stamens 8, equal, their filaments 8 mm long; anthers lanceolate-acuminate, 7 mm long, the dorsal appendage less than 1 mm long, the anterior ones short, curved. Fruit fleshy, glabrous, ovoid or obovoid, truncate, about 1 cm long.


This species is entirely distinct from all hitherto described forms and is strongly characterized by its elongated, ciliate-setose indumentum, which is dense on the young branchlets and scattered on the midrib and nerves; by its ternate, elongated,
oblong-oblanceolate, slenderly acuminate leaves which are much narrowed below and very shortly petaled; and by its cauleine, paniculate, rather dense inflorescences, the panicles being subcylindric in outline.

MEDINILLA HASSELTII Blume in Flora 14 (1831) 513; Cogn. in DC. Monog. Phan. 7 (1891) 586.

Panay, Capiz Province, Jamindan, Bur. Sci. 31215 Ramos & Edaño, May 19, 1918, in forests.
Malay Peninsula, Sumatra, Borneo, and Java; not previously recorded from the Philippines.

MEMECYلون Linnaeus

MEMECYلون RAMOSII sp. nov.

Frutex glaber, circiter 2 m altus, ramis ramulisque teretibus; foliis distincte 3-nerviis, oblonsis, chartaceis ad subcoriaceis, usque ad 20 cm longis, basi subacutis, apice tenuiter acuminatis; nervis lateralis inter nervulos transversales plus minusve arcuatis, distinctis, nervis transversalis utrinque circiter 14; petiolo 1.5 ad 2 cm longo; infructescentiis axillariibus, cymosis, circiter 3 cm longis; fructibus ovoideis vel subglobosis, 6 ad 7 mm diametro.

An erect glabrous shrub about 2 m high, the branches and branchlets terete, the latter pale when dry, about 1 mm in diameter. Leaves oblong, chartaceous to subcoriaceous, 15 to 20 cm long, 4.5 to 6 cm wide, the upper surface olivaceous when dry, the lower surface pale; marginal nerves distinct, more or less arched between the tips of the transverse ones, the latter about 14 on each side of the midrib, prominent on the lower surface; petioles 1.5 to 2 cm long. Infructescences axillary, cymose, about 3 cm long, branched from the base or several cymes in a fascicle. Fruit ovoid to globose, 6 to 7 mm in diameter, umbellately arranged on the ultimate branchlets.

Luzon, Ilocos Norte Province, between Bangui and Claveria, Bur. Sci. 32962 Ramos, August 29, 1918, in forests at low altitudes.

This species belongs in the group with prominently nervied leaves, somewhat arched marginal nerves, and terete branches and branchlets. It is distinguished from all of the other Philippine species of this group by its unusually long petioles.

MEMECYلون STENOPHYLLUM sp. nov.

Frutex erectus, circiter 1 m altus, glaber, ramis ramulisque tenuibus, teretibus; foliis angustate-lanceolatis, subcoriaceis,
usque ad 11 cm longis et 1.3 cm latis, acuminatis, basi abrupte rotundatis, sessilibus vel brevissime petiolatis, in siccitate bulbato-rugosis, nervis utrinque circiter 25, patulis, supra leviter immersis, reticulis obsoletis; infructescentiis terminalibus, pedunculatis, 3 ad 4 cm longis, ut videtur paucifloris, fructibus globosis, circiter 7 mm diametro.

An erect glabrous shrub, about 1 m high, the branches and branchlets slender, terete, the latter about 1 mm in diameter, the internodes 2 to 4 cm long. Leaves coriaceous, greenish-olivaceous, shining, narrowly lanceolate, 7 to 11 cm long, 6 to 13 mm wide, narrowed upward to the somewhat acuminate apex, the base abruptly rounded, sessile or subsessile, the midrib and lateral nerves somewhat impressed on the upper surface, the former very prominent beneath, the upper surface especially somewhat bullate-rugose on account of the impressed nerves; lateral nerves slender, spreading, about 25 on each side of the midrib, the reticulations obsolete. Infructescences terminal, peduncled, 3 to 4 cm long, usually trichotomously branched, the ultimate branchlets 1 cm long or less. Fruits globose, black when mature, about 7 mm in diameter, their pedicels about 2 mm long.

Luzon, Bulacan Province, Angat, Bur. Sci. 34101 Ramos & Edano, March 1, 1919, on dry forested slopes at low altitudes.

This species does not closely resemble any previously described form, being remarkably well characterized by its very narrow, sessile or subsessile leaves, which are gradually narrowed upward to the somewhat acuminate apex, the base being abruptly rounded; when dry the leaves are characteristically bullate-rugose by the more or less impressed lateral nerves.

**OTANTHERA** Blume

**OTANTHERA STRIGOSA** sp. nov.

Frutex erectus, circiter 1 m altus, ramis ramulisque teretibus, parce adpresse strigosus, ramulis tenuibus; foliis oblongis, usque ad 9 cm longis, chartaceis, utrinque subaequaliter angustatis, basi acutis vel acuminatis, apice acuminatis, supra perspicue adpresse strigosis, subtus, nervis parce strigosis exceptis, glabra; nervis 5; inflorescentiis plerumque 3-floris, bracteis lanceolatis, acuminatis, 5 ad 7 mm longis; floribus 5-meris, calycis perspicue penicellatis, setis patulis, 2 ad 3 mm longis, lobis anguste oblongis, tubo aequantibus; petalis circiter 1.5 cm longis, obovatis.

An erect shrub, about 1 m high, the branches and branchlets slender, terete, brownish when dry, sparingly appressed strigose.
Leaves oblong, chartaceous, 5 to 9 cm long, 1.5 to 2.5 cm wide, subequally narrowed to the acute or acuminate base and to the acuminate apex, chartaceous, the upper surface olivaceous when dry, conspicuously appressed strigose, the lower surface paler, glabrous except for the sparingly appressed strigose nerves, occasionally the primary reticulations with very few short processes; nerves 5, distinct, the inner pair reaching the apex, the marginal pair evanescent above the upper two-thirds. Inflorescences terminal, usually 3-flowered, the pedicels 1 to 1.5 cm long; bracts lanceolate, acuminate, strigose, 5 to 7 mm long. Calyx-tube ovoid, 7 to 8 mm long, conspicuously penicillate, the setae simple, spreading, 2 to 3 mm long, somewhat scattered; calyx lobes 5, as long as the tube, narrowly oblong, setose. Petals purplish, obovate, about 1.5 cm long, their apices sparingly penicillate. Stamens 10, equal; filaments 6 mm long; anthers lanceolate, 5 mm long, the anterior basal appendages nearly round, glandlike, the connectives not at all produced.


This species is readily distinguished from its congeners by its appressed-strigose branches, branchlets, and leaves, the latter being nearly glabrous on the lower surface except for the sparingly strigose nerves.

**ASTRONIA Noronha**

**ASTRONIA BRACHYBOTRYS** sp. nov.

Frutex vel arbor parva, ramulis junioribus et inflorescentiis leviter castaneo-furfuraceis; foliis coriaceis, rigidis, viridibus, oblongo-ellipticis, minute verruculosis, 5 ad 6 cm longis, utrinque subaequaliter angustatis, basi 3-nerviis, apice acuminatis; paniculis brevissime pedunculatis, 2 ad 3 cm longis, paucifloris, ramis usque ad 1 cm longis; floribus $\in$ urceolatis, calycis tubo 2.5 mm longo, lobis reniformibus.

A shrub or small tree, the very young branchlets and inflorescences somewhat castaneous-furfuraceous, otherwise glabrous, the branches and branchlets terete, rather slender. Leaves coriaceous, rigid, oblong-elliptic, green on both surfaces, usually brownish-olivaceous when dry and minutely verruculose, 5 to 6 cm long, 2 to 3 cm wide, subequally narrowed to the acute base and to the distinctly acuminate apex, base prominently 3-nerved and with an additional very slender marginal pair, the latter not more prominent than are the transverse nervules, the pri-
mary lateral nerves anastomosing with the midrib in the acumen, when young the nerves beneath with few, scattered, furfuraceous-castaneous scales, soon becoming glabrous; petioles 1.5 to 2 cm long, glabrous. Panicles terminal, shortly peduncled, rather few-flowered, 2 to 3 cm long, the primary branches few, 1 cm long or less, the flowers somewhat crowded at the apices of the branchlets. Perfect flowers shortly pedicelled, urceolate, the calyx-tube about 2.5 mm long, the limb spreading and about 4.5 mm in diameter, the lobes reniform. Petals obovate, about 3 mm long. Staminate flowers similar to the pistillate ones but the calyx-tube broadly cup-shaped.

Luzon, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33279 (type), 33278, 33266 Ramos, August 21, 1918, in forests, altitude about 1,000 meters.

This species is allied to Astronia pachyphylla Merr., A. verruculosa Merr., and A. pauciflora Merr., being distinguished from the first by its smaller, differently shaped leaves and its castaneous-furfuraceous inflorescences and it further lacks the characteristic large bracts of A. pachyphylla; the leaves and flowers are much smaller than are those of A. verruculosa; while A. pauciflora is distinguished, among other characters, by its densely lepidote branchlets and inflorescences.

ARALIACEAE

SCEFFLERA Forster

SCEFFLERA OBATUSIFOLIA sp. nov. § Euschefflera, Heptapleurum.

Frutex erectus, ramulis inflorescentiisque exceptis glaber; foliis brevissime petiolatis, palmatim 7- ad 9-foliolatis, foliolis coriaceis, oblongo-obovatis, integris, 8 ad 15 cm longis, apice plerumque rotundatis, basi acutis; inflorescentiis breviter pedunculatis, ramis primariis racemose dispositis, 18 ad 24 cm longis, leviter pubescentibus; umbellulis numerosis, racemose dispositis, 8- ad 12-floris pedunculis usque ad 1 cm longis; floribus 5-meris; fructibus ellipsoideis ad oblongo-ellipsoideis, 5 mm longis, 5-sulcati.

An erect shrub, about 2 m high, glabrous except the somewhat pubescent branchlets and slightly pubescent inflorescences. Leaves very short-petioled, 7- to 9-foliolate; leaflets coriaceous, shining when dry, oblongo-obovate, entire, 8 to 15 cm long, 4 to 6.5 cm wide, the apex usually rounded, narrowed below to the acute base; primary lateral nerves 7 to 10 on each side of the midrib, the nerves and reticulations distinct on both surfaces; petiolules 3.5 to 8 cm long; petioles stout, 1 to 1.5 cm long. In-
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florescence terminal, shortly peduncled, the peduncle and axis 4 to 7 cm long, the former glabrous or nearly so, the bracts subtending the branches deciduous; primary branches 8 to 15, racemosely arranged, 18 to 24 cm long, slightly pubescent, spreading-ascending; umbels numerous, racemosely arranged on the primary branches, 8- to 12-flowered, their peduncles up to 1 cm in length; the pedicels in flower, 2 to 3 mm long, in fruit somewhat longer. Flowers 5-merous, white. Calyx obconic, truncate, about 2.5 mm in diameter. Petals 5, ovate, acute, 2 mm long, somewhat 3-nerved. Filaments 3.5 to 4 mm long. Fruits ellipsoid to oblong-ellipsoid, about 5 mm long, 5-angled or sulcate, 5-celled.

LUZON, Ilocos Norte Province, Burgos, Bur. Sci. 32912 (type), 32901. Ramos, July, 1918, on rocks in dry thickets at low altitudes. Bur. Sci. 33207 Ramos from Mount Nagapatan, Ilocos Norte Province, Luzon, perhaps represents a form of the same species but the leaflets are smaller, while the petioles vary from 2 to 6 cm in length; this number was collected at an altitude of about 800 meters, growing on tree trunks.

This species is most closely allied to Schefflera brevipes Merr. and is one of the very few Philippine species with short petioles. It is distinguished from S. brevipes by its smaller and much fewer-nerved leaflets; its much shorter inflorescence-axis, and rather long-pedicelled, never subsessile, umbels.

Schefflera Alvarezi sp. nov. § Euschefflera, Heptapleurum.

Frutex scandens, glaber, ramulis tenuibus; foliis 6-foliolatis, foliolis oblongis ad oblongo-ovatis, integris, subcoriaceis, usque ad 9 cm longis, apice tenuiter acuminatis, basi acutis, nervis utrinque 6 ad 8, subpatulis, perspicuis; inflorescentiis terminalibus, ramis primariis circiter 4, usque ad 25 cm longis; umbellulis circiter 5-floris, racemose dispositis; floribus 5-meris.

An entirely glabrous vine, the ultimate branches 4 mm in diameter or less. Leaves palmately 6-foliolate; leaflets subcoriaceous, oblong to oblong-ovate, entire, pale when dry, shining, 6 to 9 cm long, 2 to 3.5 cm wide, the apex slenderly acuminate, base acute; lateral nerves 6 to 8 on each side of the midrib, spreading or only slightly ascending, prominent on the lower surface as are the reticulations; petiolules 1 to 2.5 cm long; petioles 6 to 7 cm long. Inflorescence terminal, the rachis 2 cm long or less, bearing usually 4 primary branches up to 25 cm long. Flowers 5-merous, about 5 in each umbel, their pedicels about 3 mm long, the umbels widely scattered and racemosely
arranged on the primary branches, their peduncles 4 to 5 mm long. Calyx obovoid, truncate, about 1.2 mm long, petals oblong ovate, acute, 2.5 mm long, ovary 5-celled.


This species is manifestly allied to *Schefflera caudatifolia* Merr., from which it differs especially in its flowers being arranged in umbels rather than in fascicles; in its much shorter rachis and much longer primary branches; while the primary nerves of the leaves are spreading rather than ascending.

**Schefflera globosa** sp. nov. § *Euschefflera*, *Heptapleurum*.

Frutex scandens, ramulis et infructescentiis stellato-tomentosis, indumento brunneo, ramis incrassatis; foliis 6-foliolatis, longissimis petiolatis, folioliis oblongis, firmiter chartaceis, integris, usque ad 44 cm longis, apice tenuiter acuminatis; inflorescentiis terminalibus, rhachibus leviter productis, ramis primariis 3 ad 5, usque ad 20 cm longis, racemose dispositis; fructibus globosis, esulcatis, 5-locellatis, 5 mm diametro, umbellulis racemose dispositis, breviter pedunculatis, fructibus confertis brevissime pedicellatis.

A scandent shrub, glabrous except the young branchlets, bracts, and infructescences, which are brown stellate-tomentose, the ultimate branches up to 1 cm in diameter. Leaves palmately 6-foliolate, their petioles inflated and clasping at the base, stout, 30 to 35 cm long; leaflets oblong, firmly chartaceous, entire, glabrous, shiny, 22 to 44 cm long, 7 to 10 cm wide, the base rounded to subacute, the apex slenderly acuminate; lateral nerves 15 to 20 on each side of the midrib, distinct as are the reticulations, anastomosing, petiolules 5 to 11 cm long. Inflorescence terminal, the rachis somewhat produced, the primary branches 3 to 5, 16 to 20 cm long, racemously disposed, each subtended by an oblong-lanceolate, acuminate, subcoriaceous bract about 3 cm in length. Fruits globose, about 5 mm in diameter, very slightly furfuraceous, not sulcate, 5-celled, terminated by the 5 nearly sessile stigmas, arranged in short-pediculed, scattered umbels, 9 to 10 fruits crowded on each umbel, their pedicels 1 to 2 mm long, the peduncles 2 to 7 mm long, the pedicels and peduncles with the same type of indumentum as the rachis.


This species in vegetative characters strongly resembles *Schefflera digitata* (Blanco) Merr. (*S. machranta* Merr.), but differs radically in its very short pedicels and 5-celled fruits. The
brown stellate-tomentose indumentum on the inflorescences; the globose, nonsulcate, short-pedicelled, crowded fruits; and the very long petioles are characteristic.

**SCHEFFLERA PLATYPHYLLA** sp. nov. § *Euschefflera, Heptapleureum.*

Frutex scandens, inflorescentiis brunneo-tomentosis; foliiis 5-foliolatis, late oblongo-ovatis, integris, usque ad 34 cm longis et 17 cm latis, apice abrupte acuminatis; inflorescentiis terminalis, ramis primariis circiter 12, usque ad 40 cm longis, racemose dispositis; floribus minutis, 5-meris, numerosis, confertis, umbellulis globosis, circiter 6 mm diametro, valde numerosis, racemose dispositis, pedunculis 5 ad 10 mm longis.

A vine, glabrous except the rather densely brown-tomentose inflorescence, the indumentum obscurely stellate, the ultimate branches about 1 cm in diameter. Leaves palmately 5-foliolate, their petioles about 15 cm long; leaflets broadly oblong-ovate, coriaceous, entire, 30 to 34 cm long, 15 to 17 cm wide, the upper surface olivaceous, shining, the lower somewhat brownish when dry, the base broadly rounded, the apex rather abruptly acumenate, the acumen up to 2 cm in length; lateral nerves about 25 on each side of the midrib, distinct as are the reticulations; petiolules stout, 5 to 8 mm long. Inflorescence terminal, the rachis stout, up to 8 cm long, bearing about 12 elongated, racemosely arranged, primary branches up to 40 cm in length, the subtending bracts oblong-ovate, up to 2.5 cm long. Flowers minute, white, 5-merous, crowded in globose umbels about 6 mm in diameter, 30 to 40 flowers in an umbel, the umbels racemosely arranged on the primary branches, about 75 on each branch, their peduncles 5 to 10 mm long; pedicels 1 to 2 mm long. Calyx pubescent, turbinate, truncate, about 1.2 mm long. Petals 5, oblong-ovate, 1.2 mm long.

**PANAY,** Capiz Province, Jamindan, *Bur. Sci. 30897 Ramos & Edaño,* April 17, 1918, on tree trunks in forests along streams.

This species has an indumentum similar to that of *Schefflera globosa* Merr. and is manifestly allied to that species, from which it differs radically in its much larger, wider leaflets; in the numerous, elongated, primary branches of the inflorescence; and in its very numerous, densely many-flowered, longer-peduncled umbels. Both species apparently belong in the group with *Schefflera clementis* Merr.

**SCHEFFLERA SANTOSII** sp. nov. § *Euschefflera, Heptapleureum.*

Frutex scandens (vel erectus ?), glaber, ramis in siccitate rugosis; foliiis 3- ad 5-foliolatis, brevissime petiolatis, petiolo 1 ad 2 cm longo; foliolis subcoriaceis, in siccitate olivaceis, nitidis,
ellipticis ad oblongo-ellipticis, breviter acuminatis, integris, 6 ad 9 cm longis, nervis utrinque circiter 12, perspicuis; inflorescentiis terminalibus, rhachibus elongatis, ramis primariis 4 ad 8, racemose dispositis, usque ad 20 cm longis; umbellis distantiis, racemose dispositis, 8- ad 12-floris; floribus parvis, 5-meris.

A scandent (or erect ?), glabrous shrub, 3 to 4 m in length, the branches grayish, when dry wrinkled, the ultimate ones 5 mm in diameter or less. Leaves 3- to 5-foliolate, their petioles relatively short, 1 to 2 cm long, inflated and clasping at the base. Leaflets subcoriaceous, entire, olivaceous, shining, elliptic to oblong-elliptic, 6 to 9 cm long, 3 to 5 cm wide, subequally narrowed to the acute base and to the shortly acuminate apex; petiolules 5 to 20 mm long; lateral nerves about 12 on each side of the midrib, distinct and somewhat projecting on the lower surface, anastomosing, spreading-ascending, the reticulations lax, distinct. Inflorescence terminal, the rachis 5 to 7 cm long, the primary branches 4 to 8, racemose disposed, alternate, up to 20 cm in length. Umbels racemously arranged on the primary branches, 8- to 12-flowered, their peduncles up to 12 mm in length, the pedicels 1 to 4 mm long. Flowers 5-merous, white or purplish, calyx about 2 mm in diameter. Petals 5, oblong-ovate, 2 mm long.

Luzon, Benguet Subprovince, Pauai, Bur. Sci. 31722 Santos, June 1, 1918, in thickets near streams, altitude about 2,000 meters.

This species is well characterized by its very short-petioled leaves, in this character resembling Schefflera brevipes Merr., but differing radically from that species in its much fewer and smaller leaflets.

Schefflera Panayensis sp. nov. § Cephaloschefflera.

Arbor, partibus junioribus plus minusve furfuraceis, foliis junioribus dense stellato-tomentosis, cito glaberrimis, ramis incrassatis; foliis 10- ad 12-foliolate, longissime petiolatis, foliolis coriaceis, oblongis, usque ad 17 cm longis, tenuiter caudato-acuminatis, nervis utrinque 10 ad 12, perspicuis; capitulis racemose dispositis, globosis, immaturis 1 ad 1.5 cm diametro, fructibus sulcatis, 5-locellatis.

A tree, about 5 m high, the very young parts densely furfuraceous, the very young leaves densely stellate-tomentose, soon becoming entirely glabrous. Ultimate branches about 1.5 cm in diameter, rugose, marked with very large petiolar scars. Leaves 10- to 12-foliolate, their petioles about 25 cm long; leaflets oblong, coriaceous, shining, 10 to 17 cm long, 3 to 3.5 cm wide,
entire, base rounded to obtuse, apex slenderly caudate-acuminate; lateral nerves 8 to 10 on each side of the midrib, anastomosing, distinct, as are the reticulations; petiolules 6 to 8 cm long. Branches of the inflorescence 40 to 45 cm long, stout, glabrous, bearing numerous, racemously arranged, dense, globose, glabrous heads, which in young fruit are from 1 to 1.5 cm in diameter, their peduncles 1 to 1.5 cm long. Young fruits 5-sulcate, 3 to 4 mm long, 5-celled.

**BOERLAGIODENDRON** Harms

**BOERLAGIODENDRON CAUDATUM** sp. nov.

Frutex circiter 2 m altus; foliis longe petiolatis, palmatim 7-ad 9-foliolatis, foliolis nitidis, lanceolatis, valde inaequalibus, 10 ad 23 cm longis, tenuiter caudato-acuminatis, basi decurrent-acuminatis, majoribus plerumque utrinque 1- vel 2-lobatis, margine irregulariter perspicue dentatis; petiolo circiter 40 cm longo, basi crisiis pectinatis 2 vel 3 instructis, dentibus deflexis; inflorescentiis sessilibus, circiter 15 cm diametro, radiis primariis circiter 25; capitulis *¾* circiter 1 cm diametro, floribus confertis brevissimè pedicellatis, 4-meris.

An erect shrub, about 2 m high, the leaf-bearing part of the stem at least 1 cm in diameter. Leaves long-petioled, palmately 7- to 9-foliolate; leaflets subcoriaceous, olivaceous and shining when dry, lanceolate, very unequal in size, 10 to 23 cm long, slenderly caudate-acuminate, base decurrent-acuminate, the larger ones usually deeply lobed, the lobes 1 or 2, rarely 3, extending nearly to the midrib, the margins with irregular, rather prominent, usually incurved teeth; petiolules of the larger leaflets up to 3 cm in length, the smaller leaflets sometimes nearly sessile; petioles about 40 cm long, 4 to 5 mm in diameter, the basal 1 cm supplied with 2 or 3 pectinate crests, their teeth deflexed up to 7 mm long. Inflorescence terminal, sessile, about 15 cm in diameter, composed of about 25 primary branches, each subtended by an oblong to oblong-ovate, coriaceous bract about 1.5 cm long, the primary branches about 4 cm long, glabrous, then dichotomously or trichotomously branched, the bracts subtending the branches oblong to oblong-lanceolate, about 1 cm long, somewhat setose-furfuraceous, central branch 1 to 1.5 cm long, glabrous, bearing a globose head of sterile flowers about 1 cm in
diameter, the bracteoles subtending the sterile flowers oblong, acute to obtuse, 4 to 5 mm long, coriaceous, somewhat keeled, more or less furfuraceous; lateral branches about 4 cm long, straight or somewhat geniculate at the middle, here supplied with a pair of coriaceous, somewhat setose-furfuraceous bracts, 4 to 5 mm in length; heads ellipsoid, dense, about 1 cm long, many-flowered, each flower subtended by an obovate 3 to 4 mm long bracteole, which is thickened in the median portion and rather prominently brown fimbriate-ciliate on the back and margins, and more or less inclosing the flower; pedicels 1 mm long or less. Calyx obovoid, 2 to 2.5 mm long, truncate, narrowed below, obscurely 4-angled by compression, the angles rounded. Ovary 4-celled.

**Luzon**, Ilocos Norte Province, Mount Palimlin, *Bur. Sci. 33308 Ramos*, August 21, 1918, on forested slopes near the summit, altitude about 1,000 meters.

This strongly marked species is most closely allied to *Boerlagiodendron catanduanense* Merr., from which it is easily distinguished by its pectinate petiolar crests; its much longer petioles; and its few-lobed caudate-acuminate leaflets, the lobes extending nearly to the midrib and ascending rather than divaricate. The inflorescence is also much larger and further differs in its furfuraceous-setose bracts and very different sterile and fertile heads.

**ERICACEAE**

**VACCINIUM ILOCANUM** sp. nov.

An epiphytic shrub, entirely glabrous except the inflorescences, the branchlets about 3 mm in diameter, reddish-brown when dry. Leaves elliptic, thickly coriaceous, olivaceous and shining when dry, entire, 6 to 8 cm long, 3.5 to 5 cm wide, margins somewhat recurved, the lower surface somewhat paler than the upper and distinctly glandular-punctate, the base acute, apex acute to shortly and abruptly acuminate; lateral nerves about 4 on each side of
the midrib, slender, the lower two pairs from near the base
ascending, reaching at least to the upper two-thirds of the leaf;
petioles very stout, reddish-brown, 5 to 8 mm long. Racemes
axillary, and sometimes terminating short lateral branches, 2
to 4 cm long, the rachis, bracts, pedicels, and calyces more or less
pubescent with short spreading hairs; pedicels 3 to 4 mm long;
bracts persistent, ovate to elliptic-ovate, 5 to 6 mm long, usually
acute, sometimes slightly acuminate. Calyx-tube almost obsolete,
the lobes triangular, acute, pubescent, 1.5 mm long. Corolla
oblong-ovoid, glabrous, narrowed upward, about 6 mm long, 3.5
mm in diameter below the middle, red, the lobes short, broadly
ovate, recurved. Filaments densely bearded, about 1 mm long;
anthers oblong, about 1.1 mm long, the terminal tubes very short,
not narrowed, opening by oblique pairs. Style stout, glabrous,
3 mm long. Top of the ovary very slightly pubescent.

33372 Ramos, August 21, 1918, growing on trees on forested
slopes near the summit, altitude about 3,100 meters.

The alliance of this species is manifestly with Vaccinium
platyphyllum Merr., from which, among other characters, it is
distinguished by its smaller, fewer-nerved leaves, shorter pedi-
cels, and only slightly pubescent top of the ovary.

DIPLYCOSIA Blume

DIPLYCOSIA GLABRA sp. nov.

Frutex epiphyticus, glaber, vel ramulis junioribus parcissime
setosis; foliis ellipticis ad oblong-ellipticis, acuti vel brevissime
apiculatis, basi acutis, usque ad 6 cm longis, in siccitate olivaceo-
brunneis vel pallidis, nitidis, nervis utrinque 2, tenuibus, supra
leviter impressis, subtus obsoletis; floribus axillaribus, solitariis
vel fasciculatis, pedicellatis, bracteolis late ovatis, 1.5 mm longis,
margine leviter ciliatis, calycis circiter 2 mm longis, lobis late
ovatis, obtusis, 1.5 mm longis.

A glabrous, erect, epiphytic shrub, attaining a height of from
3 to 4 m, the very young branchlets sometimes with a very few
slender setae. Leaves coriaceous, elliptic to oblong-elliptic, 2 to
6 cm long, 1 to 2.5 cm wide, brownish-olivaceous or pale when dry,
shining, the lower surface with small scattered, brownish glands,
the base acute, the apex usually acute and ending in a short, stout,
blunt apiculus; lateral nerves 2 on each side of the midrib,
slender, slightly impressed on the upper surface, obsolete on the
lower surface, curved, the upper pair leaving the midrib at or
near the middle of the leaf, the reticulations obsolete; petioles
about 2 mm long. Flowers axillary, solitary or few in a fascicle, their pedicels about 5 mm long, the apical bracteoles connate, broadly ovate, acute or slightly acuminate, margins sparingly ciliate, 1.5 mm long. Calyx about 2 mm long, the lobes broadly ovate, obtuse, 1.5 mm long, their margins slightly ciliate. Corolla not seen. Fruit soft, fleshy, bluish-black, when dry brownish or black, about 5 mm long.


Among the Philippine species this is most closely allied to *Diplycosia calelanensis* Elm., from which it is readily distinguished by its nerves being obsolete on the lower surface of the leaves. Among the extra-Philippine species its alliance is manifestly with the Javan *Diplycosia heterophylla* Blume, but its leaves are different in shape, never acuminate, with shorter petioles, while the venation is distinctly different.

MYRSINACEAE

ARDISIA Swartz

**ARDISIA ILOCANA** sp. nov. § *Akosmos.*

Frutex, ramulis inflorescentiisque castaneo-pubescentibus exceptis glaber; foliis oblongis, membranaceis ad chartaceis, 6 ad 12 cm longis, basi acutis, apice leviter acuminatis, integris, utrinque glandulis perspicuis instructis, nervis utrinque 15 ad 20, tenuibus, subobscuris, reticulis obsolentis; inflorescentii bipinnatifidi paniculatis, 8 ad 10 cm longis, pedunculatis, plerumque e axillis defoliatis; floribus racemose dispositis, circiter 8 mm diametro, calycis lobis orbicularibus, leviter ciliatis, petalis punctato-glandulosis, leviter acuminatis.

An erect shrub, the branchlets and inflorescences distinctly castaneous-pubescent, otherwise glabrous. Leaves oblong, membranaceous to chartaceous, 6 to 12 cm long, 2 to 3.5 cm wide, base acute, apex somewhat acuminate, somewhat olivaceous and slightly shining when dry, both surfaces with numerous, relatively large glands which are distinctly visible to the naked eye and which occur at fairly regular intervals on all parts of the leaf; lateral nerves 15 to 20 on each side of the midrib, very slender, not prominent, obscurely anastomosing, the reticulations obsolete or nearly so; petioles pubescent when young, soon becoming
glabrous, 5 to 10 mm long. Panicles lateral, from the ultimate branchlets, axillary and in the axils of fallen leaves, peduncled, bipinnate, 8 to 10 cm long, the flowers racemously arranged on the primary branches, their pedicels 3 to 4 mm long. Flowers white, about 8 mm in diameter. Calyx lobes orbicular, rounded, glandular-punctate, margins ciliate. Corolla lobes oblong-elliptic, glandular-punctate, glabrous, 4 mm long, somewhat acuminate. Anthers lanceolate, acuminate, 2.5 mm long, the connectives slightly glandular.

Luzon, Ilocos Norte Province, between Bangui and Claveria, Bur. Sci. 32982 Ramos, August 12, 1918, altitude about 500 meters.

This species is well characterized by its numerous, relatively large, regularly spaced glands, which are distinctly visible to the naked eye on both surfaces of the leaf. Its alliance is with Ardisia racemoso-panniculata Mez, from which it is distinguished not only by its very evident glands but also by its very slender obscure nerves and practically obsolete reticulations.

ARDISIA LONGIPETIOLATA sp. nov. § Pyrgus.

Frutex glaber, ramis 6 ad 8 mm diametro; foliis confertis, anguste oblongis ad oblongo-ellipticis, usque ad 30 cm longis, integris vel obscuressiine denticulatis, obtusis vel acutis, perspicue glanduloso-punctatis, nervis utrinque circiter 12; petiolo 4 ad 7 cm longo; paniculis circiter 30 cm longis, ramis inferioribus 9 ad 12 cm longis, floribus subumbellatim dispositis, sepalis punctatis, margine ciliatis; fructibus circiter 1 cm diametro.

A glabrous shrub, the branches terete, reddish-brown, 6 to 8 mm in diameter. Leaves pseudoverticillate, usually about 6 crowded at the end of each branch, narrowly oblong to oblong-elliptic or oblong-ob lanceolate, 23 to 30 cm long, 6 to 10 cm wide, entire, or very obscurely toothed, apex obtuse to acute, base rounded, acute, or somewhat acuminate, when dry grayish or greenish olivaceous, shining, the lower surface rather densely glandular-puncticulate with dark-colored glands; lateral nerves usually about 12 on each side of the midrib, prominent, curved, anastomosing, the reticulations distinct; petioles 4 to 7 cm long, somewhat triangular. Panicles terminal, peduncled, about 30 cm long, the lower primary branches 9 to 12 cm long, the flowers subumbellately arranged at the tips of the primary branches. Pedicels about 1.5 cm long, thickened upward. Persistent calyx about 7 mm in diameter, the lobes ovate, acute, about 3 mm long, glandular-punctate, the margins ciliate. Fruits gla-
brous, globose, slightly glandular, red when mature, about 1 cm in diameter.

LUZON, Camarines Province, Bur. Sci. 33492 (type), 33554 *Ramos & Edaño*, December, 1918, in damp forests at low altitudes between Paracale and Mambulao.

This species belongs in the group with *Ardisia perrottetiana* A. DC., from which it is readily distinguished by its larger leaves and elongated petioles.

**AMBYLANTHOPSIS** Mez

**AMBYLANTHOPSIS CRASSIFOLIA** sp. nov.

Frutex erectus, glaber, ramulis incrassatis, cylindricis, circiter 1 cm diametro, cicatricibus multis ornatis; foliis crassissime coriaceis, integris, oblonsis ad anguste oblongo-ovovatis, 10 ad 13 cm longis, minute punctatis, obtusis, nervis utrinque 10, haud perspicuis, admodum subobsolete; inflorescentiis axillaribus, plerumque racemosis, usque ad 7 cm longis; floribus 4-5-meris, 6 ad 7 diametro, petalis ellipticis ad oblongo-ellipticis, filamentis petalis aequilongis.

An erect glabrous shrub, about 2 m high, the ultimate branchlets much thickened, cylindric, about 1 cm in diameter and marked with numerous, large, petiolar scars. Leaves very thickly coriaceous, entire, oblong to narrowly oblong-ovovate, 10 to 13 cm long, 3.5 to 4 cm wide, obscurely and minutely glandular-punctate, the apex obtuse, narrowed below to the acuminate base; midrib very stout, the lateral nerves about 10 on each side of the midrib, not prominent, sometimes nearly obsolete; petioles stout, 6 to 15 mm long. Inflorescences in the upper axil, up to 7 cm in length, the flowers usually racemously arranged, sometimes in very depauperate panicles. Flowers red, 4- and 5-merous, 6 to 7 mm in diameter, their pedicels about 2 mm long. Calyx about 4 mm in diameter, the lobes oblong-ovate, obtuse, somewhat glandular-punctate, glabrous. Corolla lobes elliptic to elliptic-oblong, obtuse, 4 mm long, somewhat punctate, united for the lower 1 mm. Filaments as long as the petals, the anthers longitudinally dehiscent. Ovary and style 2.5 mm long, the ovary ovoid, the style as long as the ovary.

LUZON, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33288 (type), 33381 *Ramos*, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is entirely different from the other described forms of the genus *Ambylanthopsis*, but by definition must be
placed in this genus unless a new one be proposed for it. It cannot be placed in the genus *Discocalyx* on account of its elongated filaments, which equal the corolla lobes in length. In the type specimen the much thickened, prominently scarred, ultimate branchlets attain a length of at least 15 cm and are distinctly thicker than the smooth or nearly smooth branches which bear them. The species is otherwise very prominently characterized by its very thickly coriaceous, entire, obscurely nerved leaves, which are crowded toward the apices of the branchlets and by its usually racemose inflorescences.

**Sapotaceae**

**Palaquium** Blanco

**Palaquium glabrifolium** sp. nov.

Arbor novellis et floribus exceptis glabra; foliis subcoriaceis, anguste oblongo-obovatis, usque ad 14 cm longis, apice perspicue acuminatis, basi angustatis, cuneatis vel decurrento-acuminatis, nervis utrinque circiter 20, tenuibus; floribus solitariis vel fasciculatis, sepalis coriaceis, exterioribus glabris, interioribus leviter pubescentibus, circiter 3.5 mm longis; ovario puberulo.

A tree, 6 to 8 m high, entirely glabrous except the growing tips of the branchlets, the inner sepals, and the ovary. Leaves subcoriaceous, rigid, dark-brown when dry, shining, the lower surface paler than the upper, narrowly oblong-obovate, 10 to 14 cm long, 3.5 to 5 cm wide, apex rather conspicuously acuminate, the acumen blunt, narrowed in the lower one-half to the cuneate or somewhat decurrent-acuminate base; primary lateral nerves slender, about 20 on each side of the midrib, anastomosing, slightly more conspicuous than are the secondary nerves and reticulations; petioles 1.5 to 2 cm long. Flowers solitary or fascicled, from the axils of fallen leaves, their pedicels about 1 cm long, in age entirely glabrous. Outer sepals glabrous, thickly coriaceous, somewhat rugose when dry, very broadly ovate, 2.5 to 3 mm long, about 4 mm wide, the inner sepals ovate, obtuse or acute, about 3.5 mm long, slightly pubescent on the median portion, the margins thin, glabrous. Stamens and corolla not seen. Ovary slightly puberulent, 6-celled; style about 9 mm long, glabrous.


This species is most closely allied to *Palaquium dubardii* Elm., from which it is distinguished by its conspicuously acuminate
leaves, which are much narrowed below, and by its much more numerous nerves. The characteristic indumentum of the genus is entirely wanting except on the growing tips of the branchlets and on parts of the flowers. The fruits with the specimens are globose or ovoid, about 2.5 cm in diameter, but are abnormal in that when young some insect has deposited its eggs in them and the developing larvae have destroyed the seeds, the entire fruit, except the parts destroyed by the larvae, being filled with a dense, rather brittle, somewhat woody substance.

SYMPLOCACEAE

SYMPLOCOS BRACHYBOTRYS sp. nov.

An entirely glabrous tree, about 5 m high. Leaves coriaceous, entire, oblanceolate, 5 to 8 cm long, 1.5 to 2.5 cm wide, blunter acuminate, much narrowed below to the cuneate base, subob lanceolate, shining; lateral nerves slender, 15 to 18 on each side of the midrib, anastomosing, the reticulations lax, distinct; petioles 1 cm long or less. Racemes axillary, few-flowered, black when dry, 1 to 1.5 cm long. Flowers about 8 mm in diameter, pedicels 1 mm long or less, the subtending bracteoles elliptic-ovate, deciduous, about 1 mm long. Calyx-tube somewhat narrowed below, cylindric, 1 mm long, the lobes 5, somewhat spreading, orbicular-ovate, rounded, about 0.8 mm long, the inner ones slightly smaller than the outer three. Petals oblong to oblong-elliptic, obtuse, about 4 mm long. Stamens numerous, free, as long as the petals. Fruit oblong, nearly terete, about 1 cm long and 5 mm in diameter.

Luzon, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33277 Ramos, August 22, 1918, on forested slopes, altitude about 900 meters.

This species closely resembles Symplocos purpurascens Brand and is apparently closely allied to that species. It is, however, very easily distinguished by its very short inflorescences and its much more numerous lateral nerves.
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LOGANIACEAE

GENIOSTOMA Forster

GENIOSTOMA PACHYPHYLLUM sp. nov.

Frutex vel arbor parva, glabrum, ramulis et foliis in siccatum nigris; foliis coriaceis vel subcoriaceis, anguste oblongis ad oblongo-lanceolatis, 5 ad 8 cm longis, basi acutis, apice acutis vel obscure acuminatis, nervis utrinque 5 vel 6, tenuibus, reticulis subobsoletis; fructibus axillaris, solitariis, ovoideis vel ellipsoideis, circiter 7 mm longis, breviter pedicellatis.

A glabrous shrub or small tree, the branches terete, straw-colored, the young branchlets black when dry as are the leaves and petioles. Leaves coriaceous or subcoriaceous, brittle, narrowly oblong to oblong-lanceolate, 5 to 8 cm long, 1.2 to 2.5 cm wide, subequally narrowed to the acute base and to the acute or slightly acuminate apex; lateral nerves slender, 5 or 6 on each side of the midrib, obscurely anastomosing, the reticulations obsolete or nearly so; petioles about 5 mm long; stipules short, truncate. Fruits axillary, solitary, ovoid or ellipsoid, about 7 mm long, black when dry, their pedicels about 5 mm long; persistent sepals broadly ovate, rounded, their margins slightly ciliate.

Luzon, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33316 Ramos, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is distinguished among the Philippine forms by its glabrous, slenderly nerved, brittle, coriaceous or subcoriaceous leaves, the reticulations being obsolete or nearly so, and by its solitary, axillary fruits. The whole plant, except the branches, is characteristically black when dry.

APOCYNACEAE

ALYXIA Banks

ALYXIA RETUSA sp. nov.

Frutex scandens, inflorescentiis leviter pubescentibus exceptis glaber, ramulis incrassatis, 5-angulatis; foliis verticillatis, 5-natis, crassissime coriaceis, obovatis ad oblongo-ovatis, 5 ad 8 cm longis, apice late rotundatis retusisque, margine revolutis, nervis tenuibus, indistinctis; cymis axillaris, breviter pedunculatis, circiter 3 cm longis; fructibus usque ad 3 cm longis, partibus seminiferis solitariis vel binis, ellipsoideis, 10 ad 12 mm longis, 8 mm diametro.

A scandent shrub, glabrous except the sparingly pubescent Inflorescence, the branches stout, up to 8 mm in diameter, rugose
when dry, the younger ones distinctly 5-angled. Leaves verticillate, 5 at each node, very thickly coriaceous, obovate to oblong-ovate, 5 to 8 cm long, 2.5 to 4 cm wide, the apex broadly rounded and retuse, base acute to decurrent-acuminate, margins somewhat revolute, the midrib impressed on the upper surface, very prominent on the lower surface; lateral nerves numerous, slender, indistinct; petioles 1 to 2 cm long. Cymes axillary, somewhat pubescent, shortly peduncled, about 3 cm long, excluding the fruits. Flowers apparently few, the persistent sepals ovate to oblong-ovate, obtuse, slightly pubescent, coriaceous, about 2.5 mm long. Fruits shortly pedicelled, either 3 cm long and constricted in the middle, with two ellipsoid seed-bearing parts, or not constricted and consisting of a single seed-bearing part, the seed-bearing parts 10 to 12 mm long, about 8 mm in diameter.

LUZON, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33330 Ramos, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is strongly characterized among those with very thick coriaceous leaves by the leaves being broadly rounded and retuse at their apices.

**RAUWOLFIA** Linnaeus

**RAUWOLFIA MEMBRANACEA** sp. nov.

Frutex erectus glaber; foliis membranaceis, oblongis ad oblongo-lanceolatis, acuminatis, 7 ad 11 cm longis, nervis utrinque circiter 10, tenuibus; cymis axillaris terminalibusque, paucifloris, 4 ad 6 cm longis, fructibus elipsoidibus, leviter compressis, 1 cm longis, in siccitate rugosis.

An erect glabrous shrub. Leaves membranaceous, olivaceous, oblong to oblong-lanceolate, slenderly acuminate, base acute, olivaceous and shining when dry, 7 to 11 cm long, 2 to 3 cm wide; lateral nerves slender, about 10 on each side of the midrib, petioles 7 to 12 mm long. Cymes axillary and terminal, peduncled, 4 to 6 cm long, apparently few-flowered, the persistent calyx-lobes lanceolate, acuminate, about 2 mm long. Fruits somewhat ellipsoid, slightly compressed when dry, about 1 cm long and 6 mm wide, somewhat narrowed to the acute base and usually obtuse apex, rugose when dry.

LUZON, Ilocos Norte Province, Mount Nagapatan, Bur. Sci. 33214 Ramos, August 9, 1918, on dry slopes, altitude about 700 meters.

This species is not closely allied to any previously described
Philippine form. It is well characterized by its membranaceous, slenderly acuminate, few-nerved leaves.

**TABERNAEMONTANA** Linnaeus

**TABERNAEMONTANA ECARINATA** sp. nov.

Frutex glaber; foliis charteceis, olivaceis, oblongis ad oblongo-ellipticis, 7 ad 14 cm longis, apice late obtuseque acuminatis, nervis utrinque 8 ad 10; infructescentiis circiter 6 cm longis, haud ramosis, folliculis 2 gerentibus; folliculis 2.5 ad 3 cm longis, inaequilateralibus, ecarinatis, apice rostratis; seminibus circiter 18.

A glabrous shrub, the branches slender, terete. Leaves chartaceous, olivaceous, shining, equal, oblong to oblong-elliptic or oblong-lanceolate, 7 to 14 cm long, 3 to 7 cm wide, base often slightly inequilateral, somewhat acuminate, apex broadly and obtusely acuminate; lateral nerves 8 to 10 on each side of the midrib, distinct, anastomosing, the reticulations slender, lax; petioles about 5 mm long. Inflorescences apparently very few-flowered, the peduncles in fruit up to 6 cm long, simple, each bearing a single pair of follicles but usually presenting one or two scars of fallen pedicels. Persistent sepals ovate, about 2.5 mm long. Corolla-tube about 12 mm long, the lobes spreading, narrow, about 1.5 cm long. Follicles yellow, 2.5 to 3 cm long, 1.5 to 2 cm wide, inequilateral, smooth, not at all keeled, somewhat compressed, one side nearly straight, the other semi-circular, apex rather prominently rostrate. Seeds up to 18 in each follicle, irregular, 7 to 8 mm long.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci.* 33022 (type), 33082 Ramos, August, 1918, in forests along small streams at low altitudes.

This species is strongly characterized by its rostrate, rather many-seeded follicles, which are not at all keeled. In vegetative characters it resembles some forms of *Tabernaemontana pandacaqui* Poir. but differs entirely in its fruit characters.

**CONVOLVULACEAE**

**IPOMOEA** Linnaeus

**IPOMOEA POLYMORPHA** R. & S. Syst. 4 (1819) 254.


LUZON, Ilocos Norte Province, Burgos, *Bur. Sci.* 32945 Ramos, July 25, 1918, in open dry places at low altitudes: Union Prov-
ince, San Fernando, *Lete 108, 175*, July and September, 1916, in open sandy places near sea level, with the Ilocano name *camarin*.

This species has been previously reported only from Australia and Formosa, but the Philippine specimens cited above agree very closely with the descriptions and with Australian material kindly supplied by Mr. J. H. Maiden. In vegetative characters the Philippine specimens present great variation, as do the Australian ones. I am further of the opinion that *Henry 1112* from Formosa represents a somewhat dwarfed form of the same species. My specimen of this, identified as *Ipomoea* sp., is but about 10 cm high and has unusually narrow leaves. In floral characters, however, it closely approximates the Luzon form.

**VERBENACEAE**

**CALLICARPA** Linnaeus

**CALLICARPA OBTUSIFOLIA** sp. nov.

A shrub, the branchlets, petioles, inflorescences, and lower surface of the leaves densely and uniformly cinereous-stellato-pubescent, the indumentum covering the entire surface. Branches terete, pale-brownish, glabrous. Leaves elliptic to oblong-elliptic, subcoriaceous, 5 to 8 cm long, 2.5 to 4 cm wide, the apex rounded, obtuse, or sometimes subacute, base usually obtuse, margins entire below, in the upper part distinctly denticulate, the upper surface brownish-olivaceous, glabrous or when young stellate-pubescent along the midrib; lateral nerves 5 to 7 on each side of the midrib, curved, distinct as are the primary reticulations; petioles 5 to 10 mm long. Cymes axillary, peduncled, dichotomous, up to 2.5 cm wide, the peduncles about 1.5 cm long; bracts linear-lanceolate, acuminate, 2 to 2.5 mm long; pedicels 0.5 mm long or less. Flowers rather crowded, pink. Calyx cup-shaped to obconic, about 1.6 mm long, densely stellate-pubescent, the teeth 4, short. Corolla glabrous, 2.5 mm long, the lobes equal, orbicular-ovate, rounded, nearly 1 mm in diameter. Filaments and style 5 to 6 mm long. Fruit globose, dark-brown and rugose when dry, about 2 mm in diameter.
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The alliance of this species is manifestly with Callicarpa blan-coi Rolfe, from which it is especially distinguished by its elliptic to oblong-elliptic, usually rounded or obtuse, never acuminate leaves.

GESNERIACEAE

CYRTANDRA Forster

CYRTANDRA ILOCANA sp. nov.

Frutex glaberrimus; foliis chartaceis, integris, oblongis ad oblongo-obovatis vel oblongo-oblanceolatis, 3 ad 7 cm longis, in siccitate castaneis, basi acutis, apice acuminatis, nervis utrinque 5 ad 7, tenuibus; inflorescentiis tenuibus 1-vel paucifloris, pedunculis capillaris, 3 ad 7 cm longis, calycibus cupulatis, 3 ad 4 mm longis, lobis late ovatis, 1.5 mm longis, acuminatis.

An entirely glabrous shrub, the branches grayish, 3 to 4 mm in diameter, marked with large petiolar scars; the branchlets slender, smooth, dark reddish-brown. Leaves subequal or one of each pair slightly smaller than the other, chartaceous, entire, oblong to oblong-obovate, or oblong-oblanceolate, 3 to 7 cm long, 1.5 to 2.5 cm wide, the upper surface dark-castaneous when dry, the lower much paler, base usually acute, often slightly inequilateral, apex distinctly acuminate; lateral nerves slender, 5 to 7 on each side of the midrib, curved, anastomosing, close to the margins, the reticulations very lax; petioles 5 to 9 mm long. Inflorescences very slender, axillary, one- or at most few-flowered, the peduncles capillary, about 3 cm long, each bearing one fruit and also presenting one or two scars at the apex as if there might have been two or three umbellately arranged flowers; pedicels slender, up to 1 cm long. Calyx cut-shaped, 3 to 4 mm long, the lobes broadly ovate, 1.5 mm long, acuminate.

Luzon, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 33370 Ramos, August 21, 1918, on forested slopes near the summit, altitude about 1,050 meters.

This species is allied to Cyrtandra glabrifolia Merr. (C. gla-bra Kränz., non Jack) but differs in its smaller entire leaves and shorter petioles.

CYRTANDRA PANAYENSIS sp. nov.

Frutex, ut videtur scandens, ramulis junioribus ferrugineo-villosis, ceteroquin glaber; foliis oppositis, aequalibus, coriaceis vel subcoriaceis, ellipticus ad oblongo-ellipticus, 7 ad 10 cm longis, breviter acuminatis, longe petiolatis, nervis utrinque 7 vel 8,
perspicuis, margine distanter serratis; floribus axillaribus, fasciculatis, 2 cm longis, corollae tubo infra angustato, aequaliter 5-lobato, lobis circiter 2 mm longis; ovario glabro.

A shrub, apparently scandent, the young branchlets usually densely villous with brown or ferruginous hairs, the older parts entirely glabrous. Leaves opposite, equal, coriaceous or subcoriaceous, elliptic to oblong-elliptic, 7 to 10 cm long, 3.5 to 5 cm wide, dark-olivaceous and smooth above when dry, the lower surface paler, glabrous, apex shortly acuminate, base acute to decurrent-acuminate, the margins distantly serrate; lateral nerves 7 or 8 on each side of the midrib, very prominent on the lower surface, the reticulations lax, distinct; petioles at first ferruginous-villos, soon becoming entirely glabrous, 3 to 4 cm long. Flowers axillary, pink, about 2 cm long, fascicled, their ferruginous-villos pedicels about 1 cm long or less, subtended by a whorl of small, lanceolate bracts. Calyx about 10 mm long, 7 mm in diameter, ovoid or ellipsoid, black when dry, subcoriaceous, glabrous, the lobes 5, oblong-ovate, acute or slightly acuminate, 3 to 3.5 mm long. Corolla 2 cm long, the lower 12 mm slender, about 2 mm in diameter, then somewhat enlarged and 6 to 7 mm wide when flattened out, slightly pubescent externally or glabrous, the lobes 5, equal, broadly ovate, obtuse, about 2 mm long. Disk glabrous, truncate, about 1.5 mm high. Ovary and style glabrous. Fruit soft, fleshy, ellipsoid, about 12 mm long.

**Panay, Antique Province, Culasi, Bur. Sci. 32241 (type), 32411 McGregor, May 24, June 20, 1918, in the mossy forest, altitude about 1,000 meters.**

This species is closely allied to *Cyrtandra tayabensis* Elm., from which it is distinguished by its smaller, fewer-nerved leaves and its entirely glabrous ovaries.

**Cyrtandra santosii** sp. nov.

Frutex 1 ad 2 m altus, partibus junioribus et inflorescentiis et subtus foliis dense et longe ferruginoso-villosis; foliis rigidis, coriaceis, oblongo-ovatis, usque ad 10 cm longis, longe petiolatis, acutis ad acuminatis, basi acutis ad subrotundatis, margine distanter et obscure serratis, supra laevis, nigrescentibus, vetustoribus glabris vel subglabris, subtus ferrugineis, ad costa et nervis et reticulis dense et longiter ferrugineo-villosis; inflorescentiis cymosis, paucifloris, pedunculatis, usque ad 6 cm longis, bracteis oblongis, circiter 2 cm longis; floribus circiter 18 mm longis, extus densissime villosis, calycis lobis longe caudato-acuminatis.
A shrub, 1 to 2 m high, the younger parts, inflorescences, and lower surface of the leaves, especially on the midrib, nerves, and reticulations, densely villous with long, soft, silky, ferruginous hairs. Leaves coriaceous, rigid, oblong-ovate, 7 to 10 cm long, 3 to 4.5 cm wide, often somewhat inequilateral, the apex acute to acuminate, base obtuse to acute, margins obscurely serrate, the upper surface smooth, blackish when dry, when young more or less villous, especially along the midrib, becoming glabrous, the lower surface ferruginous; lateral nerves about 8 on each side of the midrib, curved-ascending, prominent and projecting as are the rather dense reticulations; petioles up to 3.5 cm in length. Inflorescences axillary, solitary, peduncled, cymose, rather lax, densely ferruginous-villous, the peduncles up to 3 cm in length, the bracts membranaceous, oblong, villous, about 2 cm long. Pedicels, in anthesis, about 5 mm long, very densely ferruginous-villous, in fruit up to 1.5 cm in length. Flowers about 1.8 cm long. Calyx glabrous inside, densely villous outside, about 13 mm long, the tube 7 mm long, the lobes with a 4 mm long, stout, caudate acumen from a broad base. Corolla 1.8 cm long, densely villous externally, inside glabrous, the throat and lobes granular, the throat somewhat oblique, the lobes unequal, orbicular-ovate, about 4 mm in diameter. Disk truncate, glabrous; style 4 mm long, prominently capitate-glandular. Fruit white when fresh, brown when dry, oblong-elliptic, 1 to 1.5 cm long.

**Luzon, Benguet Subprovince, Pauai, Bur. Sci. 32071 Santos, May, 1918, on slopes, altitude about 2,000 meters.**

This very characteristic species is perhaps as closely allied to *Cyrtandra hypochrysoïdes* Kränzl. as to any other described form, but differs remarkably from that species in numerous characters, especially in its entirely different inflorescence, longer petioles, coriaceous rigid leaves, its much denser and longer indumentum, and its very different flowers.

**Cyrtandra lancifolia** sp. nov.

Suffrutex circiter 40 cm altus, e basi ramosus, ramis tenuibus; foliis lanceolatis, membranaceis, in paribus inaequalibus, 5 ad 13 cm longis, utrinque subaequaliter angustatis, acuminatis, margine leviter undulatis, nervis utrinque 4 vel 5, utrinque glabris vel junioribus subitus leviter pubescentibus; floribus axillaribus, subsessilibus, circiter 5 cm longis, plerumque solitariis, bracteis foliaceis, spathaceis, usque ad 1.5 cm longis, deorsum connatis, perspicue acuminatis; calycis oblongis, 7 mm longis, subaequaliter 5-lobatis.
An undershrub, up to 40 cm high, branched from the base, the stems terete, about 4 mm in diameter, the branchlets brownish, slender, somewhat pubescent with very short hairs. Leaves lanceolate, membranaceous, those of each pair similar in shape but unequal in size, one usually one-third to one-half smaller than the other, 5 to 13 cm long, 1 to 2.7 cm wide, subequally narrowed to the acuminate apex and base, the margins somewhat undulate, the upper surface glabrous, brownish-olivaceous, the lower pale, glabrous or when young very slightly pubescent on the midrib and nerves; lateral nerves 4 or 5 on each side of the midrib, curved-ascending, anastomosing, the reticulations very lax; petioles 3 to 10 mm long. Flowers axillary, solitary or in pairs, white, sessile or very shortly pedicelled, about 5 cm long, each subtended by a pair of foliaceous spathe-like bracts which inclose the calyx, being united by their margins in the lower 4 mm, these bracts 1.5 to 1.7 cm long, glabrous or nearly so, prominently acuminate, up to 9 mm wide below. Calyx oblong, about 7 mm long, slightly pubescent, subequally 5-lobed, the lobes lanceolate, acuminate, 2 mm long. Corolla 4.5 to 5 cm long, pilose with long scattered hairs externally, the lower 1 cm of the tube very slender, not exceeding 2 mm in diameter, then broadened, the throat, when flattened, about 1.5 cm wide, subequally 5-lobed, the lobes ovate, rounded, about 1 cm long. Disk cylindric, glabrous, 2 mm long, somewhat crenate. Ovary glabrous. Stamens about 3 cm long.

_Luzon, Ilocos Norte Province, between Bangui and Claveria, _Bur. Sci._ 33078 Ramos, August 29, 1918, along small streams in forests at low altitudes._

This species belongs in the group with, and is closely allied to, _Cyrtandra livida_ Kränzl. and _C. agusanensis_ Elm., from both of which it differs notably in its very much larger flowers, while the leaves are merely undulate, not toothed.

**ACANTHACEAE**

**HEMIGRAPHIS** Linnaeus

**HEMIGRAPHIS NUMMULARIFOLIA** sp. nov.

_Herba glabra, tenuis, ramosis, prostratis vel subprostratis; foliis orbicularis ad orbiculari-ovatis, integris, 5 ad 10 mm longis; floribus axillaribus, solitariis, ebracteolatis, circiter 1.3 cm longis, calycis segmentis linearis-lanceolatis, 6.5 mm longis; capsulis anguste oblongis, 9 mm longis._

_A slender, much-branched herb, the main branches spreading or prostrate, up to 20 cm long, the secondary branches more or_
less ascending, glabrous or nearly so, none of the branches more than 1 mm in diameter. Leaves orbicular to orbicular-ovate, 5 to 10 mm long, rounded, entire, olivaceous, the upper surface with rather numerous, irregularly scattered cystoliths, the lower surface slightly hispid on the midrib and nerves; lateral nerves 2 or 3 on each side of the midrib, not prominent. Flowers axillary, solitary, ebracteolate, about 1.3 cm long, sessile. Calyx segments nearly free, about 6.5 mm long, 1.5 mm wide or less, linear-lanceolate, acuminate. Corolla white or faintly tinged with blue, the lower 6 mm of the tube slender, cylindric, then broadened; lobes 5, subequal, orbicular, about 3 mm in diameter. Filaments bearded; anthers 1 mm long. Capsules narrowly oblong, acute or slightly acuminate, glabrous, about 9 mm long, 1.5 mm in diameter. Seeds about 12, orbicular-elliptic.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 33031* (type), 32974 Ramos, August 30, 1918, on dry open banks, the leaves when fresh reddish-purple beneath.

This species belongs in the group with *Hemigraphis reptans* Nees and is most closely allied to *H. fruticulosa* C. B. Clarke. It is well characterized by its unusually small, orbicular, entire leaves; by its axillary, solitary, and ebracteolate flowers; and by being glabrous or nearly so throughout.

**COMPOSITAE**

**VERNORIA** Schreber

**VERNORIA GLANDULIFOLIA** sp. nov.

A scandent shrub, glabrous except the very young branchlets and the involucral bracts, the branches grayish-brown when dry, not lenticellate, the slender branchlets dark reddish-brown. Leaves lanceolate to oblong-lanceolate or oblong-elliptic, subcoriaceous, olivaceous when dry, entire, 4 to 7 cm long, 1 to 2 cm wide, subequally narrowed to the acute base and the acute or slightly acuminate apex, the lower surface rather densely and minutely glandular-punctate, the numerous glands sunk in minute pits; lateral nerves 6 to 8 on each side of the midrib, distinct, anastomosing; petioles 5 mm long or less. Heads few, solitary or in
pairs at the tips of the branchlets, in fruit about 2 cm long, their peduncles about 1 cm long; involucral bracts more or less pubescent, the outer ones 2 mm long or less, the inner ones narrowly oblong-lanceolate, about 1 cm long, their margins ciliate. Achenes about 4 mm long; pappus hairs numerous, about 1 cm long, pale reddish-brown.

LUZON, Ilocos Norte Province, Mount Palimlim, Bur. Sci. 23374 Ramos, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is well characterized among the woody scandent forms by its small, densely glandular-punctate, glabrous leaves and its few heads. Its alliance is with Vernonia pyrrhodasys Schulz-Bip.
NEW OR NOTEWORTHY PHILIPPINE PLANTS, XVI

By Elmer D. Merrill

Director and Botanist, Bureau of Science, Manila.

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NEW OR NOTEWORTHY PHILIPPINE PLANTS, XVI

By Elmer D. Merrill

Director and Botanist, Bureau of Science, Manila

The sixteenth paper of this series is essentially like its predecessors, the last number having been published in 1919. The present paper contains the descriptions of about one hundred presumably hitherto undescribed species of flowering plants, with some notes on nomenclature and some proposed changes in generic and specific names, as well as the records for a few species previously described from extra-Philippine material now found for the first time in the Archipelago. The genera Fibraurea of the Menispermaceae, Phylloclamys of the Moraceae, Eurycoma of the Simarubaceae, and Ixonanthes of the Linaceae are new to the Philippine flora, the last two being represented by previously undescribed species.

A large number of the new species described in the present paper is from the eastern coast of Surigao Province, Mindanao, and the neighboring islands of Dinagat, Siargao, and Bucas Grande, regions in which no intensive botanical collecting has hitherto been done. Extensive collections were made in these regions by Messrs. M. Ramos and J. Pascasio, April to June, 1919; and, as is usual in previously unexplored regions in the Philippines, their material contains a high percentage of previously undescribed species. Doubtless any general collection made in the same regions, but at a different time of the year, would yield an equally high percentage of novelties.

Pandanaceae

Pandanus Linnaeus f.

Pandanus apiculatus sp. nov. § Rykia.

Arbor, circiter 5 m alta, ramulis 2.5 ad 3 cm diametro; foliis circiter 1 m longis et 5.5 cm latis, in siccitate subflaccidis, sursum angustatis, apice tenuiter acuminatis, inter nervis transversalis distincte reticulatis; infructescentiis lateralibus, 10 ad 15 cm longis, syncarpiis spicati dispositis, plerumque 10, confertos, ovoideis ad globosis, 15 cm diametro; drupis numerosis, confertos, cylindricis vel oblongis, 1-locellatis, 6 ad 7 mm longis, 2 ad 2.5 mm diametro, apice rotundatis et acute apiculatis, stylis circiter 1 mm longis.

A tree, about 5 m high, the ultimate branches 2.5 to 3 cm in diameter. Leaves about 1 m long and 5.5 cm wide, somewhat flaccid when dry, the margins armed with rather conspicuous teeth, the midrib beneath near the base with retrorse teeth and toward the apex with antrorse teeth, the 2 lateral nerves sometimes with a few scattered teeth on the upper surface near the apex, the blade more or less narrowed to the distinctly and rather slenderly acuminate apex, distinctly transversely reticulate between the numerous secondary nerves. Infructescences lateral, from the base of the apical tufts of leaves, 10 to 15 cm long, the syncarps ovoid to globose, sessile, about 1.5 cm in diameter, usually about 10 on each infructescence, the peduncles closely covered in the lower half with numerous, imbricate, spirally arranged, oblong bracts, which are usually about 4 cm in length. Drupes numerous, crowded, red, cylindrical or oblong or sometimes narrowed below, 1-celled, 6 to 7 mm long, 2 to 2.5 mm in diameter, the apical 1.5 to 2 mm free, rounded, terminated by the indurated, slightly upward-curved, usually acute style, which is usually about 1 mm in length.

Mindanao, Surigao Province, Bur. Sci. 34572 Ramos & Pascasto, April 25, 1919, on ridges, altitude about 690 meters, at the iron deposit on the northeast coast.

A rather remarkable species on account of its lateral infructescences and its multibracteate peduncles. It is manifestly allied to Pandanus multibracteatus Merr., but has much wider leaves and differs essentially in its fruit characters, the drupes being much smaller and not prolonged into slender, elongated tips, as in the latter species.

Pandanus dinagatensis sp. nov. § Rykia.

Frutex parvus, ramulis circiter 3 cm diametro; foliis usque ad 1.75 m longis, circiter 6.5 cm latis, subcoriaceis, sursum
angustatis, acuminatis; infructescentiis plerumque 3, pedunculatis, syncarpiis circiter 10, spicatim dispositis, oblongo-ovoideis ad anguste oblongis, 2 ad 4 cm longis, confertis, pedunculo usque ad 10 cm longo; drupis minutis, confertis, oblongis, 1-locellatis, 5 ad 6 mm longis, usque ad 2 mm diametro, apice rotundatis vel conicis, stigma plerumque rotundata et circiter 1 mm diametro.

A small shrub, the ultimate branches about 3 cm in diameter. Leaves up to 1.75 m long, about 6.5 cm wide, subcoriaceous, the margins armed with small teeth, the midrib beneath in the upper part with small scattered teeth, more or less narrowed above to the acuminate apex. Syncarps about 10, spicately arranged on each peduncle, oblong-ovoid to narrowly oblong, 2 to 4 cm long, 1.5 to 2 cm wide, crowded toward the upper tips of the peduncles, usually 3 or more infructescences terminating each branchlet, the peduncles up to 10 cm long and 5 to 7 mm in diameter. Drupes very numerous, crowded, oblong or somewhat narrowed below, 1-celled, 5 to 6 mm long, 2 mm in diameter or less, their apices somewhat rounded or conical, terminated by the flattened and rounded or sometimes papilliform stigma which is usually less than 1 mm in diameter.

DINAGAT, Bur. Sci. 35183 Ràmos & Pascasio, May 12, 1919, in forests along streams at low altitudes.

A species remarkable for its numerous, small, crowded syncarps and for the very unusual character of several peduncles terminating each branchlet. The species is further characterized by its very small drupes, and is not closely allied to any previously described form.

PANDANUS MULTIBRAC T EATUS sp. nov. § Acrostigma.

Arbor, circiter 4 m alta, ramulis circiter 3.5 cm diametro; foliis rigidis, coriaceis, anguste acuminatis, 1.5 ad 2 m longis, 3 ad 3.5 cm latis; infructescentiis lateralibus, spicatis, pedunculo usque ad 10 cm longo, bracteis numerosis spiraliter dispositis, oblongis, 2 ad 3 cm longis, obtecto; syncarpiis 8 ad 10, confertis, ovoideis, 1.5 ad 2.5 cm longis, drupis numerosis, usque ad 3 mm diametro, confertis, stylis tenuibus, rigidis, integris vel obscure dentatis, circiter 5 mm longis.

A small tree, about 4 m high, the ultimate branches about 3.5 cm in diameter. Leaves coriaceous, rigid, 1.5 to 2 m long, 3 to 3.5 cm wide, the margins armed with short, sharp, rather closely arranged teeth, gradually narrowed upward to the slenderly acuminate apex. Infructescences lateral, from the branches below the leaves, the peduncles up to 10 cm in length,
densely covered by spirally arranged, very numerous, imbricating, coriaceous, rigid, oblong, entire or slightly toothed bracts, 2 to 3 cm in length. Syncarps 8 to 10, red, spicately arranged, rather crowded, ovoid, 1.5 to 2.5 cm long, composed of numerous, densely arranged, 1-celled drupes which are 3 mm or less in diameter, their apices abruptly narrowed, somewhat ridged, terminated by the slender, entire or slightly toothed, rigid, straight or somewhat curved styles which are up to 5 mm in length.

MINDANAO, Surigao Province, Bur. Sci. 34571 (type), 34819 Ramos & Pascasio, April 25, 1919, at the iron deposit on the northeast coast on the Hegapit River, altitude about 680 meters. The fruit red when mature.

A remarkable species, not closely allied to any previously described Philippine form and easily recognizable by its lateral, spicate inflorescences; by its small, ovoid syncarps, the tips of the drupes narrowed and elongated; and by the multibracteate peduncles.

**Pandanus Ramosii** sp. nov. § Bryantia.

Frutex, 2 ad 3 m altus, ramulis ultimis circiter 1.5 cm diametro; foliis crasse coriaceis, linearis, circiter 1.5 m longis, 2 ad 2.5 cm latis, apice tenuiter acuminatis; syncarpiis terminalibus, erectis, solitariis, ovoideis, 5 ad 6 cm longis, pedunculo usque ad 20 cm longo, circiter 7 mm diametro; drupis numerosis, 1-locellatis, 10 ad 12 mm longis, circiter 3 mm diametro, anguste oblongis, ⅓ superioribus liberis, rotundatis, stigma sessile, plano, circiter 1.3 mm diametro.

A shrub, 2 to 3 m high, the ultimate branches about 1.5 cm in diameter. Leaves thickly coriaceous, rigid, rather pale when dry, linear, about 1.2 m long, 2 to 2.5 cm wide, narrowed above to the rather slender, acuminate apex, the margins distinctly toothed, the midrib on the lower surface in the upper part more or less toothed as are the 2 primary veins on the upper surface toward the apex. Syncarps terminal, erect, solitary, ovoid, 5 to 6 cm long, somewhat triangular in cross section, the basal part somewhat inclosed by a few, broadly ovate, leaflike bracts, the peduncles up to 20 cm long, triangular, about 7 mm in diameter, supplied with 2 or 3 reduced leaves 25 to 40 cm in length in addition to the terminal, leaflike bracts. Drupes very numerous, crowded, red, 1-celled, 10 to 12 mm long, about 3 mm in diameter, narrowly oblong, the apical half free, somewhat angular, rather abruptly rounded or narrowed at the apex and terminated by the flat, sessile, truncate stigma, which is usually about 1.3 mm in diameter.
BUCAS GRANDE, Bur. Sci. 35136 Ramos & Pascasio, June 10, 1919, in dry forests at low altitudes. The same species is apparently represented by Bur. Sci. 35198 Ramos & Pascasio from the neighboring island of Dinagat, the latter number consisting of leaves only.

A species not closely allied to any previously described Philippine form, well characterized by its narrow, rigid leaves; its solitary, erect, long-peduncled syncarps, the peduncles being supplied with several reduced leaves and several additional, reduced, apical, leaflike bracts; and by its very numerous, small, narrow, 1-celled drupes. Allied to Pandanus brachyspathus Martelli, but with very different leaves.

PANDANUS TENUIPEDUNCULATUS sp. nov. § Bryantia.

Frutex erectus, ramulis 1 ad 1.3 cm diametro; foliis subflaccis, angustae oblongo-lanceolatis, 50 ad 75 cm longis, 3 ad 4.5 cm latis, apice abrupte angustatis, breviter acuminatis; syncarpiis ovoideis, erectis, circiter 3 cm diametro, pedunculo usque ad 9 cm longo, 5 mm diametro; drupis numerosis, obovoideis ad anguste obovoideis, 10 ad 12 mm longis, circiter 5 mm diametro, 1-locellatis, apice rotundatis, stigma sessile, planum, circiter 1.2 mm diametro.

A shrub, the ultimate branches 1 to 1.3 cm in diameter. Leaves subflaccid, narrowly oblong-lanceolate, 50 to 75 cm long, 3 to 4.5 cm wide, about the same width throughout or somewhat narrowed below, the apex abruptly tapering to the short acumen, the latter 5 mm long or less, the margins rather finely toothed, the midrib beneath in the uppermost part with few small teeth, the 2 lateral nerves on the upper surface toward the apex with similar scattered teeth. Heads ovoid, solitary, terminal, erect, about 3 cm in diameter, the peduncles triangular, about 9 cm long, 5 mm in diameter. Drupes red, obovoid to narrowly obovoid, 10 to 12 mm long, up to 5 mm in diameter, 1-celled, narrowed below to the cuneate base, the apical portion rounded, the very tip sometimes depressed, terminated by the flat stigma which is about 1.2 mm in diameter.

MINDANAO, Surigao Province, Bur. Sci. 34739 Ramos & Pascasio, June 20, 1919, in open forests at low altitudes. Bur. Sci. 34842 Ramos & Pascasio from Siargao Island, a specimen with staminate flowers, probably represents the same species.

This species is readily distinguishable by its rather flaccid leaves which are of about the same width throughout and rather abruptly narrowed to the short-acuminate apex; and by its slenderly peduncled, solitary, erect syncarps.
PIPER ACEAE

PIPER Linnaeus

PIPER ANGUSTRIPETALUM sp. nov. § Eupiper.

Frutex dioicus, scandens, glaber; foliiis oblongis, nitidis, 10 ad 16 cm longis, aequilateralibus, chartaceis, basi rotundatis et anguste peltatis, 7-nervis, apice perspicue acuminatis; spicis cylindricis, circiter 3 cm longis et 12 mm diametro, bracteis peltatis, glabris, stylis tenuibus, patulis, confertis, 3 ad 4 mm longis.

A glabrous, dioecious vine, the ultimate branches terete, about 2 mm in diameter. Leaves chartaceous, oblong, 10 to 16 cm long, 3 to 6 cm wide, equilateral or nearly so, the base rounded and narrowly peltate, the petioles inserted, 2 to 4 mm from the edge of the leaf, 7-nerved, the inner pair of nerves extending to the apex, the reticulations horizontal, distinct, subparallel, the apex rather prominently acuminate, both surfaces shining when dry; petioles 2 to 2.5 cm long. Pistillate spikes, leaf-opposed, cylindrical, about 3 cm long and 12 mm in diameter, their peduncles up to 2 cm in length; bracts peltate, rounded, 0.8 mm in diameter, styles numerous, densely crowded, spreading, slender, 3 to 4 mm long. Stigmas 2, recurved, 0.5 mm long.

Luzon, Tayabas Province, Mount Binuang, Bur. Sci. 28846 Ramos & Edano, May 19, 1917, in damp forests along rivers at low and medium altitudes.

This species is similar and very closely allied to Piper longistigma C. DC. from which it is easily distinguished by its narrowly peltate leaves.

PIPER CATUBIGENSE sp. nov. § Eupiper.

Frutex dioicus, scandens, foliiis subtus ad costa nervisque pubescentes; folii penninerviis, membranaceis, lanceolatis ad oblongo-ovatis, 15 ad 17 cm longis, basi obtusis ad rotundatis, leviter inaequaliteralibus, apice tenuiter acuminatis, nervis utrinque circiter 9, distinctis; spicis cylindricis, tenuibus, 5 ad 7 cm longis, circiter 3 mm diametro, bracteis peltatis.

A scandent, dioecious vine, the branchlets, petioles and leaves along the midrib and nerves on the lower surface distinctly pubescent. Leaves membranaceous, lanceolate to oblong-ovate, penninerved, 15 to 17 cm long, 4 to 9 cm wide, the base obtuse or rounded and slightly inequilateral, the apex slenderly acuminate; lateral nerves about 9 on each side of the midrib, distinct, ascending, somewhat curved; petioles 10 to 12 mm long. Staminate spikes cylindric, rather slender, black when dry, 5 to 7 cm long, about 3 mm in diameter, their peduncles 10 to 12 mm
in length, sparingly pubescent. Bracts peltate, about 1 mm in diameter. Anthers apparently 2.


A species belonging in the group with *Piper penninerve* C. DC. and most closely allied to *Piper longilimbum* C. DC., from which it is distinguished by its smaller, caudate-acuminate leaves and by its staminate spikes being but half as long as in the latter species.

**PIPER ELMERI** sp. nov. § *Eupiper.*

Frutex dioicus, scandens, ramis circiter 1 cm diametro; foliis chartaceis ad subcoriaceis, late ovatis, aequilateralibus, basi profunde cordatis, 10- vel 12-plinerviis, apice acutis vel acuminatis, usque ad 30 cm longis, subtus molliter pubescens; spicis ♂ usque ad 25 cm longis, circiter 4 mm diametro, bracteis pubescens, peltatis, 2.5 ad 3.5 mm longis; spicis ♀ usque ad 25 cm longis, cylindricis, densis; fructibus pedicellatis, ovoideis, 7 ad 9 mm longis, pedicellis usque ad 1.5 cm longis.

A coarse, woody, dioecious vine, the branches up to 1 cm in diameter, the older ones somewhat angled, rugose and brownish when dry. Leaves chartaceous to subcoriaceous, broadly ovate, 15 to 30 cm long, 11 to 23 cm wide, equilateral or nearly so, the base deeply cordate, 10- or 12-plinerved, the sinus rather narrow up to 4 cm deep, the basal lobes broadly rounded, apex acute or somewhat acuminate, the upper surface glabrous, shining, olivaceous, the lower surface softly pubescent; nerves prominent, the reticulations distinct; petioles up to 6 cm in length. Inflorescences simple, leaf-opposed, the staminate ones up to 25 cm long, about 4 mm in diameter, their peduncles 1.5 to 2 cm long. Stamine flowers numerous, the stamens 2, about 2 mm long, the bracts peltate, oblong-ovate, obtuse, pubescent, 2.5 to 3.5 mm long. Pistillate inflorescences up to 20 cm long or in fruit up to 25 cm in length, the rachis rather stout, cylindric, about 5 mm in diameter, the flowers numerous, crowded, sessile or subsessile, the ovary ovoid to elliptic, glabrous, about 2 mm long, the stigmas 3 or 4, sessile, the pedicels increasing in length immediately after anthesis and in fruit up to 1.5 cm long, spreading, the fruits ovoid, yellowish-red when fresh, somewhat wrinkled and usually black when dry, 7 to 9 mm long, the rachis with numerous unfertilized flowers in addition to those which develop into fruits.


A remarkable species not at all resembling any previously described form, easily recognizable by its broadly ovate, deeply cordate, equilateral leaves which are softly pubescent beneath; by its rather stout, cylindric, elongated spikes and their pubescent bracts; and by its large, long-pedicelled fruits.

**ULMACEAE**

**CELTIS ASPERIFOLIA** sp. nov.

Arbor magna, plus minusve pubescens; foliis tenuiter chartaceis, scaberulis, ovatis, integris, 5 ad 8 cm longis, acuminatis, basi inaequilateralibus, 3-nervis, oblique truncatis ad rotundatis vel acutis; inflorescentiis pubescens, usque ad 5 cm longis, inferioribus & superioribus, sepalis et staminibus 5, ovario pubescente.

A tree, about 25 m high, more or less pubescent. Leaves thinly chartaceous, rather scabrous, both surfaces with scattered, very short hairs, ovate, entire, 5 to 8 cm long, 3 to 5 cm wide, the base inequilateral, 3-nerved, somewhat oblique-truncate to rounded or even shallowly cordate, the younger leaves sometimes acute, apex acuminate; nerves slender, including the basal pair usually 3 on each side of the midrib; petioles pubescent, about 5 mm long. Inflorescences axillary and from the axils of fallen leaves, the latter usually wholly staminate, the former with both male and perfect flowers, cinereous-pubescent, up to 5 cm long. Male flowers sessile, somewhat glomerate on the branchlets, 5-merous, about 4 mm in diameter, the sepals distinctly pubescent, oblong-ovate, 2 mm long. Stamens equaling the sepals. Perfect flowers fewer than the male, sessile or short-pedicelled, the sepals 5, elliptic to oblong-elliptic, 2 to 2.5 mm long. Ovary oblong-ovoid, pubescent, the style arms forked. Stamens 5, filaments 2 mm long.

MINDANAO, Davao Province, Santa Cruz, For. Bur. 27562 De Mesa, May 2, 1919, in sandy soil, altitude about 70 meters, with the local Tagakaolo name sikim.

This species does not appear to be very closely allied to any previously described form. It is easily distinguished among the Oriental species with entire leaves by its indumentum and
its scabrous leaves. The collector gives the height of the tree as 25 meters with a trunk diameter of 1 meter.

MORACEAE

PHYLLOCHLAMYS Bureau

PHYLLOCHLAMYS TAXOIDES (Heyne) Koord. Exkursionsfl. Java 2 (1912) 89, var. PARVIFOLIA var. nov.

A rigid, branched, spiny shrub, 1 to 3 m high, entirely glabrous. Leaves chartaceous, oblong to elliptic-oblong or oblong-lanceolate, entire or with one or two teeth near their tips, acute to slightly acuminate, 2 to 4 cm long, 1 to 2.3 cm wide, the nerves not prominent. Pestillate flowers solitary, their pedicels about 4 mm long, each with a pair of bracteoles at about the middle; these ovate, obtuse, about 1 mm long. Sepals 4, in anthesis 4 to 8 mm long, lanceolate to oblong-lanceolate, not reticulate, slenderly acuminate, pale-green when fresh.

PALAWAN, Lake Manguao, Merrill 9482, April 27, 1913, on steep, dry, forested banks, altitude about 70 meters.

This is the first record for Phyllochlamys as Philippine, the form above described differing from the typical Indian P. taxoides (Heyne) Koord. (P. spinosa Bureau) in its much smaller, not prominently nerved, entire or only slightly toothed leaves. It may ultimately prove to be specifically distinct, as it is rather different from the single Indian specimen I have for examination, Wight 817. The species is widely distributed in India, but is reported from the Malay Archipelago only from Timor.

PROTEACEAE

HELICIA Loureiro

HELICIA PAUCINERVIA sp. nov.

Arbor parva glabra; foliis coriaceis, oblongo-ellipticis, utrinque angustatis, basi acutis vel leviter decurrentibus, apice obtusis vel obtuse acuminatis, usque ad 14 cm longis, sursum distantier dentatis, vel integris, pagina superiore valde nitidis, nervis utrinque circiter 5, perspicuis; racemis lateraliis, e axillis defoliatis, circiter 20 cm longis; floribus solitariis vel binis, 2 cm longis.

A glabrous tree, about 5 m high, the branches dark reddish-brown. Leaves coriaceous, oblong-elliptic, narrowed to the acute or somewhat decurrent base and to the obtuse or bluntly acuminate apex, 10 to 14 cm long, 4.5 to 6 cm wide; the margins distantly and rather coarsely toothed above or sometimes entire,
the upper surface brownish-olivaceous, strongly shining, the lower surface dull, paler; lateral nerves about 5 on each side of the midrib, prominent; petioles about 1 cm long. Racemes solitary, lateral, in the axils of fallen leaves, about 20 cm long. Flowers white, solitary or paired, 2 cm long, their pedicels 2 to 3 mm long, when in pairs free nearly to the base. Perianth lobes 4, the somewhat enlarged tips narrowly oblong, about 3 mm long and 1.2 mm wide. Hypogynous scales more or less united into a prominent white disk about 1 mm high.

Mindanao, Surigao Province, Bur. Sci. 34610. Ramos & Pascasio, April 25, 1919, on river banks at the iron deposit on the northeast coast, altitude about 300 meters.

A species closely allied to Helicia oligophlebia Merr. but with larger leaves and flowers. It is possible that Bur. Sci. 34621 Ramos & Pascasio from the same locality represents the same species. This specimen, however, is in fruit, and the leaves are relatively narrower and are wholly entire.

ARISTOLOCHIACEAE

BRAGANTIA Loureiro

BRAGANTIA BREVIPEs sp. nov.

Suffrutex simplex, erectus, 0.5 m altus, leviter pubescens; foliis subcoriaceis, oblongo-ellipticis ad elliptico-ovatis, 11 ad 17 cm longis, basi obtusis ad rotundatis, 3-nerviis, apice obtusis ad rotundatis, plerumque minute apiculatis, breviter petiolatis, petiolo 5 ad 8 mm longo; racemis basilaribus, solitariis, 4 ad 12 cm longis, bracteis lineari-lanceolatis; floribus circiter 12 mm diametro, hirsutis, lobis late ovatis, reticulatis; capsulis tenuis, leviter torulosus, circiter 4 cm longis et 4 mm diametro.

An erect, small undershrub, up to 50 cm high, the stems sulcate when dry, grayish, 5 mm in diameter or less, solitary or 2 or 3 from the same root, more or less cinereous-pubescent as are the leaves on the lower surface. Leaves subcoriaceous, grayish or olivaceous when dry, oblong-elliptic to elliptic-ovate, 11 to 17 cm long, 6 to 10 cm wide, base rounded to obtuse, 3-nerved, the apex rounded or obtuse and usually minutely apiculate; lateral nerves above the basal pair about 5 on each side of the midrib, ascending, distinct on the lower surface as are the close reticulations; petioles 5 to 8 mm long. Racemes basal, solitary, the rachis 4 to 12 cm long, the bracts linear-lanceolate, pubescent, about 7 mm in length. Flowers about 12 mm in diameter, somewhat hirsute, yellowish, the perianth tube broadly cup-shaped or ovoid, about 4 mm long, the limb spreading, the
lobes broadly ovate, reticulate, 6 mm long and 8 mm wide, stamens 6, free, the filaments about 1 mm in length. Capsules slender, somewhat torulose when dry, about 4 cm long and 4 mm in diameter.

MINDANAO, Surigao Province, *Bur. Sci.* 34811 (type), 34369 Ramos & Pascasio, April and May, 1919, in forests along small streams at low altitudes. To this species I also refer Merrill 10490 from Alabat and *Bur. Sci.* 13370 Ramos from Tayabas Province, Luzon, both of which were originally identified as *Bragantia affinis* Planch.

The alliance of this species is manifestly with *Bragantia affinis* Planch., a species definitely known only from Panay. It is distinguished from the latter especially by its much shorter petioles.

**MENISPERMACEAE**

**FIBRAUREA** Loureiro


**DINAGAT, Bur. Sci.* 35224, 35229 Ramos & Pascasio, May 12, 1919, in forests along small streams at low altitudes.

This is the first record of this genus as Philippine, the specimens cited above coming well within the range of variation of Miers’s species as represented by ample material before me from Borneo, Sumatra, Java, and the Malay Peninsula, although the inflorescences are 30 cm in length; the longest inflorescence on the extra-Philippine material available for comparison is 25 cm, while Diels gives the maximum as 20 cm. The species extends from Burma, through Malaya, to Celebes.

**MAGNOLIACEAE**

**TALAUMA** Jussieu

*TALAUMA RETICULATA* sp. nov.

Arbor glabra, pedunculis ramulisque exceptis glabra; foliis angustis oblongis ad oblongo-ob lanceolatis, 24 ad 34 cm longis, 5 ad 7.5 cm latis, crasse coriaceis, nitidis, deorsum angustatis, basi cuneatis, apice acutis vel breviter acuminatis, nervis utrinque circiter 14, cum reticulis valde perspicuis; carpellis ut videtur paucis 1.5 ad 3 cm longis, 1 ad 1.5 cm latis, obtusis, haud rostratis.

A small tree, glabrous except the peduncles and very young branchlets, the latter about 5 mm in diameter. Leaves narrowly oblong to oblong-ob lanceolate, 24 to 34 cm long, 5 to 7.5
cm wide, thickly coriaceous, shining, narrowed below to the cuneate base and above to the acute or shortly acuminate apex; lateral nerves about 14 on each side of the midrib, distant, anastomosing, prominent, the reticulations very distinct on both surfaces; petioles stout, about 2 cm long. Fruits solitary, their peduncles about 5 cm long, appressed-pubescent, the rachis of the infructescence 5 to 6 cm long, the individual carpels apparently few, brown when dry, 1.5 to 3 cm long, 1 to 1.5 cm wide, their tips blunt, not at all prolonged into a beak.

DINAGAT, Bur. Sci. 35187 Ramos & Pascasio, May 12, 1919, in forests at low altitudes.

This species in its vegetative character resembles Talauma angatensis F.-Vill., but has narrower, differently shaped, more conspicuously reticulate leaves; it further differs from the latter species in its apparently few carpels which are merely blunt at their apices, not at all beaked.

ANNONACEAE

OXYMITRA Hooker f. and Thomson

OXYMITRA OLIGOPHLEBIA sp. nov.

Frutex scandens, ramulis floribusque exceptis glaber, ramis tenuibus; foliis chartaceis vel subcoriaceis, oblongis ad oblongo-lanceolatis, usque ad 10 cm longis, basi rotundatis, sursum angustatis, acutis vel leviter acuminatis, olivaceis, nitidis, subtus brunneis, nervis utrinque plerumque 5, tenuibus, distinctis; floribus extra-axillaribus, solitariis, circiter 3 cm longis, lanceolatis, ferrugineo-pubescentis, longetenuiterque pedicellatis.

A scandent shrub, glabrous except the very slightly pubescent branchlets and the rather densely ferruginous-pubescent flowers; the branches terete, slender, about 3 mm in diameter, shining, dark reddish-brown when dry. Leaves firmly chartaceous or subcoriaceous, oblong to oblong-lanceolate, 6 to 10 cm long, 2 to 3.5 cm wide, the base rounded, narrowed upward to the acute or slightly acuminate apex, the upper surface olivaceous, shining, the lower surface brownish; lateral nerves usually 5 on each side of the midrib, slender, distinct, curved, the reticulations not prominent; petioles about 3 mm long. Flowers yellow, solitary, extra-axillary, about 3 cm long, lanceolate, acuminate, their pedicels up to 2.5 cm long, slender, sparingly pubescent with a small bract below the midrib. Calyx-lobes triangular-ovate, pubescent, acuminate, about 3 mm long. Outer petals when young densely ferruginous-pubescent, the indumentum more or less scattered in age.

This species is probably more closely allied to *Oxymitra paucinervia* Merr. than to any other species, but differs in its fewer-nerved leaves which are not at all glaucous beneath.

**GONIOTHALAMUS** Hooker f. and Thomson

**GONIOTHALAMUS PANAYENSIS** sp. nov.

Arbor parva, ramulis junioribus et floribus plus minusve pubescens; foliis chartaceis vel subcoriaceis, oblongis, 15 ad 30 cm longis, basi acutis, apice tenuiter acuminati, nervis utrinque circiter 12, perspicuis; floribus solitariis vel fasciculatis e trun- ciris vel ramis majoribus, breviter pedicellatis, circiter 2.5 cm longis; petalis exterioribus lanceolatis, crasse coriaceis sursum angustatis, utrinque plus minusve pubescens; petalis interiori- ciric 1.3 cm longis, conniventibus.

A tree, about 5 m high, the very young branchlets sparingly pubescent, the flowers usually densely so, otherwise glabrous. Leaves chartaceous or subcoriaceous, oblong, shining, 15 to 30 cm long, 4 to 10 cm wide, the base acute, apex slenderly acuminate; lateral nerves about 12 on each side of the midrib, prominent, the reticulations rather lax, distinct; petioles 1 to 2 cm long. Flowers yellowish, solitary or fascicled on the trunk and larger branches, rarely axillary on the younger branches, their pedicels densely pubescent, about 4 mm long, usually sub- tended by a pair of small bracts. Calyx about 1.3 cm in diam- eter, the lobes ovate, acute or somewhat acuminate, more or less pubescent. Outer 3 petals lanceolate, apparently fleshy, thickly coriaceous when dry, about 2.5 cm long and 8 mm wide, narrowed upward to the acute or slightly acuminate apex, slightly constricted toward the base, both surfaces more or less pubescent with short, appressed, shining, brownish hairs. In- ner petals about 1.3 cm long, appressed-pubescent, connivent.


This species is distinctly allied to *Goniothalamus amuyon* (Blanco) Merr., from which it is readily distinguished by its larger, slenderly acuminate leaves, and smaller flowers.

**PSEUDUVARIA** Miquel

**PSEUDUVARIA CAUDATA** sp. nov.

Arbor parva, dioeca, partibus junioribus floribusque exceptis glabra, ramis tenuibus; foliis lanceolatis, 5 ad 14 cm longis,
nitidissimis, basi acutis, apice caudato-acuminatis, nervis utrinque 7 ad 10, perspicuis; floribus axillaribus, petalis exterioribus late ovatis, obtusis, 2.5 mm longis, interioribus arcuatis, 8 ad 9 mm longis; staminibus circiter 40.

A tree, about 7 m high, glabrous except the younger parts and the flowers. Branches slender, terete, nearly black when dry, glabrous, the branchlets sparingly pubescent. Leaves lanceolate, 6 to 14 cm long, 1.5 to 3.5 cm wide, chartaceous, strongly shining when dry, base acute, narrowed upward to the slenderly caudate-acuminate apex, the lower surface slightly pubescent on the midrib; lateral nerves 7 to 10 on each side of the midrib, prominent, curved-ascending, anastomosing; petioles 3 to 5 mm long. Flowers axillary, greenish, solitary or in pairs, their pedicels 7 to 10 mm long, finely pubescent, bearing a small bract at the middle 1 mm long or less and wider than long. Sepals broadly ovate, rounded, pubescent, about 1.8 mm in diameter. Outer 3 petals broadly ovate, rounded or obtuse, pubescent, about 2.5 mm long; inner 3 petals arched, 8 to 9 mm long, pubescent; the limb 5 mm wide, 2 to 3 mm long, the claw 5 to 6 mm in length. Stamens about 40, densely crowded, less than 1 mm long.


A species well characterized in this small genus by its lanceolate, caudate-acuminate leaves. The specimen presents only male flowers.

POPOWIA Endlicher

POPOWIA LANCEOLATA sp. nov.

Arbor parva, ramis tenuibus, glabris, ramulis ferrugineo-pubescentis; foliis chartaceis vel subcoriaceis, lanceolatis, 4 ad 6 cm longis, 1 ad 1.5 cm latis, utrinque subaequaliter angustatis, basi cuneatis, apice tenuiiter acuminatis, supra glabris, subtus ad costa nervisque adpressae pubescens; nervis utrinque plerumque 5, tenuibus, adscendentibus, reticulis obsoleteis; fructibus globosis circiter 8 mm diametro:

A tree, about 8 m high, the branches and branchlets terete, the former glabrous, nearly black when dry, slender, the latter more or less ferruginous-pubescent. Leaves lanceolate, firmly chartaceous or subcoriaceous, 4 to 6 cm long, 1 to 1.5 cm wide, subequally narrowed to the cuneate base and to the rather slenderly acuminate apex, the upper surface glabrous, the lower surface paler and appressed-pubescent on the midrib and nerves; lateral nerves paler, ascending; usually 5 on each side of the
midrib, the reticulations obsolete; petioles about 2 mm long. Very young flowers in axillary, short, few-flowered cymes, the pedicels, sepals, and petals ferruginous-pubescent. Fruits globose, sparingly pubescent, about 8 mm in diameter.

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A species manifestly allied to *Popowia polyandra* (Presl) Merr., which in turn is perhaps not specifically distinct from the Malayan *P. pisocarpa* Endl. The present species is strongly characterized by its narrow, lanceolate, slenderly acuminate leaves.

**MYRISTICACEAE**

**HORSFIELDIA** Willdenow

**HORSFIELDIA ACUMINATA** sp. nov. § *Irya, Euirya.*

A tree, glabrous except the very youngest branchlets and the inflorescences which are more or less ferruginous-pubescent. Branches terete, reddish-brown, lenticellate, the twigs without longitudinal lines. Leaves chartaceous, lanceolate to oblong-lanceolate, 15 to 20 cm long, 3.5 to 4 cm wide, somewhat olivaceous, shining, the base acute, the apex slenderly acuminate; lateral nerves about 16 on each side of the midrib, slender, distinct; petioles about 8 mm long. Staminate inflorescences axillary, paniculate, up to 12 cm long, branched from near the base, the primary branches up to 4.5 cm in length, the flowers somewhat crowded on the ultimate branchlets, the rachis, branches, and branchlets when young densely ferruginous-pubescent, the indumentum somewhat deciduous. Staminate flowers globose, glabrous, about 1.5 mm in diameter, the perianth 2-valved, their pedicels up to 1 mm long. Anther cells short, on the margin of the disk, their tips free.

**MINDANAO**, Davao Province, Astorga, *For. Bur. 27507 De Mesa*, April 23, 1919, in rich, level, forested areas, altitude about 20 meters, with the local Maguindanao name *kaná*.

A species belonging in the group with *Horsfieldia irya* Warb.
but distinguished from it and its congeners by a number of characters.

**HORSFIELDIA RAMOSII** sp. nov.

A tree, the branchlets and lower surface of the leaves along the midrib stellate-pubescent with short, castaneous hairs, the indumentum somewhat deciduous, the branches glabrous, the ultimate branchlets without longitudinal lines. Leaves oblong to oblong-lanceolate, subcoriaceous, 13 to 17 cm long, 4 to 6 cm wide, narrowed below to the acute or somewhat decurrent base, and above to the slenderly and sharply acuminate apex; lateral nerves about 15 on each side of the midrib, obscurely anastomosing, the reticulations lax, indistinct or obsolete; petioles 8 to 12 mm long, stellate-pubescent when young, becoming glabrous. Pistillate inflorescences axillary and from the axils of fallen leaves, stellate-pubescent, 2 to 3 cm long, few-flowered, racemose or depauperate-paniculate, the primary branches when present few, about 3 mm long. Perianth glabrous, globose or ovoid, 2-valved, about 2 mm in diameter, the pedicels about 2 mm long.

**BUCAS GRANDE, Bur. Sci. 35047 Ramos & Pascasio,** June 11, 1919, in dry forests at low altitudes.

This species is apparently most closely allied to *Horsfieldia obscurinervia* Merr., but is readily distinguished by its castaneous, stellate indumentum on the branchlets, inflorescences, and lower surface of the leaves. The two species are not, however, directly comparable, as of the latter the staminate flowers are known and of the species described above only the pistillate ones.

**MYRISTICA** Linnaeus

- **MYRISTICA LAXIFLORA** sp. nov.

Arbor, subtus foliis et ramulis et inflorescentiis ferrugineo-pubescent; folii lanceolatis ad oblongo-lanceolatis, chartaceis, 10 ad 15 cm longis, utrinque angustatis, basi acutis, apice acutis vel leviter acuminatis, supra glabris, nitidis, subtus subcupreis,
nervis utrinque circiter 12, tenuibus, reticulis subobsoletis; inflorescentiis ♂ axillaribus, paniculatis, laxis, 4.5 ad 6 cm longis; floribus subumbellatim dispositis, pedicellatis, ellipsoideis, 4 mm longis; fructibus ellipsoideis, circiter 4.5 cm longis, dense ferrugineo-puberulis.

A tree, the branchlets, inflorescences, and leaves on the lower surface ferruginous-pubescent or puberulent with dense short hairs. Branches reddish-brown, glabrous. Leaves lanceolate to oblong-lanceolate, chartaceous, 10 to 15 cm long, 2.5 to 4.5 cm wide, narrowed below to the acute base and above to the acute or somewhat acuminate apex, the upper surface glabrous, smooth and shining when dry, the lower often somewhat cupreous from the rather dense, close indumentum; lateral nerves about 12 on each side of the midrib, slender and not prominent, scarcely impressed on the upper surface, the reticulations nearly obsolete; petioles 1 to 2.5 cm long, when young pubescent, eventually glabrous. Staminate inflorescences axillary, paniculate, rather lax, 4.5 to 6 cm long, ferruginous-pubescent, the primary branches 1.5 cm long or less, the flowers rather laxly and umbellately arranged at the tips of the branches, their pedicels 4 to 5 mm long. Perianth about 4 mm long, pubescent, ellipsoid, 3-lobed, anthers about 8, the anther-mass about 1.5 mm long, borne on a 1-mm long column; bracteole at the base of the calyx reniform, obscure, 0.4 mm long or less. Fruit ellipsoid, ferruginous and rather densely puberulent, when dry smooth, about 4.5 cm long, and the aril laciniate to the very base.

BASILAN, Bur. Sci. 15498 Reillo (type), August 14, 1912, in forests at low altitudes. TINAGO, Ahern 421, February to June, 1901, with the local name dugan.

A species belonging in the littoralis series, well characterized by its cupreous or ferruginous indumentum and by its rather large, lax, minutely bracteolate, staminate inflorescences. Ahern 421 cited above is a fruiting specimen and was originally identified as Myristica cumingii Warb.

**MYRISTICA CAGAYANENSIS** sp. nov.

Arbor circiter 8 m alta, ramulis junioribus fructibusque ferrugineo-pubescentis; foliis coriaceis, oblongis, 13 ad 18 cm longis, utrinque obtusis vel apice late obtuseque acuminatis, nervis utrinque circiter 18, reticulis subobsoletis; fructibus ellipsoideis, circiter 7 cm longis, minute ferrugineo-pubescentis, in siccitate rugosis, seminibus circiter 4 cm longis.

A tree, about 8 m high, the very tips of the branchlets and
the fruits ferruginous-pubescent, otherwise glabrous (inflorescences unknown). Leaves coriaceous, oblong, 13 to 18 cm long, 4 to 5.5 cm wide, the base obtuse to rounded, the apex obtuse or very broadly obtuse-acuminate, the lower surface distinctly paler than the upper, sometimes slightly glaucous; lateral nerves about 18 on each side of the midrib, somewhat impressed on the upper surface, slightly projecting on the lower surface, the reticulations nearly obsolete; petioles 1.5 to 2 cm long. Fruits solitary, ellipsoid or cylindrical, brown and minutely ferruginous-pubescent when mature, rugose, about 7 cm long, the seed smooth, shining, about 4 cm long, the aril laciniate nearly to the base.

Luzon, Cagayan Province, San Vicente, For. Bur. 24277 Bernardo, August 12, 1915, in dense forests at low altitudes with the local Negrito name ngabngab.

A species apparently belonging with Myristica philippensis Lam. but with much smaller, entirely glabrous leaves.

KNEMA Loureiro

KNEMA ACUMINATA sp. nov.

Arbor circiter 12 m alta, ramulis fructibusque ferrugineo-pubescent; foliis subcoriaceis, lanceolatis ad oblongo-lanceolatis, 3 ad 13 cm longis, basi acutis, sursum angustatis, tenuiter acuminatis, supra subolivaceis, nitidis, subtus pallidoribus, vix glaucescentibus, nervis utrinque 8 ad 12, perspicuis; fructibus subglobosis ad ovoideis, 1.5 ad 2 cm longis.

A tree, about 12 m high, the branchlets and fruits ferruginous-pubescent. Leaves subcoriaceous, lanceolate to oblong-lanceolate, entire, 9 to 13 cm long, 2.5 to 4.5 cm wide, the base acute or somewhat decurrent-acuminate, the apex slenderly acuminate, the upper surface somewhat olivaceous, glabrous, the lower pale but scarcely glaucous, glabrous or nearly so; lateral nerves distinct, 8 to 12 on each side of the midrib, the reticulations fine, rather close; petioles 1 to 1.5 cm long. Fruits subglobose to ovoid, 1.5 to 2 cm long, ferruginous-pubescent, their pedicels about 7 mm long, usually 3 borne on a common, very short, axillary peduncle at most 5 mm in length.

Luzon, Isabela Province, Ilagan, For. Bur. 11266 Klemme, May 18, 1908, in dense level forests at low altitudes.

A species probably most closely allied to Knema vidalii Warb., but easily distinguished by its slenderly acuminate, few-nerved leaves.
CRYPTOCARYA OLIGOCARPA sp. nov.

Frutex vel arbor parva, partibus junioribus exceptis glabra; foliis coriaceis, oblongo-ellipticis ad oblongo-ovatis, 6 ad 10 cm longis, apice breviter obtuseque acuminatis, basi acutis vel rotundatis, utrinque laevis, supra nitidis, subitus albido-glaucocescentibus, nervis utrinque circiter 7, perspicuis; infructescentiis axillaribus, spicatus, usque ad 1.5 cm longis, fructibus paucis ellipsoideis, nitidis, glabris, circiter 1 cm longis.

A shrub or small tree, glabrous except the younger parts. Branches terete, glabrous, usually brownish, the very young branchlets appressed-pubescent, soon becoming glabrous. Leaves coriaceous, oblong-elliptic to oblong-ovate, 6 to 10 cm long, 2.5 to 5 cm wide, the apex shortly and obtusely acuminate, the base acute to rounded, the upper surface smooth, shining, pale greenish when dry, the lower surface glaucous; lateral nerves about 7 on each side of the midrib, prominent on the lower surface, brown in contrast with the glaucous epidermis, the reticulations slender, not prominent; petioles 8 to 10 mm long, glabrous. Infructescences in the uppermost axils, usually reduced to a simple spike, the axils 1.5 cm long or less. Fruits few, somewhat ellipsoid, smooth, shining, glabrous, nearly black when dry, about 1 cm long.

Mindanao, Surigao Province, Bur. Sci. 34716 Ramos & Pas- casio, June 14, 1919, at the iron deposit on the northeast coast along streams at low altitudes.

This species is apparently most closely allied to Cryptocarya ramosii Merr., but the leaves and fruits are smaller and the former are not at all foveolate, both surfaces being entirely smooth.

PITTOSPORACEAE

PITTOSPORUM Banks

PITTOSPORUM OBSCURINERVE sp. nov.

Arbor parva, ramulis junioribus leviter ferrugineo-pubescentis; foliis verticillatis, coriaceis, rigidis, oblongis-ovatis ad oblan- ceolatis, 7 ad 9 cm longis, acutis vel breviter acuminatis, basi tenuiter cuneatis; nervis utrinque circiter 7, tenuibus, obscuris; capsulis subumbellatis, oblongis 2-valvis, circiter 1.8 cm longis.

A glabrous tree, about 4 m high, the very young branchlets
more or less ferruginous-pubescent. Leaves verticillate, coriaceous, rigid, brownish-olivaceous and slightly shining when dry, oblong-obovate to oblanceolate, 7 to 9 cm long, 1.5 to 3.5 cm wide, the apex acute or shortly and acutely acuminate, narrowed below to the slenderly cuneate base; lateral nerves about 7 on each side of the midrib, very slender, obscure, obsolete on the upper surface; petioles about 1 cm long. Infuctescences terminal, subumbellate, their peduncles up to 4 cm long slightly pubescent, the pedicels 1 cm long or less. Capsules yellow when fresh, fleshy, glabrous, oblong, about 1.8 cm long, 2-valved, the valves black and rugose when dry, spreading, obtuse.

MINDANAO, Surigao Province, Bur. Sci. 34441 Ramos & Pas-casio, April 25, 1919, along small streams at the iron deposit on the northeast coast, altitude about 590 meters.

A species belonging in the group with Pittosporum odoratum Merr., but readily distinguishable by its thickly coriaceous, rigid, very obscurely nerved leaves.

PITTOSPORUM EUPHLEBIUM sp. nov.

Frutex vel arbor parva, ramulis junioribus leviter ferrugineo-pilosis; foliis verticillatis, chartaceis, oblongis ad oblongo-oblanceolatis, nitidis, acute acuminatis, basi cuneatis, nervis utrinque circiter 5, subtus cum reticulis valde perspicuis; capsulis terminalibus, solitariis anguste ellipsoideis, 2-valvis, circiter 3 cm longis.

A shrub or small tree, glabrous except the very young parts which are sparingly ferruginous-pilose, the indumentum deciduous, branchlets slender, terete, the internodes 7 to 14 cm long. Leaves verticillate, chartaceous, oblong to oblong-oblanceolate, olivaceous, shining, the apex sharply acuminate, the base cuneate, 7 to 12 cm long, 2 to 3 cm wide; lateral nerves about 5 on each side of the midrib, distant, very prominent on the lower surface, projecting, laxly anastomosing, the primary reticulations lax, distinct. Capsules terminal, solitary, narrowly ellipsoid and nearly smooth when dry, 2-valved, about 3 cm long, their peduncles about 1.5 cm in length.


By its solitary, terminal capsules this species apparently belongs in the group with Pittosporum glaberrimum Merr. from which it is distinguished by its larger leaves and capsules and by its nerves and lax reticulations being prominently raised on the lower surface.
ROSACEAE

ROSA Linnaeus

ROSA LUZONIENSIS sp. nov. § Synstylae.

Frutex scandens, usque ad 4 m altus, glaber, ramis aculeatis, aculeis sparsis, curvatis, tenuibus, usque ad 6 mm longis; foliis 3 ad 5 cm longis, 5- vel 7-foliatis, folioliis parvis, elliptico-ovatis, leviter acuminatis, 5 ad 15 mm longis, inermis vel subtus ad costa aculeis paucis armatis; stipulis adnatis, margine pectinatis atque glandulis capitatis paucis instructis; floribus plerumque solitariis, calycis tubo glabro, lobis oblongo-lanceolatis, usque ad 10 mm longis, intus pilosis, extus glabris, margine parce capitato-gandulosis, atque laciniae tenuibus 2 vel 3 utrinque instructis; stylis circiter 15, glabris, connatis, 3 ad 5 mm longis.

A scandent shrub, attaining a length of 4 m, glabrous except the inner surface of the sepals. Branches armed with slender, somewhat curved spines 4 to 6 mm in length. Leaves pinnate, 5- or 7-foliolate, 3 to 5 cm long, glabrous, the leaflets small, elliptic-ovate, acute or acuminate, or the lower ones sometimes obtuse, sharply serrate, 5 to 15 mm long, the midrib beneath unarmed or with a few short spines; stipules adnate, pectinate, the outer margins also somewhat capitate-glandular. Flowers white, mostly solitary, about 3 cm in diameter, their pedicels unarmed, not at all glandular, usually about 1 cm long. Calyx-tube glabrous, oblong-obovoid, about 6 mm long; lobes oblong-lanceolate, about 10 mm long, externally glabrous, inside pubescent, the margins sparingly capitata-glandular and with two or three, slender, 1.5 to 2 mm long laciniae on each side. Petals broadly obovate, about 17 mm long, retuse. Stamens indefinite, their filaments glabrous, up to 5 mm long. Styles about 15, glabrous, more or less united, 3 to 5 mm long.

LUZON, Benguet Subprovince, Pauai, Bur. Sci. 31876 Santos (type), May 29, 1918, Bur. Sci. 4300 Mearns, July, 1907, Bur. Sci. 5336 McGregor, June, 1909, on slopes in thickets near the mossy forest, altitude about 2,300 meters, with the local name pauican.

This form has been confused with Rosa multiflora Thunb., from which, among other characters, it is distinguished by its much smaller leaves and leaflets; in being entirely glabrous, except for the sepals; in the absence of capitata glands on the branchlets and vegetative parts; and in its usually solitary flowers. It is apparently closely allied to the Formosan Rubus transmorrisonensis Hayata.
ROSA PHILIPPINENSIS sp. nov. § Synstylae.


Frutex suberectus vel scandens, 1 ad 4 m altus, ramis parce aculeatis, ramulis perspicue capitato-glandulosus; foliis 5- ad 9-foliolatis, 9 ad 12 cm longis, glabris, foliolis chartaceis, oblongo-ellipticis ad oblongo-ovatis, 3 ad 5 cm longis, serratis, plerumque acutis; stipulis adnatis, angustis, haud pectinatis, margine capitato-glandulosus; floribus numerosis, paniculatis, 3 ad 3.5 cm diametro, pedicellis calycibusque extus leviter hirsutis atque capitato-glandulosis, lobis oblongo-lanceolatis, caudato-acuminatis, usque ad 12 mm longis, intus cinereo-villosis, margine plerumque integris vel lobis angustis 1 vel 2 utrinque instructis; stylis connatis, hirsutis, circiter 5 mm longis.

A suberect or more or less scandent shrub, 1 to 4 m in height, nearly glabrous. Branches armed with scattered, stout, recurved spines about 4 mm in length, the branchlets conspicuously capitate-glandular as are the inflorescences and calyces. Leaves 5- to 9-foliolate, glabrous, 9 to 12 cm long, the rachis sparingly aculeate; leaflets chartaceous, oblong-elliptic to oblong-ovate, mostly acute, 3 to 5 cm long, sharply serrate; stipules adnate, scarcely pectinate, narrow, their margins capitate-glandular, the linear, free, apical parts 3 mm long or less. Panicles terminal, ample, somewhat leafy, many-flowered, up to 20 cm in length, all parts capitate-glandular, the pedicels 2.5 to 4 cm long. Flowers white, 3 to 3.5 cm in diameter. Calyx-tube somewhat pubescent, glandular-capitate, about 5 mm long, the lobes oblong-lanceolate, caudate-acuminate, up to 12 mm long, pubescent and capitate-glandular outside, inside densely cinereous-pubescent, caudate-acuminate, entire or with one or two narrow lobes on each side. Petals obovate, retuse. Stamens indefinite. Styles hirsute, connate, about 5 mm long.

**Luzon**, Benguet Subprovince, Baguio and vicinity, *Elmer 5794* (type), *Merrill Phil. Pl. 882*, *Burm. Sci. 2519*, *4290* *Mearns, Sandkuhl 371, Santos 14*: Bontoc Subprovince, *Vanoverbergh 50*. In thickets, gulches, etc., in the pine region, altitude 1,200 to 1,700 meters.

This species has long been confused with *Rosa multiflora* Thunb., the typical form of which is apparently confined to Japan and Korea. A more critical examination of the Philippine material than has hitherto been made shows that this form is distinguishable from Thunberg's species in numerous charac-
ters and is really more closely allied to *Rosa wichuraiana* Crépin than to *R. multiflora* Thunb.

**Var. DEPAUPERATA** var. nov.

A *typo differt* foliis minoribus, foliolis 1 ad 3 cm longis.


In the same habitats as the typical form of the species but more abundant. The recorded local names are *pigit* in Bontoc and *kuyaob* in Lepanto.

**CONNARACEAE**

**CONNARUS** Linnaeus

**CONNARUS CAUDATUS** sp. nov.

Frutex scandens, inflorescentiis exceptis glaber, foliis usque ad 30 cm longis, 5-foliolatis, foliolis oblongo-ovatis ad oblongo-lanceolatis, nitidis, subcoriaceis, usque ad 17 cm longis, apice tenuiter caudato-acuminatis, basi obtusis et minutissime, peltatis, nervis utrinque plerumque 4, distinctis; infructescentiis leviter castaneo-pubescent, paniculatis, folliculis oblique obovoideis, extus glabris, intus pubescens, circiter 2.5 cm longis, apice rotundatis, oblique rugulosus vel striatis.

A woody vine, glabrous except the inflorescences. Leaves up to 30 cm long, pinnately 5-foliolate; leaflets oblong-ovate to oblong-lanceolate, olivaceous, shining, subcoriaceous, 7 to 17 cm long, 2.5 to 5 cm wide, the apex long and slenderly caudate-acuminate, the base obtuse and very minutely peltate; lateral nerves usually 4 on each side of the midrib, distinct, anastomosing, the reticulations lax. Infructescences peduncled, somewhat castaneous-pubescent, paniculate, the follicles obliquely obovoid, slightly compressed, about 2.5 cm long, the apex broadly rounded, the base acute, the remains of the style somewhat lateral, the valves brown when dry, rugulose or striate, glabrous externally or very slightly pubescent when young, inside more or less pubescent.

**BUCAS GRANDE, Bur. Sci. 35059 Ramos & Pascasio, June 10, 1919, in dry forests at low altitudes.**

In its follicle characters this species is similar to *Connarus*
neurocalyx Planch., but it differs radically from Planchon’s species in its caudate-acuminate leaflets.

ELLIANTHUS Hooker f.

ELLIANTHUS LONGIFOLIUS sp. nov.

Arbor parva, ramulis et inflorescentiis et fructibus exceptis glaber; foliis anguste oblongo-lanceolatis, coriaceis, 23 ad 30 cm longis, 4 ad 6 cm latis, apice tenuiter acuminatis, basi late acutis, utrinque nec profunde foveolatis, nervis utrinque circiter 9, distantibus, distinctis; fructibus inaequilateralibus, oblongis, circiter 3 cm longis, acuminatis, deorsum angustatis, extus densissime castaneo-pubescentes.

A shrub or small tree, glabrous except the very young branchlets, inflorescences, and fruits. Branches terete, glabrous, reddish-brown. Leaves narrowly oblong-lanceolate, coriaceous, 23 to 30 cm long, 4 to 6 cm wide, shining when dry, the apex slenderly acuminate, the base broadly acute; lateral nerves about 9 on each side of the midrib, distant, distinct, anastomosing, the ultimate reticulations often distinct; both surfaces appearing shallowly foveolate; petioles 1.5 to 3 cm long. Infuctescences axillary and from the axils of fallen leaves, the carpels either solitary or in pairs or threes on a common peduncle which is less than 1 cm in length. Follicles inaequilateral, oblong, about 3 cm long and 1 cm wide, one side nearly straight, the other curved, apex acuminate, base narrowed into a 5 mm long pseudostalk, densely pubescent outside with short castaneous hairs.

DINAGAT, Bur. Sci. 35180 Ramos & Pascasio, May 12, 1919, on the forested banks of small streams at low altitudes.

A species belonging in the group with *Ellipanthus luzoniensis* Vid., but readily distinguished by its elongated narrow leaves.

LEGUMINOSAE

PITHECOLOBIUM Martius

PITHECOLOBIUM SESSILIFLORUM sp. nov.

Arbor parva, inflorescentiis perspicue ferrugineo-pubescentis, ramulis angulatis; foliis circiter 40 cm longis, pinnae plerumque 10-jugis, jugis intermediis usque ad 17 cm longis, apice 1-glandulosis; foliis circiter 15-jugis, rhomboideis vel oblique rhomboideis, valde inaequilateralibus, subcoriaceis, 1.5 ad 3.5 cm longis, acuminatis; paniculis usque ad 50 cm longis, floribus sessilibus, subumbellatim confertis, calycis dense ferrugineo-pubescentis, corolla 8 ad 9 mm longa, dense ferrugineo-pubescentis.
A small tree, about 4 m high, the inflorescences prominently ferruginous-pubescent on the younger parts, the plant otherwise nearly glabrous, the branchlets dark brown when dry, prominently angled. Leaves about 40 cm long, the pinnae usually about 10 pairs, the lowest 1 or 2 pairs usually much shorter than the others, the intermediate ones up to 17 cm long, the main rachis slightly pubescent as are the secondary ones, angular, and with a single prominent gland near the base, the secondary rachises with a single small gland at the base of the ultimate pair of leaflets; leaflets on the intermediate pinnae about 15 pairs, rhomboid or obliquely rhomboid, very inequilateral, the midrib diagonal, subcoriaceous, brown and strongly shining when dry, 1.5 to 3.5 cm long, 6 to 15 mm wide, acuminate, the lower surface very sparingly pubescent. Panicles terminal, ample, peduncled, up to 50 cm long, the flowers white, numerous, subumbellately crowded at the tips of the ultimate branchlets, sessile or nearly so, the subtending bracteoles obovate to oblong-ovate, somewhat acuminate, about 3 m long. Calyx about 4 mm long, densely ferruginous-pubescent, cup-shaped, the teeth triangular, acute, about 1 mm long. Corolla 8 to 9 mm long, densely ferruginous-pubescent, the lobes oblong-ovate, about 3.5 mm long. Ovary oblong-ovate to somewhat obovate, pubescent, 1.5 to 2 mm in length.

MINDANAO, Surigao Province, Bur. Sci. 34675 Ramos & Pas-casio, June 15, 1919, along streams at low altitudes at the iron deposit on the northeast coast.

A species belonging in the group with *Pithecolobium clypearia* Benth. and in this group apparently most closely allied to *Pithecolobium contortum* Mart., from which it is readily distinguished, among other characters, by its very densely ferruginous-pubescent corollas.

**ORMOSIA Jackson**

**ORMOSIA SURIGAENSIS** sp. nov.

Arbor, ramulis junioribus inflorescentiisque dense ferrugineo-pubescentis; foliis 11 ad 15 cm longis, foliolis 5 vel 7, coriaceis, oblongo-ovatis ad oblongo-ellipticis, olivaceis, nitidis, 5 ad 9 cm longis, basi late rotundatis, apice obtusis vel late obtuseque acuminatis; paniculis terminalibus, circiter 20 cm longis, e basi ramosis; calycis dense ferrugineo-pubescentis, lobis oblongis, obtusis, circiter 6 mm longis, vexilla violacea, late reniformi-orbicularis, appendicibus anterioribus carnosis, oblongis, 2.5 mm longis; ovulis plerumque 3.
A tree, the very young branchlets and inflorescences densely ferruginous-pubescent, otherwise glabrous or nearly so. Leaves 11 to 15 cm long, the rachis and petioles sparingly pubescent, ultimately glabrous or nearly so; leaflets 5 or 7, coriaceous, oblong-ovate to oblong-elliptic, olivaceous, shining, 5 to 9 cm long, 2.5 to 5 cm wide, the base usually broadly rounded, apex obtuse or broadly and obtusely acuminate; lateral nerves usually 6 on each side of the midrib, slender, not prominent; petiolules 5 to 7 mm long. Panicles terminal, branched from the base, about 20 cm long, the lower branches up to 13 cm in length. Flowers numerous, their pedicels about 1 cm long. Calyx densely ferruginous-pubescent, about 1.5 cm in diameter, the lobes oblong-ovate, about 6 mm long, 4.5 mm wide, obtuse. Petals violet, glabrous, the standard reniform-orbicular, rounded, about 13 mm wide, the claw stout, thick, with two anterior oblong, fleshy, 2.5 mm long appendages, wing and keel of the petals subequal, their claws 4 to 6 mm long. Filaments glabrous. Ovary oblong, densely pubescent, usually 3-ovulate.

MINDANAO, Surigao Province, Bur. Sci. 34494 Ramos & Pas-casio, April 24, 1919, on ridges at low altitudes at the iron deposit on the northeast coast.

The alliance of this species is not entirely clear, as the fruits are unknown. It is, however, radically different from all other species of the genus known to me.

LINACEAE

IXONANTHES Jack

IXONANTHES LONGIPEDUNCULATA sp. nov.

Arbor parva, glabra; foliis ellipticis ad elliptico-ovatis, 9 ad 12 cm longis, apice rotundatis, basi acutis, coriaceis, nitidis, nervis utrinque circiter 8; infructescentiis axillaribus, longe pedunculatis, apice dichotome ramosis, ramis primariis circiter 1 cm longis, pedunculis circiter 15 cm longis; capsulis oblongis, 2.5 cm longis, sepalis persistentibus rotundato-ovatis, 5 ad 7 mm longis.

A glabrous tree, 4 to 5 m high, the branchlets smooth, reddish-brown. Leaves elliptic to elliptico-ovate, rounded, the base usually acute and often narrowly decurrent along the petioles, brownish-olivaceous when dry, shining, 9 to 12 cm long, 5 to 8 cm wide; lateral nerves about 8 on each side of the midrib, distinct, as are the reticulations. Petioles about 2 cm long. Infructescences axillary, solitary, 2-branched at the apex, the
primary branches 1 cm long, the peduncles about 15 cm long. Capsules oblong, 2.5 cm long, the persistent sepals ovate-rounded, 5 to 7 mm long.

MINDANAO, Surigao Province, *Bur. Sci. 34488 Ramos & Pascasio*, April 24, 1919, at the iron deposit on the northeast coast, on ridges at low altitudes.

This is the second representative of this small genus to be found in the Philippines and is strongly characterized by its elongated peduncles.

**RUTACEAE**

**EVODIA Forster**

**EVODIA CORIACEA** sp. nov.

Arbor parva, partibus junioribus exceptis glabra, ramulis cincter 6 mm diametro; foliis 3-foliolatis, foliolis coriaceis, obovatis ad oblongo-obovatis, 6 ad 8 cm longis, apice late rotundatis admodum leviter retusis, basi cuneatis, nervis utrique cincter 7, cum reticulis valde perspicuis; infructescentiis axillaribus, 2 ad 2.5 cm longis, depauperato-paniculatis, fructibus confertis, coccis ovoideis, 4 mm longis.

A small tree, glabrous except the younger parts, ultimate branches about 6 mm in diameter, rugose, the petiolar scars large and conspicuous. Leaves 3-foliate, their petioles 3.5 to 7 cm long; leaflets coriaceous, somewhat shining, obovate to oblongo-obovate, 6 to 8 cm long, 3.5 to 4.5 cm wide, the apex broadly rounded, sometimes slightly retuse, narrowed below to the cuneate or somewhat decurrent-acuminate base; lateral nerves about 7 on each side of the midrib, prominent and conspicuous as are the lax reticulations; petiolules 5 to 8 mm long. Infructescences axillary, 2 to 2.5 cm long, depauperate-paniculate, the fruits somewhat crowded, the individual cocci ovoid, about 4 mm in length.


In many respects this species resembles *Evodia laxireta* Merr., from which it is readily distinguished by its shorter infructescences and smaller fruits, as well as by its shorter, differently shaped, rounded or retuse, fewer-nerved leaflets.

**TETRACTOMIA Hooker f.**

**TETRACTOMIA ACUMINATA** sp. nov.

Frutex 3 ad 5 m altus, inflorescentiis leviter pubescens exceptis glaber; foliis oblongo-obovatis ad oblongo-ellipticis, sub-
coriaceis, basi acutis, apice perspicue sed breviter acuminatis, nervis utrinque 8 ad 10, distinctis; inflorescentiis axillaribus, solitariis, pedunculatis, 7 ad 13 cm longis, partibus junioribus leviter pubescens, floribus numerosis; calycis lobis late ovatis; petalis accrescentibus, persistentibus, ad 4 mm longis; capsulis solitariis, oblongis, obtusis, rugosis, 5 mm longis.

A shrub, 3 to 5 m high, glabrous except the younger parts of the inflorescences, the branches usually reddish-brown. Leaves oblong-ovate to oblong-elliptic, 8 to 13 cm long, 4 to 6 cm wide, subcoriaceous, narrowed to the acute base and to the conspicuously but shortly acuminate apex, brownish or olivaceous when dry, shining; lateral nerves 8 to 10 on each side of the midrib, distinct, anastomosing; petioles 1.5 to 2.5 cm long, joined with the leaflets. Inflorescences axillary, solitary, peduncled, 7 to 13 cm long, the branches spreading or ascending, the younger parts sparingly pubescent. Flowers numerous, yellowish-green, 4-merous. Calyx about 4 mm in diameter, the lobes 4, broad. Petals ovate, acute, persistent and accrescent, up to 4 mm long. Filaments of the 4 fertile stamens 2.5 mm long, on the margin of the very broad disk, carpels 4 but only 1 developing into a fruit. The mature capsule oblong, obtuse, 5 mm long, the valves rugose externally. Seed solitary, including the broad 2.5 mm wide wing about 4 mm in length.


The third species of this genus to be found in the Philippines and readily distinguishable from its congeners by its acuminate leaves.

SIMARUBACEAE

EURYCOMA Jack

EURYCOMA EGLANDULOSA sp. nov.

Arbor parva, inflorescentiis et ramulis junioribus exceptis glabra; ramulis incrassatis, 1.5 ad 2 cm diametro; foliis numero-rosis, confertis, usque ad 60 cm longis, foliolis circiter 30, coriaceis, anguste oblongis ad anguste oblongo-ovatis, acutis ad rotundatis, basi acutis, 6 ad 8 cm longis; paniculis axillaribus, foliis aequantibus, castaneo-pubescentis, haud glandulosis; floribus circiter 7 mm longis, petalis utrinque pubescens.

A small tree, 7 to 8 m high, glabrous except the tips of the branchlets and the inflorescences, the ultimate branchlets terete,
1.5 to 2 cm in diameter. Leaves numerous, crowded at the tips of the branchlets, about 60 cm long, the rachis reddish-brown when dry, glabrous; leaflets about 15 pairs, coriaceous, narrowly oblong to narrowly oblong-ovate, the upper surface brownish-olivaceous and strongly shining when dry, the lower surface much paler and scarcely shining, 6 to 8 cm long, 1.5 to 2 cm wide, base acute, often slightly inequilateral, apex rounded to acute; lateral nerves indistinct, 12 to 15 on each side of the midrib; petiolules 2 mm long or less. Panicles axillary, as long as the leaves, sparingly castaneous-pubescent with very short simple hairs, not at all glandular. Flowers about 7 mm long. Calyx-teeth ovate, obtuse, about 1.5 mm long, puberulent. Petals oblong, acute or obtuse, about 6 mm long and 3 mm wide, both surfaces puberulent, the margins below inflexed. Filaments 2.5 mm long, the basal glandular appendages 2, narrowly oblong, up to 1 mm long, slightly pubescent. Ovary pubescent. Immature fruits oblong-ellipsoid, 1.5 mm long, apex rounded, base narrowed and subacute.


*Eurycoma longifolia* Jack has been accredited to Luzon on the basis of a specimen, so labeled, collected by Lobb; it is absolutely certain that Lobb's specimen came from Malay Peninsula or from Borneo where Jack's species is common, and not from Luzon. The present species then is the first definite record for this small genus for the Philippines. In general appearance *Eurycoma eglandulosa* closely resembles *E. longifolia*, but the indumentum on the inflorescences consists solely of very short, castaneous, simple hairs, and is never glandular as in Jack's species.

**BURSERACEAE**

**CANARIUM** Linnaeus

**CANARIUM UNIFOLIOLATUM** sp. nov.

Arbor parva, glaberrima, foliis 1-foliolatis, oblongis, coriaceis, nitidis, integris, 9 ad 15 cm longis, perspicue acuminatis, basi acutis, nervis utrinque 8 ad 10, perspicuis; racemis axillaris, 1.5 ad 2 cm longis, paucifloris, floribus circiter 4 mm longis; drupis subteretibus, leviter inaequilateralibus, acutis, circiter 1.3 cm longis, rugosis.

A small, entirely glabrous tree with simple leaves. Leaves
oblom, coriaceous, shining when dry, 9 to 15 cm long, 3.5 to 6 cm wide, entire, the apex rather prominently acuminate, the base acute; lateral nerves 8 to 10 on each side of the midrib, prominent, the reticulations distinct. Petioles 5 to 20 cm long. Racemes simple, axillary, few-flowered, 1.5 to 2 cm long, the pedicels stout, 1.5 mm long or less, the bracteoles linear-lanceolate, acuminate, about 1 mm long. Calyx somewhat cup-shaped, narrowed below, 2 to 2.5 mm long, the lobes short, broader than long. Petals oblong-elliptic, 3 mm long. Disk prominent, truncate. Staminodes 6, inserted outside of the disk. Ovary ovoid, 1.2 mm long. Fruit nearly terete, oblong-ovoid, somewhat inequilateral, acute, about 1.3 cm long, the pericarp thin, wrinkled when dry.

MINDANAO, Surigao Province, Bur. Sci. 34720 Ramos & Pas-casio, June 14, 1919, along streams at low altitudes at the iron deposit on the northeast coast.

A species belonging in the same group with Canarium vil-losum F.-Vill. but distinguished from all previously described forms of the genus by its simple leaves.

MELIACEAE

DYSOXYLUM Blume

DYSOXYLUM CAPIZENSE sp. nov. § Eudysoxylum.

Arbor parva, partibus junioribus inflorescentiisque puberulis; foliis alternis, usque ad 18 cm longis, foliolis oppositis, circiter 10, chartaceis, nitidis, oblongo-ovatis ad oblongo-lanceolatis, 4 ad 8 cm longis, acuminis, nervis utrinque circiter 15, indistingtis, reticulis subobsoletis; inflorescentiis solitariis, spiciformibus, e axillis defoliatis, 4 ad 5 cm longis; floribus 4-meris, 5 ad 6 cm longis, calycis circiter 3 mm diametro; petalis oblongis, extus puberulis; ovario 4-locellato, pubescente.

A tree, about 5 m high, the young branchlets, inflorescences, and petioles grayish or yellowish puberulent. Leaves alternate, 15 to 18 cm long, the petioles and rachis somewhat angular; leaflets opposite, usually 10 or 11, firmly chartaceous, brownish and shining when dry, glabrous, somewhat inequilateral, oblong-ovate to oblong-lanceolate, 4 to 8 cm long, 2 to 3 cm wide, the apex acuminate, base acute or rounded; lateral nerves slender, indistinct, up to 15 on each side of the midrib, the reticulations obsolete or nearly so; petiolules 3 mm long or less. Inflorescences simple, solitary, spikelike, from the axils of fallen leaves, 4 to 5 cm long. Flowers sessile or subsessile, 4-merous, 5 to 6 mm long. Calyx shallowly cup-shaped, about
3 mm in diameter, 4-toothed, the teeth broad, subacute or obtuse, about 1 mm long. Petals oblong, obtuse, free, 5 mm long, 2 mm wide, puberulent externally. Staminal tube oblong, cylindric, or obscurely angled, 4 mm long, glabrous on both sides, crenate. Stamens 8, about 0.7 mm long. Disk annular, about 1 mm high and 1.5 mm in diameter. Ovary 4-celled, pubescent as is the base of the style, the ovary and style together about 3 mm long.

**Panay, Capiz Province, Mount Salibongbong, Bur. Sci. 35631 Martelino & Edaño, June, 1919, in forests near the summit, altitude about 650 meters.**

This species has somewhat the appearance of *Dysoxylum turczaninowii* C. DC. but is not closely allied to that species, differing essentially in its simple, spicate inflorescences; the leaflets are also much smaller than in the latter species.

**Dysoxylum siargaoense** sp. nov. § *Eudysoxylum.*

_Arbor parva, partibus junioribus et inflorescentiis caulinis plus minusve pubescens; foliis alternis, circiter 35 cm longis, vetustioribus glabris, foliolis circiter 13, chartaceis, oppositis, oblongis ad oblongo-lanceolatis, plerumque inaequilateralibus, 10 ad 15 cm longis, acuminatis, nervis utrino circiter 15, tenuibus; racemis caulinis, fasciculatis 1.5 ad 2.5 cm longis; floribus 4-meris, breviter pedicellatis, 5 mm longis, calycis circiter 2 mm diametro; petalis oblongis liberis, glabris; ovario pubescente._

A small tree, the younger parts and the cauline inflorescences more or less pubescent. Branches terete, brownish when dry, the ultimate ones about 7 mm in diameter, glabrous, the branchlets and very young leaves more or less pubescent. Leaves alternate, about 35 cm long, glabrous when mature, the leaflets about 13, opposite, chartaceous, oblong to oblong-lanceolate, usually inaequilateral, olivaceous when dry, 10 to 15 cm long, 3.5 to 4.5 cm wide, acuminate, the base usually strongly inaequilateral and acuminate, the lamina longer on one side than on the other, or the uppermost leaflets equilateral; lateral nerves about 15 on each side of the midrib, slender and anastomosing, the reticulations lax, distinct; petioles 6 mm long or less. Racemes fascicled on the larger branches, 1.5 to 2.5 cm long, cinereous-pubescent. Flowers 4-merous, about 5 mm long, their pedicels 1.5 to 2 mm in length. Calyx pubescent, somewhat cup-shaped, about 2 mm long and wide, broadly and irregularly 4-toothed. Petals 4, white, free, oblong to oblong-oblongate, about 5 mm long, 1.5 mm wide, glabrous or slightly pubescent
at their apices outside. Staminal tube cylindric, toothed, glabrous on both surfaces, 3.5 mm long. Anthers usually 7, 0.8 mm long. Disk glabrous, free, about 1 mm high. Ovary and stigma about 4 mm long, the stigma 1 mm in diameter, the ovary pubescent, no thicker than the glabrous style.


The alliance of this species is apparently with Dysoxylum cumingianum C. DC., but the mature leaves are glabrous while the flowers are very much smaller than in the latter species, there being further many other differential characters; the two are not closely allied.

DICHAPETALACEAE

DICHAPETALUM Thouars

DICHAPETALUM NITIDUM sp. nov.

Frutex scandens, ramulis et petiolis et inflorescentiis pubescent; foliis coriaceis, olivaceis, nitidissimis, oblongis ad oblongo-lanceolatis, 10 ad 14 cm longis, basi acutis vel obtusis, apice leviter acuminatis, nervis utrinque circiter 6, reticulis ultimis utrinque distinctis; cymis pedunculatis, 3 ad 4 cm longis, dense pubescens, petalis oblongo-obovatis, deorsum angustatis, 2 mm longis, apice retusis.

A woody vine, the branchlets, petioles, and inflorescences more or less pubescent with short, yellowish-brown or ferruginous hairs, the younger parts densely pubescent. Branches reddish-brown when dry. Leaves coriaceous, olivaceous and strongly shining when dry, oblong to oblong-lanceolate, 10 to 14 cm long, 2.5 to 4.4 cm wide, the base acute or obtuse, narrowed upward to the somewhat acuminate apex; lateral nerves about 6 on each side of the midrib, curved, anastomosing, distinct, the ultimate reticulations rather close, raised, and distinct on both surfaces; petioles about 1 cm long. Inflorescences peduncled, cymose, 3 to 4 cm long, dichotomously branched, up to 2 cm in diameter, the peduncles up to 2.5 cm long, the younger parts especially densely pubescent with short hairs. Pedicels about 1 mm long, twice as long as the lanceolate bracteoles. Flowers about 3.5 mm in diameter. Sepals densely pubescent, oblong, obtuse, 1.7 mm long. Petals glabrous, oblong-obovate, rounded, narrowed below, about 2 mm long, the apex minutely cleft for about 0.5 mm. Filaments about 1.2 mm long. Ovary densely lanate.

MINDANAO, Surigao Province, Bur. Sci. 34596 Ramos & Pas-
casioc, April 24, 1919, at the iron deposit on the northeast coast on ridges at low altitudes.

This species apparently belongs in the group with *Dichapetalum timoriense* Engl. and seems to be sufficiently well characterized by its coriaceous leaves, the ultimate reticulations of which are rather close, raised, and distinct on both sides.

**DICHAPETALUM OBLONGIFOLIUM** sp. nov.

Frutex scandens, conspicue ciliatus; foliis chartaceis, oblongis, 8 ad 14 cm longis, in siccitate pallidis, basi acutis, sursum angustatis, apice obtuse acuminatis, nervis utrinque circiter 7, distinctis, reticulis laxis; cymis axillaribus, solitariis, brevis-sime pedunculatis, 1 ad 1.5 cm longis, sepalis dense pubescens, late ovatis, rotundatis, 2 mm longis, petalis oblongo-obovatis, apice retusis.

A woody vine, all parts ciliate with rather pale, spreading, more or less scattered hairs, the indumentum dense on the younger parts. Branches glabrous, grayish, about 3 mm in diameter, the younger branchlets rather densely ciliate. Leaves chartaceous, oblong, 8 to 14 cm long, 2 to 3.5 cm wide, rather pale when dry, the base acute, narrowed upward to the somewhat blunt-acuminate apex, both surfaces prominently ciliate with long, scattered hairs; lateral nerves about 7 on each side of the midrib, curved, distinct, the reticulations lax; petioles densely villous, 3 to 5 mm long. Cymes axillary, solitary, short-peduncled, dichotomous, 1 to 1.5 cm long, densely ciliate. Flowers white, 4 to 5 mm in diameter, their pedicels 2 mm long or less, the bracts lanceolate, acuminate, up to 3 mm in length, the bracteoles linear. Sepals densely pubescent, broadly ovate, rounded, 2 mm long. Petals 5, thin, oblong to narrowly oblong-obovate, about 1.8 mm long, the apex cleft for 0.5 mm or less. Filaments stout, about 1 mm long, the anthers about as long as the filaments.

**BUCAS GRANDE, Bur. Sci. 35044 Ramos & Pascasio,** June 6, 1919, in thickets along streams at low altitudes.

A species manifestly allied to *Dichapetalum ciliatum* Merr., but with longer, differently shaped leaves which are prominently ciliate on both surfaces.

**DICHAPETALUM HOLOPETALUM** sp. nov.

Frutex scandens, partibus junioribus et foliis et inflorescentiis perspicue ciliatis; foliis membranaceis, oblongo-ellipticis, 10 ad 18 cm longis, basi acutis, apice tenuiter acuminatis, nervis utrinque circiter 6, perspicuis, reticulis laxis; cymis
axillaribus, breviter pedunculatis, densis, subglobosis, circiter 1 cm diametro, petalis anguste spatulatis, 2 mm longis, integris; capsulis ellipsoideis, compressis, dense pubescens, 1.4 ad 2 cm longis, retusis.

A woody vine, the younger parts, leaves, and inflorescences prominently ciliate, the hairs spreading. Branches reddish brown, somewhat lenticellate, glabrous, the branchlets conspicuously ciliate. Leaves membranaceous, greenish when dry, oblong-elliptic, 10 to 18 cm long, 3.5 to 7 cm wide, narrowed below to the acute base and above to the rather slenderly acuminate apex, rather prominently ciliate on both surfaces or the upper surface ultimately glabrous; lateral nerves about 6 on each side of the midrib, prominent, the reticulations lax; petioles ciliate, 4 to 7 mm long. Cymes axillary, dense, subglobose, about 1 cm in diameter, short-penduncled. Sepals elliptic-ovate to elliptic-obovate, pubescent, 2 to 2.5 mm long. Petals glabrous, somewhat fleshy, not cleft, narrowly spatulate, about 2 mm long. Filaments about 2 mm long. Ovary villous. Capsules ellipsoid, compressed, 1.4 to 2 cm long, densely pubescent, normally retuse at the apex with a median dividing line, 2-seeded.

MINDANAO, Lanao District, Camp Keithley, Mrs. Clemens 1039, May and June, 1907 (type); Kolambugan, For. Bur. 23320 Agama, December 3, 1914; Tutunod, For. Bur. 23382 Acuña, December 12, 1914. In thickets at low altitudes, ascending to at least 670 meters.

A species in many respects resembling Dichapetalum ciliatum Merr. but distinguishable, among other characters, by its petals being entire and not cleft at their apices.

ANACARDIACEAE

SEMECARPUS Linnaeus

SEMECARPUS SURIGAENSIS sp. nov.

Arbor, circiter 8 m alta, inflorescentiiis exceptis glaber, ramis circiter 8 mm diametro; foliis subcoriaceis, oblongo-ellipticis, nitidis, subtus pallidoribus, circiter 35 cm longis et 15 cm latis, basi acutis, apice breviter acuminatis, nervis utrinque circiter 22, valde perspicuis; inflorescentiis et circiter 50 cm longis, multifloris, pubescens; floribus, subfasciculatis, sessilibus, 5 ad 6 mm diametro, sepalis et petalis extus dense ferrugineo-pubescent.

A tree, about 8 m high, the inflorescences and flowers ferruginous-pubescent, otherwise glabrous or nearly so. Branches terete, glabrous, the ultimate ones about 8 mm in diameter,
brownish, the very young branchlets slightly pubescent. Leaves oblong-elliptic, subcoriaceous, rather pale and shining when dry, the lower surface paler than the upper, but scarcely glaucous, about 35 cm long and 15 cm wide, the base acute, the apex abruptly acuminata, the acumen usually about 1 cm long; lateral nerves about 22 on each side of the midrib, very prominent on the lower surface, the reticulations distinct, the primary ones leaving the nerves at about right angles; petioles 2 to 3 cm long. Staminate panicles terminal, about 50 cm long, many-flowered, the lower branches up to 30 cm long. Flowers somewhat fascicled on the branchlets, rather densely ferruginous-pubescent, sessile or with very short pedicels, 5 to 6 mm in diameter. Calyx about 3 mm in diameter, the lobes triangular, acute, about 1 mm long. Petals oblong-lanceolate, acute, 2.8 mm long, densely ferruginous-pubescent externally. Filaments 1.5 to 3 mm long.

MINDANAO, Surigao Province, Bur. Sci. 34772 Ramos & Pas- casio, June 19, 1919, along streams at low altitudes.

This species is well characterized by its ample, glabrous leaves, and its very large, ferruginous-pubescent panicles. It is apparently most closely allied to the Moluccan Semecarpus cassu-vium Roxb. and has no close allies among the known Philippine species.

AQUIFOLIACEAE

ILEX Linnaeus

ILEX CURRANII sp. nov. § Euilex, Rugosae.

Arbor parva, glabra, circiter 3 m alta; foliis eglandulosis, numerosis, coriaceis, olivaceis, nitidis, ovatis, 1 ad 1.5 cm longis, basi acutis ad rotundatis, sursum angustatis, apice breviter acuminatis, margine crenatis, nervis utrinque circiter 6, subitus cum reticulis prominulis; floribus axillaribus, fasciculatis vel solitariis, 4-meris, calycis lobis leviter ciliatis; fructibus globosis, 5 mm diameetro, pyrenis 4.

A glabrous shrub, or small tree, about 3 m high, the branches rather pale, the branchlets nearly black when dry. Leaves coriaceous, ovate, 1 to 1.5 cm long; 7 to 12 mm wide, olivaceous, shining, not glandular, the base acute to rounded, the apex shortly and bluntly acuminata, margins distinctly crenate, the crenulations often with an indurated, incurved tip; lateral nerves about 6 on each side of the midrib, somewhat impressed on the upper surface, distinct on the lower surface as are the reticulations; petioles 2 to 4 mm long. Fruits subglobose, about 5 mm in diameter, somewhat rugose and nearly black when dry, containing 4 pyrenes, the persistent calyx about 2 mm in
diameter, obscures 4-lobed, lobes slightly ciliate, the pedicels up to 4 mm in length. Flowers axillary, solitary or sometimes two or three in a fascicle, the pedicels subdued by several small bracts.

Luzon, Benguet Subprovince, Mount Pulog, For. Bur. 18069 Curran, Merritt, & Zschokke, January 6, 1908, on slopes in the mossy forest, altitude about 2,500 meters.

This species apparently belongs in the group with Ilex rugosa Schmidt and is well characterized by its small, ovate, rather distinctly veined and reticulate, eglandular leaves. In general appearance it resembles Ilex buergeri Miq., but it has much smaller leaves.

ILEX PAUCINERVIA sp. nov. § Thysoprinus, Indico-Malaicae.

A glabrous shrub or small tree, the branches and branchlets grayish yellow or the very young parts sometimes reddish brown. Leaves numerous, coriaceous, oblong-elliptic to oblong, 2 to 4 cm long, 10 to 18 mm wide, not glandular, the upper surface very minutely pitted, brown or castaneous and somewhat shining when dry, entire, subequally narrowed to the acute base and to the obtuse and distinctly retuse apex; lateral nerves slender, somewhat ascending, 4 or 5 on each side of the midrib, not prominent, arched-anastomosing, the reticulations obsolete or nearly so; petioles 2 to 4 mm long. Racemes axillary, solitary, usually about 1 cm long, 5- to 10-flowered; flowers 5-merous, their pedicels about 2 mm long. Fruits brown, ovoid or globose, about 3 mm in diameter, each containing 5 pyrenes, the persistent calyx about 2 mm in diameter, the lobes suborbicular, rounded, entirely glabrous.

Luzon, Nueva Ecija Province, Mount Umingan, Bur. Sci. 26396 Ramos & Edaño, August 19, 1916, in forest at the summit, altitude probably about 1,000 meters. This number was originally identified as Ilex brunnea Merr.

This species is well characterized by its oblong-elliptic to oblong leaves which are eglandular but which are minutely pitted on the upper surface and are further subequally narrowed to the acute base and to the obtuse and retuse apex. It is somewhat
similar to *Ilex microthyrsa* Loesen, but has very differently shaped leaves.

**CELASTRACEAE**

**MICROTROPIS** Wallich

**MICROTROPIS ROSTRATA** sp. nov.

Frutex glaber, ramulis rubro-brunneis, laevis; foliis oblongis ad late oblongo-lanceolatis, chartaceis, usque ad 20 cm longis, utrinque acutis vel leviter acuminatis, nervis primariis utrinque circiter 12, tenuibus, distinctis, floribus 5-meris; infructescentiis axillaribus, brevibus, cymosis, fructibus oblongis, circiter 2 cm longis, perspicue rostrato-acuminatis.

An erect glabrous shrub, the branches and branchlets terete, smooth, reddish-brown, the latter about 2.5 mm in diameter. Leaves opposite, chartaceous, pale and shining when dry, oblong to broadly oblong-lanceolate, 17 to 20 cm long, 5 to 6 cm wide, narrowed to the acute or somewhat acuminate base and apex; primary lateral nerves about 12 on each side of the midrib, slender, distinct, anastomosing, the reticulations lax; petioles about 1 cm long. Infructescences axillary, or sometimes terminating short lateral branchlets, usually solitary, cymose, peduncled, the peduncles 1 cm long or less. Fruits greenish-yellow when fresh, reddish-brown when dry, oblong, about 2 cm long and 8 mm in diameter, the apex prominently rostrate-acuminate. Persistent sepals 5, broadly ovate, rounded, about 2 mm long, the calyx 6 mm in diameter.


The alliance of this species is with *Microtropis philippinensis* Merr., from which it is distinguished by its larger leaves, more numerous lateral nerves and more prominently acuminate fruits.

**HIPPOCRATEAELLIPTICARPA** sp. nov.

Frutex scandens, glaber; foliis ellipticis ad elliptico-ovatis, crasse coriaceis, 15 ad 20 cm longis, nitidis, supra olivaceis, subtus brunneis, nervis utrinque 7, perspicuis; fructibus ellipticis, utrinque rotundatis, ligneis, 7 cm longis et 4 cm latis.

A scandent, glabrous vine, the branches somewhat reddish-brown, lenticellate, the ultimate ones 4 to 5 mm in diameter. Leaves elliptic to elliptic-ovate, thickly coriaceous, 15 to 20 cm long, 10 to 12 cm wide, shining, the upper surface olivaceous, the lower surface somewhat brownish, base rounded, apex
rounded to shortly and obtusely acuminate; lateral nerves about 7 on each side of the midrib, prominent, curved, the reticulations distinct; petioles about 1 cm long. Infuctescences woody, about 6 cm long, trichotomous, each branch bearing 2 or 3 capsules. Mature fruits brownish, elliptic, rounded at both ends, somewhat woody, about 7 cm long and 4 cm wide.

MINDANAO, Surigao Province, Bur. Sci. 34761 Ramos & Pascaio, May 18, 1919, in dry forests at low altitudes.

The alliance of this species is with Hippocratea megalocarpa Merr., from which it is especially distinguished by its larger and more-numerously nerved leaves and its differently shaped, shorter fruits.

ICACINACEAE

GOMPHANDRA Wallich

GOMPHANDRA OBLONGIFOLIA sp. nov.

Arbor glabra, usque ad 10 m alta; foliis chartaceis, oblongo-ellipticis ad oblongis, olivaceis, nitidis; 9 ad 15 cm longis, utrinque subaequaliter angustatis, basi acutis, apice acuminatis, nervis utrinque 5 vel 6, reticulis obsoletis vel subobsoletis; cymis plerumque terminalibus oppositifoliosisque, usque ad 4 cm longis; fructibus ellipsoideis, 1.5 ad 1.8 cm longis.

A tree, up to 10 m high, glabrous except the somewhat pubescent inflorescences. Leaves chartaceous, oblong-elliptic to oblong, olivaceous, when dry shining, the lower surface paler than the upper, 9 to 15 cm long, 3.5 to 6 cm wide, subequally narrowed to the acute base and to the more or less acuminate apex; lateral nerves 5 or 6 on each side of the midrib, distinct, obscurely anastomosing, the reticulations obsolete or nearly so; petioles about 1 cm long. Cymes solitary, peduncled, sparingly pubescent, leaf-opposed, mostly at the tips of the ultimate branchlets, in fruit up to 4 cm long. Fruit ellipsoid to oblong-ellipsoid, 1.5 to 1.8 cm long, brown when dry, faintly ridged or sulcate.


This species somewhat resembles Urandra luzoniensis Merr., which I now consider to belong in the genus Gomphandra, and the specimens cited above were originally so identified. The present species differs from Urandra luzoniensis in its oblong to oblong-elliptic, more-numerously nerved leaves which are
subequally narrowed to both base and apex and which do not approach the obovate type. It is possible that *Bur. Sci. 35264 Ramos & Pascasio* from Dinagat Island is referable to the same species. In this specimen the cymes are axillary and also from the axils of fallen leaves, while the leaves are relatively narrower and subcaudate-acuminate. The extra-Philippine alliance of the species seems to be with *Gomphandra lanceolata* King, of the Malay Peninsula.

**GOMPHANDRA LANCEIFOLIA** sp. nov.

Arbor parva, glabra, foliis lanceolatis, brunneo-olivaceis, nitidis, chartaceis vel subcoriaceis, 7 ad 9 cm longis, utrinque subaequaliter angustatis, apice tenuiter subcaudato-acuminatis, nervis utrinque 3, tenuibus, reticulis obsoletis; fructibus carnosis, oblongo-obovoideis ad oblanceolatis, 2.5 ad 3 cm longis, mesocarpio leviter sulcato.

A glabrous tree, about 6 m high. Leaves lanceolate, chartaceous or subcoriaceous, brownish-olivaceous and somewhat shining when dry, 7 to 9 cm long, 1.5 to 2.5 cm wide, subequally narrowed to the cuneate or somewhat acuminate base and to the slenderly subcaudate-acuminate apex, the acumen usually about 1 cm long; lateral nerves usually 3 on each side of the midrib, distant, curved-ascending, slender, the reticulations nearly obsolete; petioles 5 to 7 mm long. Fruits axillary, their peduncles up to 1 cm long, fleshy, oblong-obovate to oblanceolate, salmon-colored, 2.5 to 3 cm long, the mesocarp somewhat longitudinally ridged.

**Luzon**, Tayabas Province, Mount Dingalan, on the east coast, on dry forested slopes, altitude about 300 meters, locally known to the Negritos as *paranuyog*.

A species well characterized by its lanceolate, subcaudate-acuminate, few-nerved leaves which are subequally narrowed to both base and apex, as well as by its rather large fruits. It is probably as closely allied to *Stemonurus fuliginea* Elm., which belongs in *Gomphandra*, as to any other described species.

**GOMPHANDRA GLABRA** sp. nov.

Arbor, circiter 10 m alta, ramulis junioribus inflorescentiisque parcissime pubescentibus exceptis glabra; foliis oblongis, membranaceis, usque ad 11 cm longis, in siccitate nitidis, olivaceo-brunneis, acutis vel leviter acuminatis, basi subacutis, nervis utrinque circiter 10, subtus perspicuis; cymis axillaryibus, paucifloris, usque ad 3.5 cm longis; fructibus oblongis, inaequilateralibus, glabris, usque ad 8 mm longis.
A tree, about 10 m in height, glabrous except the very tips of the branchlets and the cymes which are sparingly appressed-pubescent. Branches terete, grayish, smooth, the branchlets reddish brown, slender. Leaves alternate, oblong, membranaceous, 9 to 11 cm long, 3.5 to 4 cm wide, brownish-olivaceous, of the same color and shining on both surfaces when dry, the apex acute to slightly acuminate, minutely apiculate, base subacute; lateral nerves about 10 on each side of the midrib, slender but prominent on the lower surface, curved-anastomosing, the reticulations distinct, lax; petioles 8 to 10 mm long. Cymes axillary, solitary, peduncled, lax, apparently few-flowered, up to 3.5 cm long, in age white-glabrous, but in flower slightly appressed-pubescent. Fruits oblong, up to 8 mm long, glabrous, the pericarp somewhat fleshy, prominently gibbous on one side.


Similar and closely allied to Gomphandra cumingiana F.-Vill., differing in being almost entirely glabrous, and in its somewhat differently shaped, more-numerously nerved leaves.

GONOCARYUM Miquel

GONOCARYUM GRANDIFOLIUM sp. nov.

Arbor parva, glabra; foliis coriaceis, late elliptico-ovatis, 25 ad 28 cm longis, circiter 18 cm latis, nitidis, basi late rotundatis, apice breviter obtuse acuminatis, nervis utrinque circiter 4, perspicuis; floribus sessilibus, 6 ad 7 mm longis, fasciculatis, fasciculis in axillis defoliatis, paucifloris; sepalis suborbicularibus, 1 ad 1.5 mm diametro, leviter pubescens.

A glabrous tree, at least 5 m high. Leaves coriaceous, broadly elliptic-ovate, 25 to 28 cm long, about 18 cm wide, shining when dry, base broadly rounded, the apex shortly and bluntly acuminate; lateral nerves about 4 on each side of the midrib, the primary reticulations very lax; petioles stout, about 2 cm long. Flowers sessile, fascicled in the axils of fallen leaves, 6 to 7 mm long. Calyx lobes suborbicular, slightly pubescent, 1 to 1.5 mm in diameter. Corolla white, glabrous, the lobes oblong, acute, 1.5 to 2 mm long. Ovary ovoid, the style cylindric, stout, 1.2 mm in length.

Dinagat, Bur. Sci. 35205 Ramos & Pascasio, May 11, 1919, in forests along small streams at low altitudes.

This species is especially characterized by its large leaves and
its fascicled flowers, in these characters being readily distinguished from its ally *Gonocaryum calleryanum* Becc.

**SAPINDACEAE**

**GUIOA Cavanilles**

**GUIOA BICOLOR** sp. nov.

Arbor parva, partibus junioribus leviter pubescens; foliis 25 ad 30 cm longis, foliolis plerumque 9, crasse coriaceis, oblongo-ovatis ad oblongo-ellipticis, 9 ad 12 cm longis, acute acuminatis, subtus glaucescentibus; paniculis axillaribus usque ad 15 cm longis, leviter pubescens; floribus numerosis, petalis anguste obovatis, 1.5 mm longis, appendiculis villosis, petalis subaequantibus.

A small tree, the younger parts sparingly pubescent, the older parts glabrous. Branchlets dark reddish-brown or nearly black when dry. Leaves 25 to 30 cm long, the leaflets usually 9, thickly coriaceous, oblong-ovate to oblong-elliptic, 9 to 12 cm long, 3.5 to 5.5 cm wide, the base somewhat inequilateral, the apex rather sharply acuminate, the upper surface brownish when dry, glabrous, shining, the lower surface glaucous and sparingly pubescent with short, widely scattered hairs; lateral nerves about 9 on each side of the midrib, distinct, the reticulations not prominent; petiolules up to 1 cm in length, their bases much thickened. Panicles axillary, up to 15 cm long, branched from the base, very slightly pubescent. Flowers white, numerous; sepals unequal, 2 to 2.5 mm long. Petals narrowly obovate, 1.5 mm long, their margins slightly ciliate, the villous scales about as long as the petals.

Mindanao, Surigao Province, *Bur. Sci. 34487 Ramos & Pas-\-casio*, April 25, 1919, at the iron deposit on the northeast coast, on ridges, altitude about 780 meters.

This species is rather radically different from the previously described Philippine representatives of the genus in its thickly coriaceous leaflets which are glaucous on the lower surface.

**VITACEAE**

**TETRASTIGMA** Planchon

**TETRASTIGMA MINDANAENSE** sp. nov.

Frutex scandens, partibus junioribus inflorescentiisque pubescens; foliis 3-foliolatis, foliolis chartaceis, ellipticis ad ovato-ellipticis, 10 ad 13 cm longis, usque ad 7 cm latis, basi rotundatis, apice abrupte acuminatis, marginae distanter dentatis, dentibus apiculatis; inflorescentiis pubescens, circiter 10 cm longis, ramis primariis paucis, floribus umbellatim dispositis; petalis oblongo-
ovatis, obtusis vel acutis, obscure cucullatis, haud corniculatis, 2 mm longis, pubescens.

A vine, the younger parts and inflorescences rather distinctly pubescent or puberulent, the branches terete, glabrous, about 3 mm in diameter, the younger ones more or less pubescent. Leaves 3-foliate, their petioles about 4 cm long and with 1- to 2-cm long petiolules, somewhat pubescent; leaflets chartaceous when dry, olivaceous, elliptic to ovate-elliptic, 10 to 13 cm long, 5 to 7 cm wide, base rounded, often somewhat inequilateral, apex abruptly acuminate, the margins distantly toothed, the teeth rather coarsely apiculate; lateral nerves slender, distinct, about 8 on each side of the midrib. Inflorescences pubescent, about 10 cm long, the primary branches few, the secondary and tertiary ones umbellately arranged, the flowers umbellate at the tips of the ultimate branchlets, their pedicels 3 to 5 mm long, pubescent, primary branches subtended by broadly ovate, pubescent bracts, about 3 mm in length; petals 4, oblong-ovate, obtuse or acute, obscurely cucullate at their apices but not at all corniculate, about 2 mm long, pubescent externally. Ovary glabrous, ovoid, the stigma obscurely lobed.


The alliance of this species is apparently with *Tetrastigma loheri* Gagnep., but the inflorescences are much more ample, while the leaflets are much broader and very differently shaped than in Gagnepain's species.

**LEEA** Royen

**LEEA PLATYPHYLLA** sp. nov.

Frutex erectus, glaber; foliis pinnatis, circiter 70 cm longis, plerumque 7-foliolatis, foliolis circiter 34 cm longis et 14 cm latis, oblongis ad oblongo-ovatis, basi late acutis vel subrotundatis, apice acuminatis, nervis utrinque circiter 18, perspicuis; inflorescentiis sessilibus, ovoideis, densis, subcapitatis, circiter 2.5 cm longis; floribus numerosis, confertis, 4-meris, calycis 4 mm longis, petalis (partibus liberis) 3.5 mm longis; fructibus globosis, carnosis, circiter 1.5 cm diametro.

A glabrous shrub, the ultimate branches about 1.5 cm in diameter. Leaves simply pinnate, about 70 cm long, usually 7-foliolate; leaflets about 34 cm long and 14 cm wide, subcoriaceous, brownish when dry, oblong to oblong-ovate, the base broadly acute or somewhat rounded, the apex distinctly acuminate, the margin rather coarsely toothed except near the base; lateral nerves about 18 on each side of the midrib, very prominent, the
primary reticulations distinct, subparallel; petiolules stout, 1 to 1.5 cm long. Inflorescences dense, ovoid, sessile, about 2.5 cm long, the flowers greenish-yellow, 4-merous, their petals up to 5 mm in length. Calyx about 5 mm long, cup-shaped, broadly 4-lobed. Petals oblong-ovate, about 3.5 mm long and 3 mm wide, the tube extended 2.5 to 3 mm above the attachment of the petals, the anthers narrowly oblong, 2 to 2.5 mm long. Fruit fleshy, globose, glabrous, red, about 1.5 cm in diameter, 1- or 2-seeded, the seeds subglobose, about 7 mm thick.


A species belonging in the group with *Leea congesta* Elm., but with very much larger, more-numerously nerved leaflets.

**LEEa CAPITATA** sp. nov.

Frutex erectus, glaber; foliis pinnatis, usque ad 90 cm longis, plerumque 11-foliolatis, foliolis oblongis ad oblongo-lanceolatis, coriaceis, 23 ad 36 cm longis, 5 ad 10 cm latis, basi late rotundatis, apice tenuiier acuminatis, nervis utrinoque circiter 16, perspicuïis; inflorescentiis ovoideis vel subgloboïs, densis capitatis, 3 ad 4 cm diametro; floribus confertis, 4-meris, calycis circiter 5 mm longis, petalis (partibus liberis) circiter 4 mm longis.

An erect, glabrous shrub, 1 to 2 m high, the ultimate branches up to 1.5 cm in diameter. Leaves simply pinnate, up to 90 cm long, usually 11-foliolate; leaflets oblong to oblong-lanceolate, coriaceous, 23 to 36 cm long, 5 to 10 cm wide, olivaceous when dry, the base rather broadly rounded, the apex slenderly acuminate, the acumen up to 2.5 cm long, margins rather coarsely toothed; lateral nerves about 16 on each side of the midrib, prominent, the reticulations subparallel; petiolules stout, 1 to 4 cm long. Inflorescences sessile, ovoid or subglobose, very dense, 3 to 4 cm in diameter. Flowers numerous, crowded, white, 4-merous, their pedicels up to 5 mm in length. Calyx cup-shaped, about 5 mm long, irregularly 3- or 4-lobed. Petals oblong-ovate, about 4 mm long, 2 to 3 mm wide, reflexed, the tube projecting about 3 mm above the insertion of the petals. Anthers 4, elliptic, about 2 mm long.


The alliance of this species is with *Leea congesta* Elm., from
which it is readily distinguished by its much larger and fewer-nerved leaflets which are broadly rounded at the base; it is distinguished from *Leea platyphylla* especially by its fewer, differently shaped, relatively much narrower leaflets.

**LEEA LONGIPETIOLATA** sp. nov.

Frutex, circiter 1 m altus, glaber; foliis unifoliolatis, longe petiolatis, chartaceis vel subcoriaceis, oblongis ad oblongo-ellipticis, utrinque acutis, usque ad 30 cm longis, margine grosse sinuato-dentatis, nervis utrinque circiter 11, subtus perspicuis, curvatis; petiolo circiter 9 cm longo; infructescentiis in axillis superioribus, circiter 4 cm longis, sparse ramosis; fructibus carnosis, subglobosem, circiter 1.5 cm diametro, seminibus 2 vel 3.

An erect shrub, about 1 m high, glabrous throughout, the ultimate branches terete, dark brown, nearly smooth, about 4 mm in diameter. Leaves simple, oblong to oblong-elliptic, chartaceous to subcoriaceous, olivaceous and somewhat shining when dry, the lower surface paler than the upper, 22 to 30 cm long, about 11 cm wide, base and apex acute, margins rather coarsely sinuate-dentate; lateral nerves about 11 on each side of the mid-rib, prominent on the lower surface, curved, anastomosing close to the margin, the reticulations subparallel, distinct; petioles about 9 cm long. Infrauctescences in the upper axils, about 4 cm long, sparingly branched. Fruits fleshy, globose or subglobose, reddish when fresh, dark brown when dry, each with 2 or 3 globose seeds.


This species belongs in the group with *Leea acuminatissima* Merr. and *L. unifoliolata* Merr. and is closely allied to both of these, from which it is readily distinguished by its larger leaves and very much longer petioles.

**LEE A RAMOSII** sp. nov.

Frutex erectus, inflorescentiis laxis, cinereo-pubescentis; foliis circiter 60 cm longis, bipinnatis, pinnis paucis, plerumque 5-foliolatis; foliis chartaceis, ellipticis ad oblongo-ellipticis; 12 ad 22 cm longis, basi plerumque late rotundatis, apice subabrupte tenuiter acuminatis, nervis utrinque circiter 12, perspicuis, subtus ad costa leviter fasciculato-ciliatis; inflorescentiis usque ad 20 cm longis; floribus 5-meris, subalbidis, sessilibis, 5-meris, circiter 5.5 mm longis; fructibus depresso-globosis, 6 ad 8 mm diametro.
An erect shrub, about 2.5 m high, the inflorescences cinereous-pubescent, the leaflets with few, scattered, somewhat tufted cilia on the midrib beneath, the ultimate branches about 8 mm in diameter. Leaves bipinnate, about 60 cm long, the pinnæ few, the lower ones usually 5-foliolate; leaflets chartaceous, elliptic to oblong-elliptic, 12 to 22 cm long, 6 to 10 cm wide, the base usually broadly rounded, the apex rather abruptly acuminated, the acumen slender, blunt, 1 to 1.5 cm long, margins distinctly toothed; lateral nerves prominent, about 12 on each side of the midrib, the reticulations distinct; petiolules 5 to 15 mm long. Inflorescences lax, branched from near the base, up to 20 cm long and as wide as or somewhat wider than long, the branches few, spreading. Flowers 5-merous, numerous, white or somewhat yellowish, sessile or subsessile and somewhat crowded at the tips of the ultimate branchlets, about 5.5 mm long. Calyx cup-shaped, 2.5 mm long, 5-lobed, the lobes broadly ovate, about 1 mm in length, glabrous. Petals oblong, 3 mm long, obtuse to acute, recurved. Anthers 1.2 mm long. Fruits depressed-globose, red when fresh, dark brown when dry, 6 to 8 mm in diameter, obscurely 5- or 6-sulcate when dry.


This species in general appearance is not radically different from Leeca indica (Burm. f.) Merr. and several other species allied to the latter. The scattered ciliate hairs on the midrib beneath are a distinguishing character.

STERCULIACEAE

STERCULIA Linnaeus

STERCULIA GLABRIFOLIA sp. nov.

Arbor glabra, vel ramulis junioribus leviter pubescens, ramis circiter 5 mm diametro; foliis subcoriaceis, oblongis ad oblongo-ellipticis, integris, 8 ad 22 cm longis, breviter obtuse acuminatis, basi late rotundatis et distincte cordatis, nervis utrinque 8 ad 12, perspicuis; petiolo 4 ad 7 cm longo; inflorescentiis 3 solitariis, glabris, axillaribus, anguste paniculatis, circiter 12 cm longis, paucifloris; floribus 4-meris, extus glabris, intus dense villosis, alabastro 7 ad 8 mm longo, lobis acutis, liberis.

A tree, about 5 m high, entirely glabrous except the very young tips of the branchlets and the inside of the calyx. Branches te-
rete, rugose when dry, the ultimate ones about 5 mm in diameter, the very tips of the branchlets sparingly ferruginous-pubescent. Leaves subcoriaceous, oblong to oblong-elliptic, 8 to 22 cm long, 4 to 10 cm wide, entire, the apex shortly blunt-acuminate, the base broadly and abruptly rounded and rather deeply cordate; lateral nerves 8 to 12 on each side of the midrib, prominent, obscurely anastomosing, sparingly bearded on the axils on the lower surface; petioles 4 to 7 cm long. Staminate inflorescences axillary, solitary, narrowly paniculate, about 12 cm long, the branches few, the lower ones 2 cm long or less, 2- or 3-flowered, the upper ones small and 1-flowered, the pedicels 1.5 to 2 cm long, slender. Staminate flowers 4-merous, the buds ovoid, about 7 to 8 mm long, the calyx glabrous externally except at the edges of the valvate lobes, the lobes broad, acute, irregular, apparently free at maturity, inside densely villous. Anthers many in a glose head.


A very characteristic species, not closely related to any other one known to me, readily distinguished by its being nearly glabrous and by its oblong to oblong-elliptic, glabrous leaves which are broadly rounded and rather deeply cordate at the base.

**DILLENIACEAE**

**SAURAUIA Willdenow**

**SAURAUIA MINDORENSIS** sp. nov.

Arbuscula, circiter 3 m alta; foliis oblanceolato-ellipticis, chartaceis, circiter 25 cm longis, apice breviter abrupteque acuminate, basi angustatis, acutis, supra glabris, nitidis, subtus pallide tomentosis nitidisque, nervis utrinque circiter 22; cymis axilla-ribus, brevibus, paucifloris, floribus circiter 2 cm diametro, caly- cis lobis setis patulis 2.5 ad 4.5 mm longis; obtectis.

A shrub, about 3 m high. Branches slender, glabrous, except for few scattered, appressed scales, the branchlets with numerous, appressed, acicular, 2 to 6 mm long scales. Leaves oblanceolate-elliptic, chartaceous, 20 to 24 cm long, about 8 cm wide, the upper surface dark-colored when dry, glabrous and somewhat shining, the lower surface densely pale ferruginous-tomentose, almost flesh-colored, the apex shortly and abruptly acuminate, the acumen apiculate, the leaf gradually narrowed in the lower half to the acute base, the margins prominently apiculate-dentate; nerves about 22 on each side of the midrib distinct beneath, obscurely anastomosing, the reticulations obscure; petioles
2.5 to 5 cm long, with few appressed setose scales. Cymes in the upper axils, few-flowered, shorter than the petioles. Outer sepals orbicular-ovate, very shortly acuminate, about 13 mm long and wide, more or less tomentose outside and densely covered with acicular spreading scales 2.5 to 4.5 mm long, the inner surface tomentose, the inner sepals smaller and setose only on the exposed portions. Ovary densely ferruginous-hirsute, ovoid; styles 5, free, in bud 2 mm long.

MINDORO, south of Lake Naujan, *For. Bur.* 6849 Merritt, April, 1907, in forests, at an altitude of about 100 meters.

A species well characterized by its chartaceous leaves which are entirely glabrous above and densely tomentose and shining beneath, the indumentum somewhat salmon- or flesh-colored; its short cymes; comparatively large flowers; densely setose calyx; and pubescent ovary.

**SAURAUJA TRUNCIFLORA** sp. nov.

Arbor parva, ramulis irregulariter adpresse setosis exceptis glabra; foliis oblanceolatis, chartaceis, 22 ad 35 cm longis, supra olivaceis laevis, apice breviter acuminatis, deorsum angustatis, basi cuneatis, margine serrulatis, nervis utrinque 15 ad 20, perspicuis, adscendentibus; inflorescentiis cauliniis, floribus tenuiter pedicellatis, confertis, fasciculis usque ad 7 cm diametro; sepalis elliptico-ovatis, 5 ad 9 mm longis, glabris; ovario glabro; stylis 3, deorsum connatis.

A small tree, reaching a height of 5 m, the branches glabrous, the young branchlets with few to many, appressed, unequal, ovate to lanceolate, acuminate scales. Leaves oblanceolate, chartaceous, 22 to 35 cm long, 6 to 10 cm wide, the upper surface dark-olivaceous, smooth, the lower surface glabrous, apex acuminate, gradually narrowed from above the middle to the cuneate base, the margins rather finely serrate; lateral nerves 15 to 20 on each side of the midrib, ascending, the reticulations lax, obscure or nearly obsolete; petioles 2 cm long or less. Flowers white, in dense fascicles from tubercles on the trunk, the fascicles up to 7 cm in diameter, the pedicels slender, somewhat furfuraceous, unbranched, 2 to 3.5 cm long, ebracteolate or with a pair of small bracteoles. Sepals glabrous or slightly furfuraceous, not at all setose, elliptic-ovate, 5 to 9 mm long, about 5.5 mm wide, the inner ones slightly exceeding the outer ones and subpetaloid. Petals about 10 mm long and 7 mm wide, the apex retuse. Stamens 20, the anthers 3 mm long. Ovary ovoid, glabrous; style about 4 mm long, the arms usually 3, free or somewhat united at the base.

A species strongly characterized by its glabrous, or nearly glabrous, oblanceolate leaves, and by its dense, fascicled, cauline inflorescences.

**SAURAUIA LANAENSIS** sp. nov.

*Arbor parva, ramulis petiolisque adpressae setosis, foliis subtilis ad costa nervisque adpressae-setulosae; foliis oblanceolatis, 11 ad 20 cm longis, tenuiter acuminatis, deorsum angustatis, basi cuneatis, margine spinulosis, supra glabris, laevis, nervis utrinque 10 ad 12, perspicuis, reticulis distinctis; cymis axillaris, paucifloris quam petiolo brevioribus, plus minusve setosis; floribus parvis, sepalis leviter subadpressae-setosis, circiter 3 mm longis; ovario glabro; stylis 4, liberis.*

A shrub or small tree, 3 to 5 m high, the branchlets appressed-setose with short, brown, lanceolate scales, the petioles and midrib on the lower surface with similar scales. Leaves chartaceous, oblanceolate, 11 to 20 cm long, 3 to 6 cm wide, the apex slenderly acuminate, narrowed to the cuneate base, the margins somewhat spinulose, the upper surface smooth, olivaceous, glabrous, the lower surface paler, appressed-setose with short scales on the midrib and lateral nerves; lateral nerves 10 to 12 on each side of the midrib, distinct, anastomosing, the reticulations evident; petioles 1 to 1.5 cm long. Inflorescences of very short, axillary, solitary or fascicled, few-flowered cymes usually 1 cm or less in length, the rachis and pedicels setose. Flowers white, small, the sepals elliptic-ovate to oblong-ovate, about 3 mm long and 2 mm wide, with few, slender, subappressed setae up to 1 mm in length. Petals narrowly oblong-obovate, about 5 mm long, 2.5 mm wide, the apex somewhat inequilaterally retuse. Anthers about 1.2 mm long. Ovary ovoid, glabrous; styles 4, free, 2 to 2.5 mm long.


Among the Philippine forms this species is well characterized by its oblanceolate, slenderly acuminate leaves, and its short, few-flowered, axillary cymes, and small flowers.
Arbor parva, glabra; foliis oblongis, coriaceis, 7 ad 11 cm longis, basi rotundatis, apice acutis vel leviter acuminatis, distincte serratis, dentibus tenuiter apiculatis, nervis primariis quam secondariis haud distinctioribus; inflorescentiis terminalibus, floribus umbellatim dispositis, umbellis 2 vel 3; sepalis 3 vel 4; ellipticis ad oblongo-ellipticis rotundatis, 6 ad 7 mm longis; staminibus 8 ad 10, antheris 3 mm longis.

A small glabrous tree, about 4 m high, the branches brownish, slender, terete. Leaves oblong, coriaceous, 7 to 11 cm long, 2 to 4 cm wide, the base rounded, apex acute to somewhat acuminated, margins distinctly toothed, the teeth slenderly apiculate, pointing upward, the upper surface brownish-olivaceous and strongly shining when dry, the lower surface paler and slightly shining; primary lateral nerves scarcely more distinct than are the secondary ones, curved, not prominent, anastomosing, and forming 1 or 2 more or less distinct marginal nerves; petioles up to 5 mm in length. Inflorescences terminal, consisting of 2 or 3 peduncled, umbellike cymes, the peduncles less than 1 cm long, the bracts oblong, about 2.5 mm in length. Flowers few, their pedicels up to 1.5 cm long. Sepals 3 or 4, elliptic to oblong-elliptic, rounded, 6 to 7 mm long. Petals similar to the sepals but thinner, usually 3 or 4. Stamens 8 to 10, their filaments 1 mm long, the anthers linear, 3 mm in length.

Mindanao, Surigao Province, Bur. Sci. 34479 Ramos & Pascasio, April 25, 1919, along streams at low altitudes at the iron deposit on the northeast coast.

In general this species is similar to Ochna fascicularis Blanco, but by definition it belongs in the genus Ouratea and may be readily distinguished from Blanco’s species not only by its floral characters but also by its distinctly and sharply toothed leaves which are rounded at the base.

GUTTIFERAE

CRATOXYLON Blume

CRATOXYLON LIGUSTRINUM (Spach) Blume Mus. Bot. Lugd.-Bat. 2 (1852) 16.


Hypericum biflorum Lam. Encycl. 4 (1797) 170.
Hypericum chinense Retz. Obs. 5 (1789) 27, non Linn.
Hypericum olympicum Lour. Fl. Cochinch. (1790) 471, non Linn.
Hypericum petiolatum Lour. op. cit. 472, non Linn.

The earliest description of this species seems to be Hypericum chinense Retz. (1789), non Linn., this description being the basis of Hypericum biflorum Lam. (1797). Cratoxylon biflorum Turcz. is typified by Wallich 4820, this binomial being published without reference to Lamarck's earlier name (sub Hypericum), although representing the same species. The two forms described by Loureiro, one from Kwangtung Province, China, and one from Cochinchina, are both safely referable to the form currently known as Cratoxylon polyanthum Korth. The oldest specific name, regarding the validity of which there can be no question, appears to be Cratoxylon ligustrinum (Spach) Blume. Elodea pulchella Hort. Chels. ex Loud. Hort. Brit. Suppl. 1 (1832) 587, currently reduced here, is practically a nomen nudum, the whole description being the statement that it is an evergreen, herbaceous, ornamental plant with rosy flowers. The description of it as herbaceous would exclude this as a synonym of Cratoxylon ligustrinum Blume, and for that matter would exclude the species from the genus Cratoxylon.

CALOPHYLLUM Linnaeus

CALOPHYLLUM CUCULLATUM sp. nov.

Arbor parva, ramulis junioribus petiolisque ferrugineo-hirsutis, ramulis tenuibus, teretibus; foliis coriaceis, oblongis, 11 ad 20 cm longis, distincte acuminatis, basi late rotundatis et distincte cucullatis, petiolo 7 ad 10 mm longo; infructescentiis axillaribus, pedunculatis, circiter 5 cm longis, pedicellatis, plerumque 3 vel 4 flabellatim dispositis; fructibus ovoideis, laevis, 1 cm longis.

A small tree, the branchlets more or less ferruginous-hirsute as are the young petioles; the ultimate branches slender, terete, reddish-brown, 3 to 4 mm in diameter, the internodes up to 15 cm in length. Leaves oblong, coriaceous, smooth, shining, 11 to 20 cm long, 4.5 to 8 cm wide, the apex distinctly acuminate, the base broadly rounded and distinctly cucullate; midrib very
prominent, the lateral nerves slender, very densely arranged; petioles 7 to 10 mm long. Infuctescences axillary, peduncled, about 5 cm long, the peduncle 1 to 2 cm long, bearing usually 3 or 4 flabellately arranged pedicels, these up to 2 cm in length. Fruits ovoid, smooth, brown when dry, about 1 cm long.

MINDANAO, Surigao Province, Bur. Sci. 34518 Ramos & Pascasio, April 25, 1919, in thickets along streams at the iron deposit on the northeast coast.

Although the flowers of this species are as yet unknown, it seems to belong in the group with Calophyllum soulattri Burm. f. (C. spectabile Willd.) ; it is well characterized by its leaves being broadly rounded and conspicuously cucullate at the base.

**Calophyllum oliganthum** sp. nov. § Apetalum.

Arbor parva, glabra, ramulis tenuibus, teretibus; foliis oblongo-ellipticis ad oblongo-lanceolatis, coriaceis, 5 ad 10 cm longis, utrinque subaequaliter angustatis, basi cuneatis, apice distincte acuminati; petiolo 8 ad 10 mm longo; inflorescentiis plerumque axillaris, solitariis, pedunculatis, 2.5 ad 4 cm longis, floribus 3 ad 5, racemosis vel umbellatis; sepalis interioribus elliptico-ovatis, circiter 6 mm longis, exterioribus late ovatis, 4 cm longis, apice rotundatis et perspicue cucullatis; fructibus ellipsoides, 1.5 cm longis.

A glabrous tree, 5 to 8 m high, the branches and branchlets slender, dark reddish-brown, terete, the internodes up to 5 cm in length. Leaves oblong, elliptic to oblong-lanceolate, coriaceous, shining, 5 to 10 cm long, 1.5 to 4 cm wide, subequally narrowed to the cuneate base and to the distinctly but blunt-acuminate apex; lateral nerves very slender, densely arranged; petioles 8 to 10 mm long. Inflorescences chiefly axillary, sometimes terminal, solitary, peduncled, 2.5 to 4 cm long, 3- to 5-flowered, the flowers either racemose or umbellately arranged, their pedicels 1 to 1.5 cm long. Sepals white, the inner 2 elliptic-obovate, rounded, somewhat concave, about 6 mm long and 4 mm wide, the outer 2 broadly ovate, rounded, and conspicuously cucullate at their apices, about 4 mm long. Ovary globose, glabrous; style 3 mm long. Fruits dark brown when dry, nearly smooth, ellipsoid, 1.5 cm long.


This species very closely resembles *Calophyllum gracilipes* Merr. but the petals are lacking, and it further differs from this
species in having the branches and branchlets terete instead of angled.

**CALOPHYLLUM BRACHYPHYLLUM** sp. nov.

Arbor parva, glaberrima, ramulis tenuibus, plus minusve angulatis; foliis crasse coriaceis, late ovatis ad elliptico-ovatis, 1.5 ad 2.5 cm longis, basi late rotundatis, apice rotundatis vel retusis; petiolo 1 ad 2 mm longo; fructibus globosis, laevis, 1.5 cm diametro.

A small glabrous tree, or the very tips of the branches obscurely puberulent, the branches grayish, the branchlets slender, usually somewhat angled, reddish-brown. Leaves thickly coriaceous, broadly ovate to elliptic-ovate, 1.5 to 2.5 cm long, 1.2 to 2 cm wide, the base broadly rounded, the apex rounded or often retuse; lateral nerves very slender and very densely arranged; petioles 1 to 2 mm long. Fruits globose, smooth, 1.5 cm in diameter, their peduncles usually solitary, 1 to 2 cm long.

**KAYEA** Wallich

**KAYEA LANCEOLATA** sp. nov.

Arbor parva, glabra, ramis ramulisque teretibus; foliis coriaceis, lanceolatis, usque ad 23 cm longis, basi acutis vel obtusis, sursum sensim angustatis, tenuiter acute acuminatis, nitidis, nervis primariis utrinque 15 ad 20, tenuibus, quam secondariis vix magis distinctioribus; floribus terminalibus, sessilibus, dense fasciculatis, in siccitate nigris, sepalis obovatis, circiter 7 mm longis.

A small glabrous tree, the branches and branchlets yellowish, terete, smooth. Leaves lanceolate, coriaceous, rather pale and shining when dry, 18 to 23 cm long, 3 to 4 cm wide, base acute to obtuse, gradually narrowed upward from the lower one-fourth or one-third to the slenderly acuminate apex, the acumen acute or acuminate, subcaudate; primary lateral nerves 15 to 20 on each side of the midrib, scarcely more prominent than are the secondary nerves, both surfaces very shallowly foveolate by the rather close reticulations; petioles 1 to 1.5 cm long. Flowers white when fresh, black when dry, sessile, densely crowded in terminal
fascicles 1 to 1.5 cm in diameter. Sepals obovate, about 7 mm long.


This species is readily distinguished by its lanceolate leaves, which are gradually narrowed upward to the slenderly subcaudate-acuminate apex, and by its terminal, crowded, sessile, fascicled flowers.

**FLACOURTIACEAE**

**HYDNOCARPUS** Gaertner

**HYDNOCARPUS HUTCHINSONII** sp. nov. § *Euhydnocarpus, Oliganthera*.

A tree, reaching a height of 15 m, glabrous except the younger parts and flowers. Leaves oblong, coriaceous or subcoriaceous, entire, 15 to 25 cm long, 5 to 9 cm wide, the base distinctly inequilateral, usually rounded or obtuse on the broader side and often acute on the narrower side, the apex rather abruptly and distinctly acuminate, the upper surface subolivaceous or brownish, shining, smooth, the lower surface brownish, distinctly reticulate; lateral nerves 12 to 14 on each side of the midrib, prominent, curved, anastomosing close to the margin; petioles usually about 1 cm long. Flowers yellow, the inflorescence axillary, few-flowered, the axils of the inflorescence up to 8 mm long, somewhat pubescent, usually simple; pedicels up to 2 cm long. Sepals 5, from 9 to 11 mm long, pubescent, reflexed in anthesis, oblong-elliptic to elliptic-ovate, rounded. Petals glabrous, up to 13 mm long, about 5 mm wide when spread, ultimately involute and closing a linear-oblong, flattened, free appendage up to 10 mm long and 1 mm wide, which is slightly pubescent above and attached by its base only. Stamens 5, the filaments 5 mm long, much thickened below, tapering upward, glabrous; anthers as long as the filaments. Rudimentary ovary pubescent. Fruit globose, about 8 cm in diameter, the pericarp rather thin when dry, brittle, externally puberulent. Seeds numerous, irregular, up to 2 cm in length.

**Mindanao**, Zamboanga District, *For. Bur. 4822 Hutchinson,*
This species is common in primary forests in various parts of the Zamboanga District and in Basilan. Fruiting specimens have been collected in July, August, September, November, December, and January. Flowering specimens have been collected in December and February. What is apparently the same species is represented by 574 Agama, from near Sandakan, British North Borneo. The local names recorded are mangasalaokag (Sul.), baggarbas (Lan.), and kamupang (Sul.).

**BEGONIACEAE**

**BEGONIA** Linnaeus

**BEGONIA DOLICHOTRICA** sp. nov. § *Petersmannia*.

Herba erecta, ramosa, saltem 50 cm alta, perspicue et patule ciliatis; foliis inaequilateralibus, chartaceis, oblongis ad oblongo-lanceolatis, 8 ad 13 cm longis, tenuiter acuminatis, basi lateraliter cordatis, margine irregulariter grosse dentatis, dentibus ciliatis, utrinque perspicue ciliatis; inflorescentiis circiter 5 cm longis, floribus 3 paucis, sepalis 2, orbiculari-ovatis, circiter 1.5 cm longis, petalis, 0; capsulis solitariis, obovoideis, 2 cm longis et latis, truncatis, basi abrupte truncato-rotundatis, aequaliter 3-alatis, perspicue ciliatis.

An erect, branched herb, at least 50 cm high, the branches, petioles, leaves, and fruits conspicuously ciliate with long, slender, spreading, scattered, brownish hairs. Leaves thinly chartaceous, inequilateral, oblong to oblong-lanceolate, 8 to 13 cm long, 2.5 to 5 cm wide, the apex slenderly acuminate, the base laterally cordate, one side very broadly rounded, the other much narrower and acute or abruptly obtuse, the margins rather coarsely and irregularly toothed, the primary and secondary teeth terminated by rather long cilia, both surfaces with long, scattered, spreading hairs; petioles 7 to 15 mm long; stipules oblong-elliptic, up to 1.5 cm long, somewhat ciliate, terminated by a long, sparingly ciliate mucro, up to 5 mm in length. Inflorescences in the uppermost axils up to 5 cm long, somewhat peduncled, dichotomously branched, bearing near the base one or few female flowers, and above a few male ones, the bracts narrowly lanceolate, acuminate, 5 mm long or less. Staminate flowers white, the sepals 2, orbicular-ovate or somewhat reniform, rounded, up to 1.5 cm wide and nearly as long. Petals
none. Stamens numerous, the anthers obovoid, about 1 mm long, shorter than the filaments. Capsules usually solitary, in outline obovoid, including the wings about 2 cm long and 2 cm wide at the truncate apex, somewhat narrowed below, the base abruptly truncate-rounded, the wings subequal, conspicuously ciliate with long, scattered, brownish hairs.

**LUZON**, Camarines Province, Mount Bagacay, *Bur. Sci.* 33855, 33926 (type) Ramos & Edaño, December 18, 1918, on forested slopes, altitude about 650 meters, the leaves when fresh very red on the lower surface but merely brownish or brownish-red when dry.

This species is probably as closely allied to *Begonia mactgregorii* Merr. as to any other described form. It is easily distinguishable by its numerous cilia and especially by its ciliate capsules.

**BEGONIA LONGIBRACTEA** sp. nov. § *Petermannia*.

Herba erecta, ramosa, saltem 40 cm alta, ramis perspicue subadpresso ciliatis; foliis membranaceis, inaequilateralisbus, oblongo-obovatis, 6 ad 14 cm longis, profunde et irregulariter pinnatim lobatis, lobis usque ad 2.5 cm longis, plerumque grosse 1- vel 2-dentatis, apice tenuiter acuminatis, basi lateraliter cordatis; inflorescentiis axillaribus, solitariis, racemosis, circiter 1 cm longis, bracteis numerosis anguste lanceolatis leviter ciliatis, 8 ad 10 mm longis instructis; floribus 2 sepalis, elliptico-ovatis, 5 mm longis, petalis 2, quam sepalis multo angustioribus; capsulis solitariis, 10 ad 12 mm longis, usuque ad 15 mm latis, truncatis, basi late rotundatis, aequaliter 3-alatis, leviter ciliatis.

An erect, somewhat branched herb, at least 40 cm high, the lower nodes often rooting, the branches rather conspicuously subappressed-ciliate, the leaves slightly so. Leaves greenish when dry, membranaceous, in outline oblong-obovate, 6 to 14 cm long, 2 to 7 cm wide, conspicuously inequilateral, deeply and irregularly pinnately lobed, the lobes up to 2.5 cm long and often coarsely 1- or 2-toothed, the apex long and slenderly acuminate, the acumen toothed, the base somewhat narrowed, laterally cordate, one side rounded, the other usually acute, the upper surface with few, scattered, elongated hairs, the lower somewhat appressed-hirsute on the midrib and veins; petioles 5 mm long or less; stipules narrowly lanceolate, acuminate, about 8 mm long, sparingly ciliate. Inflorescences axillary, of short, few-flowered, simple racemes, the axils, 1 cm long or less, supplied with numerous, narrowly lanceolate, long, acuminate, somewhat ciliate...
bracts, 8 to 10 mm in length and about 1.5 mm wide. Male flowers pinkish-white, their pedicels up to 10 mm in length. Sepals 2, elliptic-ovate, slightly ciliate, about 5 mm long. Petals 2, narrowly elliptic-oblong, about 3.5 mm long, 1.5 mm wide. Capsules solitary, axillary, including the wings 10 to 12 mm long and 12 to 15 mm wide, the apex truncate, the outer angles acute, slightly narrowed below to the rather broadly rounded base, sparingly ciliate.


A species similar and distinctly allied to *Begonia urdanelensis* Elm. but with larger leaves, quite different indumentum, and narrower stipules.

**THYMELAEACEAE**

**GYRINOPSIS** Decaisne

**GYRINOPSIS ACUMINATA** sp. nov.

Frutex, floribus exceptis glaber, foliis anguste lanceolatis ad lanceolatis, 12 ad 20 cm longis, tenuiter acuminatis, basi cuneatis, nervis numerosis, dense dispositis; floribus axillaribus, fasciculatis, leviter pubescens, circiter 5 mm longis; capsulis circiter 1 cm longis, rugosis, obovoideis.

A shrub or small tree, entirely glabrous except the flowers, the branchlets usually reddish-brown. Leaves narrowly lanceolate to lanceolate, 12 to 20 cm long, 2.5 to 4.5 cm wide, narrowed to the cuneate base and to the slenderly acuminate apex, greenish or olivaceous and shining when dry. The primary lateral nerves scarcely distinguishable from the densely arranged secondary ones; petioles 5 mm long or less. Flowers axillary, fascicled or in very greatly reduced cymes, their pedicels about 2.5 mm long. Perianth slightly pubescent, about 5 mm long, the lobes 5, oblong, obtuse, about 1.5 mm long. Stamens 10 in a single row near the throat, 5 alternating anthers slightly longer than the others. Ovary oblong-ovoid, narrowed upward, pubescent; style very short. Capsules yellowish, rugose when dry, 1 cm long or less, 2-valved, usually containing a single, subglobose, black seed, 5 to 6 mm in diameter.


This species is closely allied to *Gyrinopsis brachyantha* Merr., from which it is distinguished by its longer, slenderly acuminate, differently shaped leaves.
TERMINALIA SURIGAENSIS sp. nov. § Diptera.

Arbor parva, glabra, ramulis incrassatis, 1 ad 1.5 cm diametro, cicatricibus multis instructis; foliis numerosis, confertis, coriaceis, anguste oblongo-obovatis ad oblanceolatis, 10 ad 14 cm longis, basi cuneatis, apice obtusis ad rotundatis, nervis utrinque circiter 10, tenuibus; inflorescentiis simplicibus, 7 ad 13 cm longis; fructibus 2-alatis, late ellipticis, 1.5 ad 1.8 cm longis et latis, apice retusis apiculatis.

A glabrous tree, about 6 m high, the ultimate branchlets thickened, 1 to 1.5 cm in diameter, marked with numerous crowded scars of fallen leaves. Leaves densely crowded at the tips of the branchlets, narrowly oblong-obovate to ob lanceolate, 10 to 14 cm long, 2 to 5 cm wide, coriaceous, shining, yellowish-green or brownish when dry, gradually narrowed to the cuneate base, the apex obtuse to rounded; lateral nerves about 10 on each side of the midrib, slender; petioles 1 to 1.5 cm long, usually with 2 rather conspicuous glands. Inflorescences axillary, simple, 7 to 13 cm long. Flowers reddish. Calyx funnel-shaped, glabrous, about 5 mm long, the teeth 5, triangular, acute. Fruits 2-winged, including the wings broadly elliptic, 1.5 to 1.8 cm long and nearly as wide, the apex retuse and reticulate, base rounded, the seed-bearing portion of the fruit plane on one side and somewhat keeled on the other, the wings coriaceous.

MINDANAO, Suriga'o Province, Bur. Sci. 34711 (type), 34600, Ramos & Pascasio, April 25 and June 15, 1919, along streams at low altitudes ascending to 350 meters.

A species very similar in appearance and very closely allied to Terminalia darlingii Merr., from which it is distinguished by its smaller leaves and fruits.

MELASTOMATACEAE

MEDINILLA Gaudichaud

MEDINILLA CAPITATA sp. nov.

Frutex epiphyticus, scandens, ramis ramulisque teretibus, partibus junioribus stellato-pubescentis; foliis oppositis, subsessilibus, penninerviis, obovato-ellipticis, usque ad 13 cm longis, acuminatis, basi rotundatis vel obscure cordatis, nervis utrinque 3; inflorescentiis lateralibus, solitariis, 2 ad 2.5 cm longis, subglobosis ad ovoideis, densis; floribus 5-meris, racemosis; bracteis ovatis-obovatis ad spatulatis, 10 ad 13 mm longis.
A slender, epiphytic, scandent shrub, the stems frequently emitting roots, the branches and branchlets terete, the latter, and the petioles and leaves on the midrib beneath, distinctly stellate-pubescent with short brown hairs. Leaves opposite, pen-ninerved, obovate-elliptic, subsessile, 10 to 13 cm long, 5 to 9 cm wide, the apex shortly acuminate, the base somewhat narrowed, rounded or obscurely cordate; midrib prominent, the lateral nerves leaving it in the lower 2 to 4 cm, distinct, ascending, usually 3 on each side of the midrib, the inner pairs extending to the apex; petioles 2 mm long or less. Inflorescences lateral, solitary, subsessile, the flowers densely arranged in simple, globose to ovate racemes, 2 to 2.5 cm long, each flower subtended by an obovate to spatulate, red, slightly pubescent bracteole, 10 to 13 mm in length. Pedicels short. Calyx urceolate, about 7 mm long and 5 mm in diameter, slightly stellate-pubescent, the limb produced, obscurely 5-toothed. Ovary 5-celled.


A remarkably characteristic species not closely allied to any previously described form, distinguishable by its subsessile, pen-ninerved, opposite leaves; its stellate, brownish, rather sparse indumentum; and its dense, lateral, subcapitate, simple racemes of 5-merous flowers.

**MEDINILLA CONFERTIFLORA** sp. nov.

*Frutex erectus, glaberrimus, ramulis teretibus, foliis oppositis, sessilibus, oblongo-ovovatis ad oblongo-lanceolatis, usque ad 20 cm longis, tenuiter acuminatis, basi perspicue angustatis, pen-ninervis, nervis utrinque 4; inflorescentiis caulinis, ramosis, circiter 7 cm longis, densissime multifloris et multibracteatis, bracteis angustis obovatis ad spatulatis usque ad 15 mm longis; floribus 4-meris.*

An erect, entirely glabrous shrub, about 3 m high, with terete stems and opposite, sessile leaves. Leaves chartaceous when dry, oblong-ovovate to oblong-lanceolate, 14 to 20 cm long, 5 to 10 cm wide, olivaceous, penninerved, the apex slenderly acuminate, narrowed below to the rounded base, the narrow basal portion of the leaf 2 to 5 cm in length and 1.5 to 3 cm in width; lateral nerves usually 4 on each side of the midrib, leaving it in the lower half, ascending, the inner two pairs reaching the apex or nearly so, the transverse reticulations distant, parallel, prominent. Inflorescences from the trunks, woody, branched, about 7 cm long, densely many-flowered and multibracteate, the bracts narrowly obovate to spatulate, glabrous, up to 15 mm long, the
younger ones red when dry, the older ones greenish. Flowers 4-merous, their pedicels up to 6 mm long. Calyx urceolate, up to 6 mm long, the limb much produced and about 3 mm long, obscurely 4-toothed, the teeth broad, nerved. Stamens 8, equal. Ovary 4-celled.


This species belongs in the group with *Medinilla trunciflora* Merr. and *M. aurantiaca* Elm., but differs from both in being entirely glabrous.

**MEDINILLA FERRUGINEA** sp. nov.

Frutex scandens, partibus junioribus dense ferrugineo-villosis, ramulis teretibus, foliis oppositis, in paribus valde inaequalibus; foliis majoribus, lanceolatis ad oblongo-lanceolatis, penninerviis, acuminatis, basi angustatis, acutis, usque ad 20 cm longis, nervis utrinque 3, perspicuis, breviter petiolatis; foliis minoribus late ovatis, acuminatis, basi profunde cordatis, sessilibus, 1 ad 2 cm longis; inflorescentiis lateralis, solitariis vel fasciculatis, racemosis, 2 ad 3 cm longis, bracteis numerosis, ovatis ad oblongo-ovatis, villosis, 10 ad 12 mm longis; floribus 4-meris.

A scandent shrub, with terete branches and branchlets, and opposite, very unequal leaves, the smaller leaves of each pair often deciduous on the older stems, the branchlets, petioles, inflorescences, and the younger leaves rather densely ferruginous-pilose with long, weak, spreading hairs. Leaves chartaceous, the larger ones of each pair lanceolate to oblong-lanceolate, penninerved, slenderly acuminate, narrowed below to the obtuse or acute base, 14 to 20 cm long, 3 to 6 cm wide, the lateral nerves usually 3 on each side of the midrib and leaving it in the lower 2 to 4 cm, sharply ascending, prominent, the transverse reticulations distinct; petioles 7 mm long or less. Smaller leaves of each pair broadly ovate, acuminate, deeply cordate at the base, the sinus narrow, the lobes broadly rounded, of the same texture and with the same type of indumentum as the larger leaves, 1 to 2 cm long, sessile. Inflorescences chiefly from the branches below the leaves, solitary or fascicled, consisting of short, chiefly simple racemes, 2 to 3 cm in length, supplied with numerous, ovate to oblong-ovate, acute or acuminate, villous, 10 to 12 mm long bracts, two bracts subtending each flower. Calyx villous, ovoid, the limb slightly produced, obscurely and shallowly 4-toothed. Stamens 8, apparently equal. Ovary 4-celled.

Ramos & Pascasio, May and June, 1919, in forests at low altitudes.

A species remarkable for its ferruginous indumentum and its very unequal leaves, the opposite one of each pair being reduced to a broadly obovate, acuminate, deeply cordate, sessile one, entirely different in shape and size from the other of the same pair.

MEDINILLA PURPUREA Elm. in herb. sp. nov.

Frutex scandens, nodis densissime longeque setosis exceptis glaberrimus, ramis teretibus; foliis oppositis, coriaceis, valde inaequalibus, majoribus oblongo-ovatis ad oblongo-ellipticis, petiolatis, usque ad 25 cm longis et 12 cm latis, basi cordatis vel rotundatis, perspicue 7-plinervis, apice perspicue acuminatis, nervis transversalibus obsoletis, minoribus ovatis, sessilibus, 2 ad 3 cm longis, vel obsoletis. Inflorescentiis axillaribus, longe pedunculatis, capitatis, 4 ad 5 cm diametro, pedunculo usque ad 2 cm longo, bracteis numerosissimis, obovatis, usque ad 1.5 cm longis; floribus 4-meris.

A scandent shrub, entirely glabrous except the densely long-setose nodes, the branches terete, the numerous, rather soft setae at the nodes 1 to 3 cm in length. Leaves opposite, in very unequal pairs, or the smaller one of each pair sometimes obsolete; larger leaves coriaceous, oblong-ovate to oblong-elliptic, pale or somewhat olivaceous when dry, shining, 22 to 26 cm long, 8 to 12 cm wide, the base more or less cordate, sometimes rounded, prominently 7-plinerved, the inner two pairs of nerves reaching the apex, the transverse nerves and reticulations obsolete, the apex rather abruptly and predominantly acuminate, the acumen slender, blunt, up to 1.5 cm long; petioles 1 to 1.5 cm long; smaller leaves of each pair same in texture as the larger ones, ovate, sessile, 2 to 3 cm long, 1 to 2 cm wide, frequently wanting. Inflorescences axillary, solitary, long-pedicled, the flowers crowded in dense, globose to ovoid heads at the ends of the peduncles, the latter 12 to 20 cm long, the heads 4 to 5 cm in diameter. Flowers 4-merous, their pedicels up to 4 mm long, the bracts very numerous, obovate, often retuse, red or purple, up to 15 mm long and 10 mm wide. Calyx truncate. Petals 4, obovate, at least 1 cm long. Stamens 8, unequal, the anthers lanceolate-acuminate, 6 mm long, the appendages and spur short. Fruit ovoid, up to 1.5 cm long.


A remarkable species, entirely different from all other known representatives of the genus, strongly characterized by its densely long-setose nodes; its remarkably unequal leaves, the smaller leaf of each pair being very greatly reduced or even obsolete; and by its long-peduncled, capitate, densely bracteate inflorescences. The name *Medinilla purpurea* was applied by Mr. Elmer to 23701 Ramos with reference to material collected by him in Sorsogon that represented the same species. Unfortunately Mr. Elmer's material was lost and, as the duplicates of the specimen cited above have been distributed under his manuscript name, the description is accordingly published here.

**MEDINILLA UMBELLATA** sp. nov.

*Frutex scandens, partibus junioribus minute castaneo-furfuraceis, ramulis teretibus, foliis verticillatis, sessilibus, obovatis, usque ad 23 cm longis, apice abrupte breviter acuminatis, basi angustatis, penninerviis, nervis utrinque 3, valde perspicuis; inflorescentiis lateralibus, umbellatis, pedunculatis, pedunculato 5 cm longo; floribus circiter 15, pedicellatis, 5-meris, bracteis anguste oblanceolatis, circiter 1 cm longis.*

A scandent shrub with terete branchlets, verticillate, obovate, penninerved, sessile leaves, and lateral, simple, peduncled, umbellate inflorescences, the indumentum, chiefly confined to the inflorescences and the younger parts, consisting of very short, dark-brown, furfuraceous hairs. Leaves usually 4 at each node, sessile, obovate, 20 to 23 cm long, 12 to 14 cm wide, chartaceous to subcoriaceous, the upper surface olivaceous, the lower usually brownish, abruptly and shortly acuminate, narrowed below to the obtuse base, the narrow basal portion up to 5 cm long, at the very base not exceeding 1 cm in width, penninerved, the lateral nerves usually 3, leaving the midrib in the lower half, ascending, curved, the inner 2 pairs reaching the apex, the transverse reticulations distant, very prominent, the upper surface glabrous, the midrib on the lower surface very sparingly brown-furfuraceous. Inflorescences from leafless nodes, apparently solitary, simple, umbellate, their peduncles about 5 cm long, each bearing 15 or fewer flowers, the subtending bracts narrowly oblanceolate, about 1 cm long, the pedicels about 5 mm long, all parts distinctly but minutely furfuraceous-pubescent with dark-brown hairs. Buds ellipsoid, about 7 mm long; calyx obscurely 5-toothed.
MINDANAO, Surigao Province, *Bur. Sci.* 34744 (type), 34773 Ramos & Pascasio, June 20, 1919, along streams in forests at low altitudes.

This characteristic species is as closely allied to *Medinilla furfuracea* Merr. as to any other described form, but differs radically in its sessile, entirely differently shaped leaves, and different inflorescences.

ARALIACEAE

ANOMPANAX Harms


*Pentapanax* sp. Ceron Cat. Pl. Herb. Manila (1892) 89.


ANOMPANAX CUMINGIANUS (Presl) comb. nov.

*Paratropia cumingiana* Presl Epim. (1851) 250; *Walp. Ann.* 2 (1852) 725.


MINDORO, *Cuming 1553*.

Seemann, l. c., records this species also from Borneo, but I have seen no material representing it other than Cuming's collection, the type of the species. My specimen is incomplete, but the ovary is always 2-celled and, although the calyx is truncate, not at all toothed or lobed, I feel confident that *Anompanax* is its correct generic position. It certainly cannot properly be placed in any of the other genera to which it has been assigned by various botanists.
ANOMPANAX DIGITATUS sp. nov.

Frutex erectus, parvus, glaber; foliis longipetiolatis, digitatim 5-foliolatis, foliolis exterioribus subsessilibus, interioribus longipetiolutulis, membranaceis, oblongo-ovatis ad oblongo-ellipticis, acutis vel acuminatis, 12 ad 24 cm longis, nervis utrinque 6 ad 12; inflorescentiis brevibus, circiter 10 cm longis, ramis primariis 2 vel 3, ramis secondariis umbellatim dispositis; calycis ovoideis, circiter 5 mm longis, 5-dentatis, dentibus acutis, 1 mm longis.

An erect, slender shrub, the ultimate branches about 5 mm in diameter. Leaves long-petioled, digitately 5-foliolate, the outer two leaflets sessile or nearly so, the inner three with petiolules 3 to 5 cm in length; petioles 12 to 15 cm long, inflated and clasping at the base; leaflets membranaceous or thinly chartaceous, shining, oblong-ovate to oblong-elliptic, 12 to 24 cm long, 5 to 10 cm wide, the apex acute or obscurely but sharply acuminate, the base often somewhat inequilateral, acute or acuminate; lateral nerves slender, 6 to 12 on each side of the midrib. Inflorescences short, about 10 cm long, the peduncle about 1 cm in length with 2 or 3 primary branches, these bearing from 4 to 7 secondary, umbellatelly arranged, 1 to 2 cm long branchlets; the flowers subumbellately or racemosely arranged toward the tips of the branchlets, their pedicels about 5 mm long, jointed. Calyx after flowering ovoid, about 5 mm long, 5-toothed, the teeth oblong-ovate, acute, 1 mm long. Ovary 2-celled; styles 2, stout, somewhat recurved, about 1.5 mm long.

STARGAO, Bur. Sci. 34925 Ramos & Pascasio, June 2, 1919, in forests at low altitudes, the height indicated as 0.5 meter.

This species differs from Anompanax philippinensis Harms in its smaller size, its strictly digitate leaves, fewer leaflets, and in its short, comparatively simple inflorescences.

BOERLAGIODENDRON Harms

BOERLAGIODENDRON DINAGATENSE sp. nov.

Frutex glaber, circiter 2 m altus, ramulis ultimis circiter 5 mm diametro; foliis oblongis ad oblongo-ellipticis, coriaceis, 14 ad 18 cm longis, basi acutis vel obtusis, apice plerumque acutis, marginae leviter undulatis et minute denticulatis, penninervis, nervis utrinque circiter 12, tenuibus, petiolo 2 ad 2.5 cm longo; inflorescentiis circiter 7 cm diametro, breviter pedunculatis, ramis primariis circiter 15, umbellatim dispositis, ramis secondariis circiter 2 cm longis, fructibus umbellatim dispositis, ovoideis, circiter 5 mm longis.
A glabrous shrub, about 2 m high, the ultimate branchlets about 5 mm in diameter. Leaves coriaceous, oblong to oblong-elliptic, 14 to 18 cm long, 5 to 7 cm wide, somewhat narrowed below to the acute or obtuse base, the apex usually acute, margins somewhat undulate and minutely toothed in the sinuses of the undulations; lateral nerves slender, pinnately arranged, about 12 on each side of the midrib, not very prominent; petioles 2 to 2.5 cm long, their bases with a single, obscure, unarmed crest. Inflorescences terminal, about 7 cm in diameter, the peduncle rather slender, about 2 cm long; primary branches about 15, umbellately arranged, these bearing 2 lateral branches and a central, nearly sessile, or short-peduncled umbel of sterile flowers, the lateral branches jointed at about the middle and bearing 2 small bracts. Fruits umbellately arranged at the tips of the lateral branchlets, ovoid, about 5 mm long, their pedicels 2 to 3 mm in length; seeds usually 3.

DINAGAT, Bur. Sci. 35220 Ramos & Pascasio, May 12, 1919, in forests at low altitudes.

This species is distinctly an ally of Boerlagiodendron simplicifolium Elm. and, like it, is characterized by its oblong, entire, pinnately nerved leaves; among other characters it differs radically from the latter species in its much shorter petioles.

**MYRSINACEAE**

**DISCOCALYX** Mez

**DISCOCALYX LONGISSIMA** sp. nov.

Frutex glaber, circiter 1 m altus; foliis numerosis, linearis, integris, 18 ad 25 cm longis, 7 ad 14 mm latis, utrinque angustatis, acuminatis, subtus glandulosis, breviter petiolatis; racemis brevibus, tenuibus, paucifloris, 1 ad 1.5 cm longis, in ramulis axillaribus tenuibus dispositis, ramulis specialibus 12 ad 16 cm longis, foliis paucis valde reductis instructis, partibus apicalibus cicatricibus bracteisque multis instructis; floribus minutus, 5-meris, sepals perspicue glandulosis.

A glabrous shrub, about 1 m high, the branches smooth, terete, brownish, the ultimate ones about 1 mm thick. Leaves numerous, linear, entire, 18 to 25 cm long, 7 to 14 mm wide, narrowed to the acuminate apex, the base much narrowed and abruptly acute or obtuse, olivaceous and shining when dry, distinctly glandular-punctate beneath, the midrib very prominent, the reticulations rather close, distinct; petioles stout, 3 mm long or less. The specialized slender branches bearing the inflorescences axillary, solitary, 12 to 16 cm long, each supplied with
2 or 3 greatly reduced, narrowly lanceolate leaves about 1.5 cm in length, the apical 1 to 2 cm slightly thickened, about 1.5 mm in diameter, these thickened parts supplied with many narrowly lanceolate, acuminate bracts 5 to 10 mm in length and marked with numerous scars of fallen bracts, this thickened portion bearing 1 or 2 slender, few-flowered racemes 1 to 1.5 cm long. Flowers 5-merous, reddish; the sepals narrowly oblong, about 1 mm long, with few, large, prominent glands.

MINDANAO, Surigao Province, Bur. Sci. 34456 Ramos & Pas-casio, April 14, 1919, on rocky forested slopes at low altitudes.

This species is similar and manifestly closely allied to Discocalyx angustissima Merr., from which it is distinguished by its entire leaves.

EBENACEAE

DIOSPYROS Longiciliata sp. nov.

Frutex parvus, ramulis et petiolis et foliis perspiciue longe ciliatis, ramis ramulisque tenuibus; foliis chartaceis, oblongo-lanceolatis, 9 ad 16 cm longis, basi rotundatis, apice tenuiter acute acuminatis, nervis utrinque circiter 12; floribus longe cilliatis, axillaribus, solitariis, sessilibus, calycis tubo brevissimo, lobis lanceolatis, acuminatis, circiter 4 mm longis; ovario densissime ciliato.

A small shrub, the branchlets, petioles and portions of the leaves prominently ciliate with long, slender, spreading hairs, these hairs usually about 2 to 3 mm in length. Branches slender, erect, glabrous, black when dry. Leaves oblong-lanceolate, chartaceous, 9 to 16 cm long, 2 to 3.5 cm wide, brownish-olivaceous when dry, base rounded, apex rather slenderly and sharply acuminate, both surfaces and the margins long-ciliate with scattered hairs, these more numerous on the midrib than on other parts of the leaf; lateral nerves slender, about 12 on each side of the midrib, anastomosing, the reticulations lax, distinct; petioles about 3 mm long. Pistillate flowers solitary, axillary, sessile, 4-merous. Calyx-tube very short, the lobes lanceolate, prominently long-acuminate from a broad base, about 4 mm long, conspicuously long-ciliate. Corolla reddish, the tube about 5 mm long, externally long-ciliate, the lobes oblong, about 6 mm in length. Staminodes 4. Ovary very densely ciliate with long ascending hairs up to 4 mm in length; style densely hirsute below.

A species, prominently characterized by its numerous, long, spreading hairs, closely allied to *Diospyros everettii* Merr., one that has the same type of indumentum. The present species differs from the latter in its much thinner, more-numerously nerved leaves and in the much more conspicuous and denser indumentum which is found on the branchlets, petioles, both surfaces of the leaves, and the flowers, while in *D. everettii* the hairs are few in number and are practically confined to the branchlets and flowers.

**LOGANIACEAE**

**GENIOSTOMA Forster**

**GENIOSTOMA LANCILIMBUM** sp. nov.

Arbor parva, glabra, ramis teretibus, tenuibus; foliis lanceolatis ad oblongo-lanceolatis, 7 ad 10 cm longis, utrinque angustatis, basi acutis, apice caudato-acuminatis, chartaceis, nervis utrinque circiter 7, reticulis subobsoletis; floribus axillaribus, solitariis, pedicellatis; fructibus subglobosis, 6 ad 8 mm diametro.

A glabrous shrub or small tree, 3 to 4 m high, the branches and branchlets terete, slender, the former grayish, the latter often black when dry. Leaves lanceolate to oblong-lanceolate, 7 to 10 cm long, 1.5 to 3 cm wide, narrowed below to the acute base and above to the slender, caudate-acuminate apex, chartaceous, shining, olivaceous or black when dry, the midrib distinct; lateral nerves slender, indistinct, usually about 7 on each side of the midrib, obscurely anastomosing, the reticulations obsolete or nearly so; petioles 3 to 6 cm long. Flowers white, axillary, solitary, their pedicels about 5 mm long. Calyx 2.5 to 3 mm in diameter, the lobes 5, glabrous, broadly triangular-ovate, acute, about 1 mm long, their margins very obscurely ciliate. Corolla-tube 3 mm long, the lobes reflexed, oblong-ovate, 2 mm long, the throat densely villous inside. Fruits subglobose, black when dry, 6 to 8 mm in diameter.


In its axillary, solitary flowers this species is apparently allied to *Geniostoma longipes* Merr., but is radically different from that species in its vegetative and other characters.

**GENIOSTOMA RAMOSII** sp. nov.

Frutex erectus, 3 m altus, inflorescentiis exceptis glaber; foliis membranaceis, oblongo-ellipticis, 10 ad 13 cm longis, breviter acuminatis, basi rotundatis et leviter decurrentibus, nervis utrinque circiter 8, tenuibus, distinctis; floribus fasciculatis,
pedicellatis, calycis lobis triangulare-ovatis, acutis, 2 mm longis; fructibus subglobosis, circiter 5 mm diametro.

An erect shrub, about 3 m high, glabrous except the inflorescences, the branches and branchlets terete, pale. Leaves membranaceous, oblong-elliptic, nearly black when dry, 10 to 13 cm long, 4 to 6.5 cm wide, the base rounded to subacute or somewhat decurrent, the apex shortly but distinctly acuminate; lateral nerves slender, distinct, anastomosing, about 8 on each side of the midrib, the reticulations lax, not prominent; petioles 1 cm long. Flowers axillary, fascicled, their pedicels somewhat pubescent, about 7 mm long. Calyx about 5 mm long, the lobes pubescent, triangular-ovate, acute, 2 mm in length. Fruits 4 to 10 in each fascicle, subglobose, black when dry, about 5 mm in diameter, when young somewhat pubescent, ultimately glabrous, their pedicels up to 8 mm in length.


A species closely allied to Geniostoma nigrescens (Blanco) Merr. but with the exception of the inflorescences entirely glabrous and with larger leaves.

APOCYNACEAE

ALYXIA STENOPHYLLA sp. nov.

Frutex scandens, glabra, ramis ramulisque teretibus, tenuibus, ultimis 1 ad 1.5 mm diametro; foliis plerumque verticillatis, 4 ad 6 cm longis, 6 ad 10 mm latis, anguste lanceolatis, utrique subaequaliter angustatis, basi acutis, apice obtuse acuminatis, chartaceis vel subcoriaceis, nervis lateralibus obsoletis; inflorescentiis axillaribus, solitariis, penduculatis, umbellatim 3- vel 4-floris, pedunculo 1 ad 1.5 cm longo. Corollae tubo 7 mm longo.

A glabrous vine, the branchlets slender, terete, the ultimate ones 1 to 1.5 mm in diameter. Leaves mostly verticillate, sometimes opposite, narrowly lanceolate, 4 to 6 cm long, 6 to 10 mm wide, subequally narrowed to the acute base and the blunt-acuminate apex, firmly chartaceous or subcoriaceous, shining when dry, the margins slightly recurved; midrib prominent, the lateral nerves and reticulations obsolete; petioles 2 to 3 mm long. Inflorescences axillary, solitary, umbellately 3- or 4-flowered, the peduncles 1 to 1.5 cm long, the pedicels about 3 mm long, 2-bracteolate at their apices, the bracteoles lanceolate, acuminate, 1 mm long. Calyx about 3 mm long, the lobes lanceolate-acuminate. Corolla-tube about 7 mm long, white.
PANAY, Capiz Province, Mount Salibongbong, Bur. Sci. 3557/4 Martelino & Edaño, June 19, 1919. In thickets and forests near the summit, altitude about 650 meters.

This species resembles Alyxia biancoi Merr. but is easily distinguished by its longer peduncles and by its terete, not 4-angled, branchlets; it differs from Alyxia lanceolata Merr. in its glabrous inflorescences.

**ALYXIA OBOVATIFOLIA** sp. nov.

Frutex scandens, partibus junioribus pubescens, ramulis acute 4-angulatis; foliis verticillatis, crasse coriaceis, obovatis ad oblongo-obovatis, 4 ad 6 cm longis, apice late rotundatis, deorsum angustatis, basi cuneatis, margine valde recurvatis, nervis lateralibus obsoletis; floribus axillaribus, sessilibus vel subsessilibus, plerumque binis, calycis pubescens, corollae tubo circiter 1 cm longo.

A scendent vine, the branchlets sharply 4-angled, the internodes 2 to 4 cm long, the younger parts somewhat pubescent. Leaves verticillate, usually 4 at each node, thickly coriaceous, obovate to oblong-obovate, shining, 4 to 6 cm long, 1.5 to 2.5 cm wide, the apex broadly rounded and sometimes slightly retuse, narrowed below to the cuneate base, the margins strongly recurved, the midrib prominent, the lateral nerves obsolete, the mature leaves glabrous, the very young ones somewhat pubescent; petioles about 5 to 7 mm long. Flowers white, axillary, usually in pairs, sessile or sub sessile, the calyx pubescent, the lobes lanceolate, acuminate, about 1.5 mm long. Corolla-tube glabrous, about 1 cm in length.

MINDANAO, Surigao Province, Bur. Sci. 34492 Ramos & Pascasio, April 25, 1919, in rather dry thickets along small streams at low altitudes at the iron deposit on the northeast coast.

A species strongly characterized by its thickly coriaceous, obovate to oblong-obovate, rounded, nerveless leaves, and its very short, axillary, usually 2-flowered inflorescences. It is not closely allied to any previously described form.

**KIBATALIA G. Don**

(*Kickxia* Blume, non Dumortier)

In 1827 Dumortier published the generic name *Kickxia* for a small group of scrophulariaceous plants which some subsequent botanists have placed in *Linaria*. This disposition of Dumortier's genus is by no means universally accepted and some European and American botanists maintain *Kickxia* Dum. as a valid genus in spite of the fact that all current botanical works of a general nature and those on the African and Indo-Ma-
layan floras maintain Kickxia Blume for a genus of apocynaceous plants. Under the circumstances it would seem that Kickxia Blume must be abandoned, as its use is distinctly invalidated by Dumortier’s previous use of the same name for a different genus of plants.

The genus under discussion was originally described in 1826 as Hasseltia Blume, this name being invalidated by the earlier Hasseltia HBK. The first description of the genus under the name Kickxia was published in 1848, but as early as 1828 Blume had realized the necessity of a new name for his Hasseltia and proposed to substitute the name Kickxia which, however, due to a typographical error appears as Kixia; as Blume himself in later publishing a description and figure of this genus altered the name to Kickxia and, further, as the genus was dedicated to Prof. Jean Kickx no other explanation of Kixia is possible and accordingly this form has no valid standing.

No new name is necessary for this apocynaceous genus in view of the fact that G. Don has proposed the generic designation Kibatalia for Hasseltia Blume, non HBK. So long as individual botanists differ in their conception as to what constitutes and what does not constitute a genus cases of nomenclature like this will occur; and unless Blume’s generic name be definitely abandoned we have here a case where Kickxia Blume will be recognized by those botanists who do not recognize Kickxia Dum. as distinct from Linaria, while those who recognize Dumortier’s genus as a valid one cannot recognize Kickxia Blume as a generic designation. The logical course to follow in this case seems to be to abandon Blume’s generic name and adopt Kibatalia for the group as proposed by G. Don.

KIBATALIA LONGIFOLIA sp. nov.

Arbor glabra; foliis chartaceis, oblongis, usque ad 17 cm longis, basi acutis, apice acutis vel breviter acuminatis, nervis utrinque circiter 10, tenuibus, vix anastomosantibus; inflorescentiis 2- vel 3-floris, breviter pedunculatis, corollae tubo circiter 2.5 cm longo, lobis 4 cm longis; folliculis sublineis, rectis vel leviter curvatis, 17 ad 20 cm longis, 2 cm diametro.

A glabrous tree, about 16 m high, the branchlets smooth, reddish-brown, the branches of about the same color and distinctly lenticellate. Leaves firmly chartaceous, oblong, 12 to 17 cm long,
4.5 to 6.5 cm wide, the base acute, apex acute to very shortly and obscurely acuminate; lateral nerves about 10 on each side of the midrib, slender, distinct, somewhat curved, scarcely anastomosing; petioles 5 to 8 mm long. Inflorescences axillary and terminal, usually 2- or 3-flowered, the peduncles 1 cm long or less, the pedicels 2 to 3 cm in length. Calyx-lobes broadly ovate to elliptic-ovate, rounded to subacute, 4 to 5 mm long. Corolla-tube cylindric for about 1.6 cm, then inflated for about 1 cm, the lobes about 4 cm long. Disk cylindric, 3 to 4 mm high, irregularly and coarsely toothed. Ovary glabrous, ovoid, narrowed upward; style about 2 cm long. Anthers inserted at the expansion of the corolla tube, lanceolate, long-acuminate, about 9 mm long, the basal indurated part of the connective ovoid, about 3 mm long. Follicles somewhat woody, divaricate, straight or slightly curved, 17 to 20 cm long, about 2 cm in diameter. Seeds linear-lanceolate, long-acuminate, about 3 cm long, the coma copious, the hairs about 4 cm in length.

MINDANAO, Davao Province, Santa Cruz, Balutakay, For. Bur. 27534 De Mesa, April 28, 1919, growing in deep rich soil at an altitude of 40 meters with the local Tagakaolo name klangnita.

The alliance of this species is apparently with Kibatalia wigmani (Koord.) Merr. of Celebes, from which it differs conspicuously in its slenderly nerved leaves, the lateral nerves scarcely anastomosing.

KIBATALIA STENOPETALA sp. nov.

Arbor glabra, circiter 5 m alta, ramulis tenuibus; foliis subcoriaceis, oblongo-ellipticis, 5 ad 7 cm longis, utrinque subaequaliter angustatis, acuminatis, nervis utrinque circiter 6; floribus axillaribus, solitariis vel binis, tubo corollae 1.5 cm longo, cylindrico, intus pubescens, lobis anguste lanceolatis, acuminatis, circiter 2.5 cm longis, 4 mm latis.

A glabrous tree, about 5 m high, the branches nearly black when dry. Leaves subcoriaceous, oblong-elliptic, shining, 5 to 7 cm long, 1.5 to 3 cm wide, subequally narrowed to the blunt-acuminate apex and to the somewhat decurrent-acuminate base; lateral nerves about 6 on each side of the midrib, distinct, the reticulations very obscure; petioles 2 to 4 mm long. Flowers white, axillary, solitary or in pairs, their pedicels about 2 cm long. Calyx-lobes broadly ovate, 1.5 to 2 mm long, acute or obtuse. Corolla-tube cylindric, about 1.5 cm long, 2.5 mm in diameter, not at all enlarged upward, pubescent inside, the lobes narrowly lanceolate, acuminate, about 2.5 cm long, 4 mm wide. Anthers narrowly lanceolate, acuminate, 5 mm long, the indurated
base of the connectives broadly ovate, about 1 mm long. Disk obscurely toothed, 1 mm high.

MINDANAO, Surigao Province, *Bur. Sci. 34691 Ramos & Pas-castio*, June 14, 1919, along streams at low altitudes at the iron deposit on the northeast coast.

This species is at once distinguished from *Kibatalia blancoi* Merr., to which it is most closely allied, by its cylindric corolla-tubes which are not enlarged upward, and by its narrowly lanceolate corolla-lobes which do not exceed 4 mm in width.

The hitherto described species of this genus are as follows:

**KIBATALIA AFRICANA** (Benth.) comb. nov.
*Kickxia africana* Benth. in Hook. Ic. III 3 (1877-79) 59, t. 1276.
Tropical Africa, Kamerun, *Preuss 1882!*

**KIBATALIA ARBOREA** (Blume) G. Don Gen. Syst. 2 (1837) 86.
*Hasseltia arborea* Blume Bijdr. (1826) 1045.
*Kizia arborea* A. DC. Prodr. 8 (1844) 408.

**KIBATALIA BLANCOI** (Rolfe) comb. nov.

A Philippine species widely distributed from northern Luzon southward to Guimaras and Negros, represented by *For. Bur. 26678 Peñas, 25863 Adduru, 25465 Paraíso, 20964 Villamil, 25726 Mabesa, 7649 Curran & Merritt, 11488 Merritt, 21545 Tamesis, 15113 Tabat, Elmer 12373, Wenzel 320.*

**KIBATALIA BORNEENSIS** (Stapf) comb. nov.
*Kickxia borneensis* Stapf in Hook. Ic. IV 7 (1901) t. 2693.

Borneo.

**KIBATALIA ELASTICA** (Preuss) comb. nov.
Tropical Africa, Kamerun, *Zenker 188!*

**KIBATALIA LATIFOLIA** (Stapf) comb. nov.
*Kickxia latifolia* Stapf in Kew Bull. (1898) 307.
Tropical Africa.

**KIBATALIA SCHEFFERI** (K. Schum.) comb. nov.
German East Africa, *herb. Amani 416!*
KIBATALIA WIGMANI Koord. in Meded. Lands Plantent. 19 (1898) 521. Celebes, Koorders 16045!

KIBATALIA ZENKERI (K. Schum.) comb. nov.


Tropical Africa.

PARSONSIA R. Brown

PARSONSIA PHILIPPINENSIS sp. nov.

Frutex scandens, partibus junioribus cinereo-pubescent; foliis oppositis, subcoriaceis, oblongo-ellipticis ad oblongo-ovatis, 8 ad 13 cm longis, basi leviter acuminatis, apice tenuiter acute acuminatis, nervis utrinque circiter 6, distinctis; inflorescentiis terminalibus, anguste paniculatis, 10 ad 12 cm longis, floribus umbellatim dispositis, extus pubescens, corollae tubo 5 mm longo, filamentis villosis, haud contortis.

A woody vine, the young branchlets and inflorescences sparingly cinereous-pubescent, the branchlets terete, smooth, dark reddish-brown when dry. Leaves subcoriaceous, oblong-elliptic to oblong-ovate, 8 to 13 cm long, 3.5 to 6 cm wide, dark olivaceous when dry, the base usually somewhat acuminate, apex sharply and slenderly acuminate; lateral nerves about 6 on each side of the midrib, distinct, the reticulations lax; petioles 1 to 2 cm long. Inflorescences terminal, paniculate, peduncled, 10 to 12 cm long, more or less pubescent, the flowers subumbellately arranged at the tips of the primary branches, the lower branches 2 cm long or less. Flowers white, their pedicels about 5 mm long. Calyx-lobes obtuse or rounded, 2 to 2.5 mm long. Corolla-tube about 5 mm long and 3 mm in diameter, somewhat angled, glabrous below, pubescent above, the lobes oblong, 4 mm in length. Disk-lobes broadly ovate, rounded, about 0.6 mm long. Anthers narrowly lanceolate, 3.5 mm long, the filaments villous, not twisted.

MINDANAO, Surigao Province, Bur. Sci. 34585 Ramos & Pas-casio, April 25, 1919, at the iron deposit on the northeast coast along streams at an altitude of about 500 meters.

The distinguishing characters of the present species are its narrowly paniculate inflorescences and its slenderly acuminate, opposite leaves.

ASCLEPIADACEAE

HOYA R. Brown

HOYA CARDIOPHYLLA sp. nov. § Euhoya.

Planta epiphytica, ramulis leviter pilosis, glabriscentibus; foliis oppositis, late ovatis, basi late rotundatis et perspicue cordatis, apice breviter acute acuminatis, 5 ad 7 cm longis, in
siccitate subflaccidis, nervis utrinque circiter 4, patulis, cum reticulis laxis subperspicuis; umbellis multifloris, floribus glabris, circiter 1 cm diametro, corolla rotata, lobis rhomboideo-ovatis, obtusis vel acutis, processibus turgidis, crustaceis, oblongo-ovatis, acuminatis.

An epiphytic vine, the branchlets sparingly pilose, soon becoming glabrous. Leaves heart-shaped, apparently fleshy when fresh, rather flaccid when dry, 5 to 7 cm long, 4.5 to 5 cm wide, pale when dry, glabrous or the younger ones slightly ciliate near the basal margins, the base broadly rounded and distinctly cordate, the sinus acute, the basal lobes broadly rounded, the apex shortly and sharply acuminate; petioles 5 to 7 mm long; lateral nerves about 4 on each side of the midrib, somewhat spreading, anastomosing, the reticulations lax and distinct on both surfaces. Umbels many-flowered, the flowers yellowish-white, usually 5-merous, rarely 4-merous, 10 to 11 mm in diameter, their pedicels about 2 cm long, glabrous. Calyx-lobes triangular-ovate, acute or obtuse, 1 mm long. Corolla rotate, the lobes rhomboid-ovate, about 4 mm long, obtuse or somewhat acute, the tips more or less inflexed. Lower lobe of the coronal processes oblong-ovate, acuminate, turgid, somewhat crustaceous, the upper surface somewhat concave. Staminal column short, sessile.

DINAGAT, Bur. Sci. 35160 Ramos & Pascasio, May 13, 1919, on tree trunks at low altitudes.

A species well characterized by its broadly ovate, rather prominently cordate, shortly and sharply acuminate, conspicuously and laxly reticulate leaves.

HOYA RETICULATA sp. nov. § Euhoya.

Planta epiphytica, scandens, pedicellis exceptis glabra; foliis coriaceis, ovatis ad oblongo-ovatis, nitidis, 8 ad 12 cm longis, basi late rotundatis, apice tenuiter acute acuminatis, in siccitate utrinque perspicue reticulato-rugosis, nervis utrinque circiter 4, patulis, vix perspicuis; umbellis multifloris, pedunculo usque ad 10 cm longo, pedicellis leviter pubescens; floribus rotatis, circiter 1 cm diametro, glabris, corollae lobis rhomboideo-ovatis, acutis, processibus crustaceis, turgidis, oblongo-ovatis, acutis; folliculis 9 ad 11 cm longis, usque ad 4 mm diametro.

An epiphytic vine, glabrous except the sparingly pubescent pedicels. Leaves fleshy when fresh, coriaceous when dry, ovate to oblong-ovate, shining, 8 to 12 cm long, 4 to 7 cm wide, the base broadly rounded, the apex slenderly and sharply acuminate, the epidermis on both surfaces coarsely reticulate-wrinkled when dry; petioles 1 to 2.5 cm long; lateral nerves about 4 on each
side of the midrib, somewhat spreading. Umbels many-flowered, their peduncles 2 to 10 cm in length, the somewhat thickened parts marked with scars of fallen pedicels, 1 to 6 cm in length, the pedicels 1.5 to 2 cm long, slightly pubescent. Flowers rotate, glabrous, about 1 cm in diameter, yellowish-white. Calyx-lobes ovate, acute, about 1 mm long. Corolla lobes 4 to 4.5 mm long, about 3.5 mm wide, rhomboid-ovate, acute, spreading, glabrous. Coronal processes crustaceous, the lower lobes turgid, oblong-ovate, acute, about 2.5 mm long, the upper surface flat. Staminal column short, sessile. Follicles slender, cylindric, somewhat acuminate, 9 to 11 cm long, up to 4 mm in diameter, the seeds terete, about 3 mm long.

MINDANAO, Surigao Province, Bur. Sci. 34530 Ramos & Pas-casio, April 17, 1919, in swampy thickets at low altitudes.

This species is manifestly allied to Hoya cardiophylla described above but is readily distinguished by its differently shaped, slenderly acuminate leaves which are broadly rounded but not cordate at the base, its pubescent pedicels, and other characters.

TELOSMA Coville

TELOSMA PARVIFLORA sp. nov.

Planta scandens, glabra; foliis membranaceis, ovatis, 15 ad 18 cm longis, perspicue cordatis, apice tenuiter acuminatis; inflorescentiis laxis, calycis lobis 2 mm longis; corollae tubo cupulato, 3 mm longo, lobis anguste lanceolatis, acuminatis, circiter 6 mm longis; folliculis acuminatis, usque ad 15 cm longis.

A glabrous vine, the branches up to 5 mm in diameter. Leaves membranaceous, ovate, olivaceous, 15 to 17 cm long, 9 to 12 cm wide, the base prominently cordate, the apex rather abruptly and slenderly acuminate; lateral nerves about 5 on each side of the midrib, prominent, the reticulations lax, distinct. Inflorescences axillary, lax, the flowers greenish-yellow, their pedicels 5 to 7 mm long. Calyx-lobes oblong, membranaceous, 2 mm long. Corolla glabrous, the tube cup-shaped, about 3 mm long, wider than long, the lobes narrowly lanceolate, acuminate, about 6 mm in length. Ovary, stamens and corona about 2 mm long and wide, the free tips of the coronal processes ovate, acute or slightly acuminate, about 0.5 mm long. Follicles lanceolate in outline, acuminate, narrowed below to the acute or abruptly obtuse base, 13 to 15 cm long, when dry and somewhat flattened 3 to 4 cm wide. Seeds thin, brownish, ovate, about 1.2 cm long, rounded, the coma copious. Peduncles of the infructescences elongated, including the few branches up to 15 cm in length.
SiARGAO, Bur. Sci. 35011 Ramos & Pascasio, May 27, 1919, in dry forests at low altitudes.

In the genus, if correctly placed, this species is easily recognized by its short corolla-tube and its slender corolla-lobes.

VERBENACEAE

CALLICARPA Linnaeus

CALLICARPA LONGIVILLOSA sp. nov.

A tree, about 5 m high. The branches and petioles densely villous with long, spreading, ferruginous hairs. Leaves chartaceous, oblong-ovate, entire, 18 to 25 cm long, 8 to 10 cm wide, narrowed upward to the very slender, caudate acumen, the latter up to 5 cm in length, base acute, usually inequilateral, both surfaces more or less stellate-pubescent and with elongated simple hairs on the midrib and nerves, the indumentum dense only on the midrib and nerves; lateral nerves 10 to 12 on each side of the midrib, distinct as are the reticulations on the lower surface; petioles about 4 cm long. Cymes axillary, long-peduncled, about 12 cm long including the peduncle and up to 10 cm in diameter, dichotomous, stellate-pubescent and villous, the bracts linear, 5 to 7 mm long. Flowers violet, 4-merous. Calyx cup-shaped, densely stellate-pubescent, obscurely 4-toothed, about 2 mm long and wide. Corolla puberulent, the tube cylindric, 3 mm long and the lobes broadly oblong, rounded, 1.3 mm long. Stamens exserted, the anthers about 2 mm in length.

MINDANAO, Surigao Province, Bur. Sci. 34538 Ramos & Pascasio, April 19, 1919, in forests along streams at low altitudes.

The prominent characteristics of this species are its densely ferruginous-villous branches, branchlets, and petioles, similar simple hairs being intermixed with the stellate indumentum on other parts of the plant; its very slenderly acuminate, entire leaves; and its long-peduncled inflorescences.

CALLICARPA FASCICULIFLORA sp. nov.

Frutex vel arbor parva, partibus junioribus villosis, ramis et foliis et inflorescentiis stellato-tomentosis; foliis oblongis ad
ellipticis, 13 ad 24 cm longis, tenuiter acuminatis, nervis utrinque circtor 10; floribus fasciculatis, sessilibus vel breviter pedicellatis, fasciculis plurumque in axillis defoliatis, 1 ad 1.5 cm diametro; calycis dense villosis atque stellato-tomentosis, tubo 3 mm longo, dentibus lanceolatis, acuminatis, 1.5 ad 2 mm longis.

A shrub or small tree, the younger parts villous and stellatetomentose, especially the branchlets and petioles. Leaves thinly chartaceous, oblong to elliptic, 13 to 24 cm long, 6 to 12 cm wide, the upper surface olivaceous, sparingly stellate-pubescent, becoming glabrous or nearly so, the lower surface pale, stellate-pubescent on the midrib, nerves, and reticulations, base acute, apex rather slenderly acuminate, margin entire or very obscurely and distantly toothed; lateral nerves about 10 on each side of the midrib, distinct; petioles 1 to 2 cm long. Inflorescences mostly in the axils of fallen leaves, the flowers fascicled, sessile or shortly pedicelled, the fascicles rather dense, 1 to 1.5 cm in diameter. Bracts narrowly oblong, stellate-pubescent, 4 to 5 mm long, the bracteoles filiform, 3 mm long. Calyx densely villous and stellate-tomentose, the tube cylindric, 3 mm long, the teeth 4, lanceolate, acuminate, 1.5 to 2 mm long. Corolla pale violet, the tube 4 mm long, externally somewhat pubescent, the lobes 4, oblong, rounded, about 2 mm long. Stamens exserted, the anthers 3 mm long. Fruit globose, about 2.5 mm in diameter, glabrous, inclosed by the calyx.


This species is readily distinguished from its congeners by its fascicled, sessile or subsessile flowers, this type of inflorescence being unknown to me in any other species of the genus.

**ACANTHACEAE**

**GYMNOSTACHYUM** Nees

**GYMNOSTACHYUM SPICIFORME** (Elm.) comb. nov.


This species is known only from the type collection, and is clearly a species of *Gymnostachyum*, agreeing in all characters with the typical representatives of the genus.

**GYMNOSTACHYUM LONGISPICATUM** sp. nov.

Herba erecta, usque ad 50 cm alta, plus minusve pubescens; foliis oblongis ad elliptico-oblongis, 10 ad 15 cm longis, obtusis, nervis utrinque circiter 6; spicis elongatis, usque ad 20 cm longis,
multifloris; floribus alternis, bracteis bracteolisque ovatis, acuminitis, glabras vel subglabras, calycis lobis lanceolatis; capsulis lineari-oblongis, glabras, circiter 1.5 cm longis, seminibus circiter 10.

An erect, sparingly branched, more or less pubescent herb, up to 50 cm high. Leaves membranaceous or chartaceous, dark-colored when dry, oblong to elliptic-oblong, 10 to 15 cm long, 4 to 8 cm wide, the base obtuse to acute on the lower ones, the uppermost ones sometimes cordate, the apex obtuse or rounded, margins somewhat undulate, the upper surface glabrous or nearly so, dark olivaceous, the lower somewhat pubescent on the midrib and nerves; lateral nerves about 6 on each side of the midrib, slender, distinct; petioles of the lower leaves up to 2 cm long, of the uppermost ones 5 mm long or less. Spikes elongated, up to 20 cm in length, many-flowered, the flowers alternate, sessile, white, the subtending bracts ovate, acuminate, 2 mm long, the bracteoles similar but slightly smaller, glabrous or nearly so. Calyx 3 to 3.5 mm long, the tube 1.5 mm in length, the lobes lanceolate, acuminate. Corolla-tube 3 mm long, the upper lobe broadly ovate, erect, 3 mm long, the lower one spreading, 3-lobed, each lobe elliptic-oblong, about 3 mm long, 2 to 2.5 mm wide, anther about 2 mm long. Capsule linear-oblong, glabrous, about 1.5 cm long and 2 mm wide, each valve carrying about 5 seeds.

SIARGAO, Bur. Sci. 34999 Ramos & Pascasio, May 27, 1919, in thickets or forests at low altitudes.

A species well characterized by its ample leaves and by its greatly elongated spikes.

GESNERIACEAE

CYRTANDRA Forster

CYRTANDRA CAULIFLORA sp. nov.

Frutex erectus, foliis oppositis, aequalibus, perspicue ferrugineo- vel castaneo-villosus; foliis ob lanceolatis ad oblongo-ob lanceolatis, 10 ad 20 cm longis, tenuiter acuminatis, basi cuneatis, margine perspicue dentatis, supra subglabras, nervis utrinque circiter 8; inflorescentiis caulinis et e ramis majoribus, cymosis, circiter 5 cm longis, dense villosis; calycis circiter 1.5 cm longis, lobis linearis, 1 cm longis; corolla 2 cm longa.

An erect shrub, the leaves opposite, those of each pair subequal, the branchlets, petioles, inflorescences, and leaves on the lower surface conspicuously ferruginous- or castaneous-villosus with weak spreading hairs. Leaves ob lanceolate to oblong-
oblanceolate or the lower ones sometimes lanceolate, 10 to 20 cm long, 2 to 6 cm wide, the apex rather slenderly acuminate, narrowed below to the cuneate base, the margins conspicuously toothed, especially toward the apex where the teeth are large and irregular, the upper surface dark-olivaceous with very few widely scattered, weak hairs, ultimately glabrous or nearly so, the lower surface conspicuously and softly villous; lateral nerves about 8 on each side of the midrib, prominent, the reticulations very lax; petioles 2 to 3 cm long. Inflorescences from the trunk or larger branches below the leaves, peduncled, cymose, all parts densely villous with weak spreading hairs, the pedicels 1 to 2 cm long, the pedicels 5 to 8 mm long, the subtending bracts lanceolate or linear-lanceolate, 1 cm long or less. Calyx including the very slender lobes about 1.5 cm long, the lobes linear, about 1 cm in length. Corolla slender, about 2 cm long, externally prominently villous. Style somewhat pubescent.

PANAY, Capiz Province, Libacao, Bur. Sci. 35342 Martelino & Edaño, June 3, 1919, along streams at low altitudes, the flowers white.

This species apparently belongs in the group with *Cyrtandra ramiflora* Elm., from which *C. laxa* Elm. is scarcely distinguishable. It differs radically from the above species in its totally different leaves, flowers, and inflorescences.

**TRICHOSPORUM D. Don**

**TRICHOSPORUM PANAYENSE** sp. nov.

Planta scandens, partibus junioribus parce pilosis vel glabris; foliis coriaceis, oblongo-ovatis ad oblongis, usque ad 6 cm longis, basi rotundatis, apice acutis vel obtusis; floribus axillaribus, solitariis vel binis, glabris vel subglabris, calycis subtruncatis, cylindraceis, 1.2 ad 1.5 cm longis, corolla leviter curvata, 4 ad 4.5 cm longa.

A scendent vine, the stems up to 3 mm in diameter, the younger parts sparingly pilose with weak, widely scattered hairs, soon becoming glabrous or nearly so. Leaves fleshy when fresh, coriaceous when dry, oblong-ovate to oblong, 2.5 to 6 cm long, 1.5 to 2.5 cm wide, the base rounded, the apex acute or obtuse; lateral nerves usually 4 on each side of the midrib, often obsolete, never prominent; petioles about 5 mm long. Flowers axillary, usually 2 on each peduncle, the peduncle less than 5 mm long. Calyx cylindric, truncate or somewhat angulate, 1.2 to 1.5 cm long, usually glabrous. Corolla apparently reddish, somewhat curved, 4 to 4.5 cm long, glabrous or nearly so, the lobes ovate
to ovate-elliptic, rounded, about 7 mm long. Capsules slender, up to 20 cm long, about 3 mm in diameter, glabrous.

**PANAY, Mount Bulilao, Mount Salibongbong, and Libacao, Bur. Sci. 35720 (type), 35392, 35535, 35588, 35676 Martelino & Edaño, June, 1919, in forests along streams, ascending to an altitude of 600 meters.**

In general this species resembles, and is manifestly allied to, *Trichosporum truncatum* Elm. and *T. bakeri* Merr.; but the calyx is half as long as in the latter, while it differs from the former in several characters.

### RUBIACEAE

**TIMONIUS ROTUNDUS** de Candolle

*Timonius rotundus* sp. nov.

A small glabrous tree, about 5 m high, the branchlets about 6 mm in diameter, marked with large petiolar scars. Leaves thickly coriaceous, broadly elliptic-ovate, brownish-olivaceous and shining when dry, the apex broadly rounded, base subtruncated to acute; lateral nerves 4 or 5 on each side of the midrib, very prominent, the reticulations fine, dense; petioles about 4 cm long; stipules oblong-elliptic, rounded, about 2 cm long, deciduous. Infructescences axillary, peduncled, up to 10 cm long, dichotomously branched, the peduncles about 3 cm long, the primary branches up to 7 cm in length, the secondary ones when present shorter. Fruits sessile, arranged on one side of the primary or secondary branches, depressed-globose, pale when dry, 5 to 8 mm in diameter.

**DINAGAT, Bur. Sci. 35176 Ramos & Pascasio, May 17, 1919, in forests at low altitudes.**

A species apparently belonging in the group with *Timonius obovatus* Elm. but with very differently shaped, much larger leaves.

**TIMONIUS PANAYENSIS** sp. nov.

A small dioica, partibus junioribus inflorescentiisque ferrugineo pubescens; foliis variabilis, 12 ad 28 cm longis, coriaceis, oblongis ad ovato-ellipticis vel obovato-ellipticis, breviter acuminate, basi acutis, subtus leviter pubescens, nervis utrinque
circiter 10, valde perspicuis, inflorescentiis circiter 4 cm longis, pedunculatis, dichotome ramosis, ramis 2, paucifloris; floribus sessilibus, calycis cylindraceis, 10 ad 12 mm longis, 2- vel 3-lobatis; fructibus pedunculatis, solitariis, ellipsoideis, circiter 1.5 cm diametro, ferrugineo-pubescentis, calycis tubo persistentiibus, cylindraceis.

A dioecious tree, 10 to 15 m high, the younger parts and inflorescences distinctly ferruginous-pubescent with short, appressed hairs. Branches terete, glabrous, the ultimate branchlets somewhat angled, pubescent. Leaves opposite, exceedingly variable in size, coriaceous, oblong to ovate-elliptic or obovate-elliptic, shortly acuminate, base acute, the upper surface glabrous, the lower sparingly pubescent, 12 to 28 cm long, 5 to 14 cm wide; lateral nerves very prominent, about 10 on each side of the midrib, the primary reticulations lax, distinct; petioles when young pubescent, in age nearly glabrous, 5 to 10 mm long; stipules oblong-ovate, shortly acuminate, pubescent, about 12 mm long. Staminate inflorescences axillary, ferruginous-pubescent, about 4 cm long, peduncled, dichotomously once-branched, few-flowered. Flowers ferruginous-pubescent, sessile. Calyx cylindric, 10 to 12 mm long, irregularly 3-toothed or 3-lobed, the teeth broad, 2 to 3 mm long. Corolla-tube about 6 mm long, the lobes 5, oblong, 5 mm in length. Fruits apparently solitary, the peduncles 2 to 2.5 cm long, the fruits ellipsoid, appressed-pubescent with short, shining, ferruginous hairs, smooth, about 1.5 cm in diameter, crowned by the elongated, persistent, cylindric calyx-tube which is about 8 mm in length.


This species is characterized by its exceedingly variable leaves; its elongated staminate flowers; and its ellipsoid fruits which are crowned by the cylindric, persistent, elongated calyx-tube.

**Timonius lanceolatus** sp. nov.

Frutex dioicus, circiter 3 m altus, partibus junioribus et subtus foliis ferrugineo-pubescentis; foliis coriaceis, lanceolatis, nitidis, 7 ad 13 cm longis, utrinque angustatis, basi cuneatis, apice tenuiter acuminatis, nervis utrinque 5 ad 7, distinctis, reticulis subobsoletis; floribus 2 axillaribus, sessilibus, fasciculatis, calycis tubo 3 ad 4 mm longo, lobis lanceolatis, tubo aequantibus, patulis; fructibus axillaribus, solitariis, brevissime pedicellatis, depressoglobosis, 6 ad 9 mm diametro, dense pubescens.

A shrub, about 3 m high, the younger parts, flowers, and
leaves on the lower surface more or less ferruginous-pubescent. Branches grayish to reddish-brown, terete, glabrous, the growing branchlets densely ferruginous-pubescent with short appressed hairs. Leaves coriaceous, lanceolate, brownish-olivaceous when dry, shining, 7 to 13 cm long, 2 to 4.5 cm wide, narrowed to the slenderly acuminate apex and below to the cuneate base, the upper surface glabrous, the lower somewhat paler and appressed-pubescent with short hairs; lateral nerves 5 to 7 on each side of the midrib, distinct, the reticulations very obscure or often obsolete; petioles 3 mm long or less; stipules lanceolate, acuminate, about 8 mm long, connate below, deciduous. Male flowers axillary, sessile, fascicled, ferruginous-pubescent, usually 3 or 4 in a fascicle, the bracts linear-lanceolate, acuminate, 2.5 to 4 mm long. Calyx-tube 3 to 4 mm long, the lobes 5, rarely 6, lanceolate, acuminate, 3 to 4 mm long, somewhat spreading. Corolla-tube about 1 cm long, the lobes oblong, 4 mm in length. Fruits axillary, usually solitary, depressed-globose or globose, 6 to 9 mm in diameter, densely pubescent with shining, short, brownish hairs, the pedicels about 2 mm long.


This species somewhat resembles *Timonius longistipulus* Merr., but its true alliance seems to be with *T. valetonii* Elm., from which it is distinguished by its entirely differently shaped leaves.

**GREENIOPSIS EUPHLEBIA** sp. nov. Merrill

Arbor parva, plus minusve hirsuta, ramulis dense hirsutis; foliis chartaceis, oblongo-ovatis ad oblongo-oblongo-oblanceolatis, breviter petiolatis, 16 ad 23 cm longis, 5 ad 10 cm latis, nitidis, in siccitate bruneis, apice acute acuminatis, basi anguste cuneatis, supra glabra, subtus ad costa nervisque hirsutis; nervis utrinque circiter 15, supra impressis, subitus valde conspicuis; paniculis terminalibus, pedunculatis, usque ad 26 cm longis, omnibus partibus hirsutis, corolla circiter 1 cm longa.

A tree, about 4 m high, rather prominently hirsute, the branchlets and inflorescences densely so, the indumentum brownish or ferruginous. Leaves oblong-ovate to oblong-oblongo-oblanceolate, chartaceous, brown and shining when dry, 16 to 23 cm long, 5 to 10 cm wide, the apex shortly and sharply acuminate, the base narrowly cuneate, the upper surface glabrous or with few hairs along the midrib, the lower surface hirsute on the midrib and
nerves; lateral nerves about 15 on each side of the midrib, impressed on the upper surface, very prominent on the lower surface; petioles 1 cm long or less; stipules oblong-lanceolate, glabrous, or the median part pubescent, acuminate, 2 to 2.5 cm long, brown when dry. Panicles peduncled, terminal, up to 26 cm long, usually supplied with a few reduced leaves, all parts rather prominently hirsute. Flowers numerous, white, their pedicels 1 to 2 mm long. Calyx 6 mm long, funnel-shaped, the lobes 5, obovate to oblong-obovate, rounded, 3 mm long. Corolla 1 cm long, pubescent, funnel-shaped, the tube about 22 mm in diameter for the lower 3 mm, then expanded, the throat 6 to 7 mm in diameter, the lobes about 2 mm long and 4 mm wide, broadly rounded or retuse, the tube villous inside in the narrower part. Anthers 2 mm long.

BUCAS GRANDE, Bur. Sci. 35134 Ramos & Pascasio, June 9, 1919, in open forests at low altitudes.

This species is well characterized by its indumentum and by its very prominently nerved leaves, and is readily distinguishable from the other described species of the genus.

**IXORA Linnaeus**

**IXORA ANGUSTILIMBA sp. nov.**

Frutex glaber, 1 ad 2 m altus; foliiis lanceolatis ad anguste lanceolatis, subcoriaceis, 7 ad 22 cm longis, 1 ad 3 cm latis, basi acutis, apice acute acuminatis, nervis utrinque circiter 20, tenuibus; cymis 6 ad 12 cm longis, laxis, pedunculatis, floribus ple-rumque in triadibus dispositis, calycis dentibus brevissimis, corollae tubo 1.8 cm longo, lobis anguste oblongis, 5 ad 6 mm longis.

A glabrous shrub, 1 to 2 m high. Leaves lanceolate to narrowly lanceolate, subcoriaceous, 7 to 22 cm long, 1 to 3 cm wide, subequally narrowed below to the usually acute base and above to the sharply acuminate apex, shining when dry, often somewhat falcate; lateral nerves slender, spreading, often indistinct, up to 20 on each side of the midrib; petioles 2 mm long or less, stout; stipules truncate, abruptly terminated by a 1.5 to 2 mm long acuminate tip. Inflorescences terminal and in the upper axils, usually solitary, 6 to 12 cm long, peduncled, the flowers rather laxly disposed; the primary branches up to 4 cm in length. Flowers reddish-white, usually borne in triads at the tips of the ultimate branches, their pedicels about 5 mm long, the subtending bracts lanceolate, acuminate, 1.5 mm long or less, the bracteoles subtending, the flowers similar but smaller. Calyx about
2 mm long, the teeth very short. Corolla-tube slender, about 1.8 cm long, the lobes narrowly oblong, spreading or reflexed, 5 to 6 mm long. Fruits ovoid, red when fresh, dark brown when dry, 6 to 8 mm in diameter.

MINDANAO, Surigao Province, Bur. Sci. 34588 Ramos & Pasca-
sio (type), April 24, 1919. DINAGAT, Bur. Sci. 35222 Ramos & Pas
sasio, June, 1919. BUCAS GRANDE, Bur. Sci. 35087 Ramos & Pas
sasio, June 11, 1919. On dry forested slopes and ridges at low altitudes.

A species strongly characterized by its narrow, elongated leaves, apparently not closely allied to any previously described form.

IXORA TENUIPEDUNCULATA sp. nov.

Frutex glaber, foliis chartaceis, oblongolatis, 9 ad 13 cm longis, 2 ad 3 cm latis, deorsum angustatis, basi cuneatis, apice acumi-
natis, nervis utrinque circiter 20; inflorescentiis axillaris, soli-
tariis, 3-floris, tenuiter pedunculatis, pedunculo 5 ad 6 cm longo; calycis dentibus brevissimis, corollae tubo 2.8 cm longo, lobis lineari-lanceolatis, circiter 1.2 cm longis.

A glabrous shrub. Leaves chartaceous, oblongolate, rather pale and somewhat shining when dry, 9 to 13 cm long, 2 to 3 cm wide, narrowed below to the cuneate base, the apex distinctly acuminate; lateral nerves slender, spreading at nearly right angles, about 20 on each side of the midrib; petioles rather stout, 2 to 3 mm long; stipules broad, subtruncate, terminated by a 5-mm long filiform tip. Inflorescences axillary, solitary, 3-flowered, their peduncles very slender, 5 to 6 cm long, the pedicels slender, about 1 cm long. Flowers pink, the calyx about 2 mm long, the teeth very short. Corolla-tube slender, about 2.3 cm long, the lobes linear-lanceolate, about 1.2 cm long. Fruits brown when dry, about 7 mm long and nearly 1 cm wide.

MINDANAO, Surigao Province, Bur. Sci. 34475 Ramos & Pas-
sasio, April 30, 1919, in damp forests at low altitudes.

A species strongly characterized by its 3-flowered inflorescences and its very slender elongated peduncles.

IXORA CONFERTIFLORA sp. nov.

Frutex glaber, circiter 3 m altus; foliis coriaceis, oblongo-
ellipticis ad oblongo-ovatis, 9 ad 13 cm longis, basi cuneatis, apice acute acuminatis, nervis utrinque circiter 12, tenuibus; sti-
pulis tenuiter caudato-acuminatis; cymis subcapitatis, peduncu-
latis, axillaris terminalibusque, 1.5 ad 3 cm diametro, pedun-
culo 2 ad 6 cm longo; bracteis bracteolisque linearis, 2.5 ad
4 mm longis, calyces dentibus oblongis ad oblongo-ellipticis, quam tubo paullo longioribus, corollae tubo 10 ad 12 mm longo, lobis ellipticis, 2.5 mm longis.

A glabrous shrub, about 3 m high. Leaves coriaceous, dark brown and shining when dry, oblong-elliptic to somewhat oblong-ovate, 9 to 13 cm long, 3 to 5.5 cm wide, the base cuneate, the apex sharply acuminate; lateral nerves spreading at nearly right angles, about 12 on each side of the midrib, slender, distinct, the reticulations evident; petioles 5 mm long or less; stipules broadly ovate, abruptly contracted into a slender, caudate, 5 to 7 mm long tip. Cymes subcapitate, peduncled, axillary, and terminal, 1.5 to 3 cm in diameter, few- to many-flowered, their peduncles 2 to 6 cm long, the terminal one usually subtended by a pair of ovate to broadly ovate, rounded, or cordate, sessile leaves, 3 to 5 cm in length. Flowers white, the subtending bracts and bracteoles linear, 2.5 to 4 mm long. Calyx-tube somewhat ovoid, about 2 mm long, the lobes oblong to oblong-elliptic, acute, usually exceeding the tube in length. Corolla-tube slender, 10 to 12 mm long, the lobes elliptic, 2.5 mm in length. Fruits red when fresh, dark brown when dry, ovoid, 5 to 7 mm in diameter, crowned by the conspicuous calyx-lobes.

DINAGAT, Bur. Sci. 35206 Ramos & Pascasio, May 12, 1919, in forests at low altitudes.

This species somewhat resembles Ixora capitulifera Merr. but differs very radically in its calyx characters. It is easily recognizable by its subcapitate, dense, panicled cymes; its very slender bracts and bracteoles; its calyx-teeth distinctly exceeding the tube in length; and in its rather short, white flowers.

CAMPANULACEAE

PENTAPHRAGMA Wallich

PENTAPHRAGMA PLATYPHYLLA sp. nov.

Planta erecta, 0.5 m alta, partibus junioribus dense pubescens; foliis late ovatis ad elliptico-ovatis, chartaceis, leviter inaequilateralibus, usque ad 28 cm longis, basi, saltem in foliis majoribus, distincte cordatis, nervis utrinque circiter 6; racemis axillarisibus, pubescens, bracteis anguste oblongis; floribus haud secundis, pedicellatis, tubo perianthii pubescens, 3 cm longo, calyces lobis inaequalibus, majoribus usque ad 2.5 cm longis.

A suffrutescent plant, about 0.5 m high, the younger parts densely pubescent with crisped hairs. Leaves broadly ovate to elliptic-ovate, slightly inequilateral, chartaceous, up to 28 cm long and 20 cm wide, the upper surface glabrous, the lower more
or less pubescent with scattered hairs, the apex subacute, the margin with distant, short, blunt teeth, base somewhat inequilateral, distinctly cordate, at least that of the larger leaves; lateral nerves about 6 on each side of the midrib, prominent; petioles up to 10 cm long. Inflorescences axillary, the rachis and peduncle up to 8 cm long, pubescent, the bracts narrowly oblong, about 1 cm long. Flowers white, not secund, their pedicels about 1.5 cm long, gradually merging with the perianth-tube which is up to 3 cm in length, terete or obscurely angled and more or less pubescent. Calyx lobes white, spreading, elliptic, the two larger ones 2 to 2.5 cm long, about 1.5 cm wide, rounded, the three others smaller, usually about half as large as the other two. Petals 5, oblong to narrowly oblong-obovate, rather thick, rounded, about 10 mm long, 5 to 6 mm wide.

Dinagat, Bur. Sci. 35258 Ramos & Pascasio, May 12, 1919, in forests along small streams at low altitudes.

A species belonging in the same group with Pentaphragma philippinense Merr., from which it differs especially in its larger leaves, which are cordate at the base.
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By Elmer D. Merrill  
Director and Botanist, Bureau of Science

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The last paper of this series was published in 1920.¹ In the present paper one hundred six new species are described from various parts of the Philippines, while a redescription of Ficus argentea Blanco is included. This species, previously known only from Blanco's imperfect description, on receipt of material agreeing with his description in all essentials proves to be a valid one. Polychroa Loureiro is accepted as the proper generic name for the group long known as Pellionia Gaudichaud, while the few Philippine forms formerly placed in Polytrema are now transferred to Hallieracantha. Three genera, Pyrenaria, Pleiocarpidia, and Cowiea, the latter a recently described genus previously known by a single species in British North Borneo, are recorded from the Philippines for the first time. A few notes on nomenclature are included, which involve some changes in specific names.

GRAMINEAE

ICHNANTHUS Beauvais

ICHNANTHUS VICINUS (F. M. Bail.) comb. nov.

Panicum nitens Merr. in Govt. Lab. Publ. (Philip.) 17 (1904) 8.

¹Merrill, Elmer D., New or noteworthy Philippine plants, XVI, Philip. Journ. Sci. 17 (1920) 239–323.
Luzon (Kalinga, Bontoc, Bataan, Laguna, Sorsogon), Catanduanes, Mindoro, Biliran, Mindanao. Merrill 3756, 3221, 5498, 5538, Phil. Pl. 109, Kneucker Gram. Exsic. 740, B. S. 30226, 23608 Ramos, 18502 McGregor, 37475, 38608 Ramos & Edano. On forested slopes and ridges up to 1,600 m altitude. India to southern China and Formosa through Malaya to tropical Australia.

The Old World form has long been referred to *Ichnanthus pallens* (Sw.) Munro, the type of which was from tropical America. The Indian, Chinese, Philippine, Malayan, and Australian material consistently differs from the American material in its larger spikelets. A fragment of Bailey’s type of *Panicum vicinum* has kindly been supplied to me by Mr. T. C. White of Brisbane, and it is identical with the Asiatic and Malayan form. I had long suspected that our form was specifically distinct from the American one, because as it occurs in the Old World it is a native, not an introduced, grass. This suspicion has been verified by Prof. A. S. Hitchcock, who went over the material with me, first in Washington and more recently in Manila, and who likewise considers the Old World form to be specifically distinct from the American one.

In addition to the Philippine material and the Australian type mentioned above the species is represented in the Bureau of Science herbarium by specimens from the Malayan Peninsula, southern China, Formosa, Sumatra, Java, New Guinea, and Australia.

**MORACEAE**

**FICUS** Linnaeus

**FICUS ARGENTEA** Blanco Fl. Filip. (1837) 681, ed. 2 (1845) 473, ed. 3, 3 (1879) 84.


A tree about 8 m high, glabrous except the very densely pubescent peduncles and receptacles, the indumentum silvery white to pale ferruginous. Branches somewhat rugose, reddish-brown, glabrous, the ultimate ones 6 to 8 mm in diameter, the very tips of the branchlets sparingly appressed-pubescent. Leaves somewhat crowded at the tips of the branchlets, oblong to oblong-elliptic, chartaceous to subcoriaceous, smooth, entire, brownish olivaceous, slightly shining, the lower surface rather minutely puncticulate-verruculose, 11 to 15 cm long, 5 to 6.5 cm wide, the apex rather acuminate, the base rounded and somewhat 3-nerved; primary lateral nerves 10 to 12 on each side of the midrib,
slender, distinct as are the rather close reticulations; petioles reddish-brown when dry, 5 to 7 cm long; stipules broadly ovate, shortly acuminate, pubescent, about 6 mm long. Receptacles borne in fascicles along the ultimate branches below the leaves, usually 3 or 4 in a fascicle, the fascicles numerous, the individual receptacles globose to slightly obovoid, 6 to 7 mm in diameter, very densely and softly pubescent with silver white to pale ferruginous hairs, their peduncles densely pubescent, about 5 mm long, the bracts subtending the receptacles broadly ovate, obtuse, glabrous or slightly pubescent, 1.5 to 2 mm long. Male flowers few, only near the ostiole, the stamen 1, about 0.5 mm long. Ovaries of the gall flowers and fertile female flowers ovoid, about 1 mm long, the styles of the former about 0.5 mm in length, those of the latter 1 mm long. Perianth segments membranaceous, oblong-lanceolate, about 1 mm long.

MINDORO, Paluan, Bur. Sci. 39732 Ramos, April 9, 1921. In dry forests at low altitudes.

This species is closely allied to *Ficus stipulosa* Miq. which has been reduced by some authors to the widely distributed Indomalayan *Ficus infectoria* Roxb. It is readily distinguished by its very densely pale pubescent peduncles and receptacles. Blanco described the receptacles as flowers and the subtending bracts as the calyx. The specimens on which the above description was based agree very closely with Blanco’s original description except that the leaves are scarcely undulate, while the receptacles are globose to slightly obovoid rather than “de figura de trompa,” that is, pyriform. I have seen no other species of *Ficus* that even remotely agrees with Blanco’s imperfect description and am confident that the plant here considered represents the form he so imperfectly described. In my Species Blancoanæ (1918) 129, I expressed the opinion that *Ficus argentea* Blanco might have been based on immature specimens of *Ficus ruficaulis* Merr. but the recent receipt of material agreeing essentially with Blanco’s description shows that this surmise was wrong.

**FICUS XAVIERI** sp. nov. § *Urostigma*.

Species F. benjaminae simillimis et affinis differt receptaculis dense et molliter cinereço-pubescentibus.

A strangling fig reaching a height of 10 m or more, branches and receptacles densely and softly cinereo-pubescent. Branches glabrous, terete, grayish, the younger ones more or less rugose, the young branchlets 2 to 2.5 mm in diameter.
Leaves ovate to elliptic, subcoriaceous, 6 to 10 cm long, 3 to 5 cm wide, rather pale when dry, glabrous, shining, the base broadly acute to rounded, the apex rather abruptly subcaudate-acuminate, the acumen up to 1 cm in length, rather slender, obtuse to acute; lateral nerves numerous, spreading, parallel, the secondary ones practically as prominent as the primary ones, anastomosing close to the edge of the leaf and forming a very slender, somewhat arched, marginal nerve, 1 to 2 mm from the edge of the leaf; petioles 8 to 15 mm long, not jointed, pubescent when young, ultimately glabrous, slender, rather deeply channelled on the upper surface; stipules narrowly lanceolate, 1.5 cm long, glabrous or nearly so, slenderly acuminate. Receptacles globose to ovoid, axillary, sessile, densely and softly cinereous-pubescent, solitary or in pairs, 8 to 12 mm in diameter, the subtending bracts usually 2, pubescent, 2 to 3 mm long, 4 to 8 mm wide, the ostiole obscure. Stamine flowers few, scattered, the perianth segments 3, spatulate, brown, 2 mm long; anthers about 0.6 mm long. Fertile female flowers numerous, their perianth segments similar to those of the stamine flowers, the ovary subellipsoid, about 1 mm long, rounded; styles slender, 2 mm long. Gall flowers similar to the fertile female ones except that the styles are wanting or very short. Bracteoles linear, about 2 mm long.

LUZON, Laguna Province, Los Baños, F. X. Williams s. n., and For. Bur. 28480 Salvosa, June, 1921, from the same tree. In forests along Molauin River near the College of Agriculture, altitude about 120 meters, growing on Bischofia javanica Blume.

This species is dedicated to Mr. Francis Xavier Williams, entomologist of the Hawaiian Sugar Planters' Experiment Station, who also collected botanical material from the same tree. Mr. Williams has devoted a considerable amount of time to a study of the Philippine fig insects with the view to their possible introduction into Hawaii. It is at once distinguished from Ficus benjamina Linn., which it closely resembles, by its densely pubescent receptacles.

FICUS KALINGAENSIS sp. nov. § Covellia.

Species F. myriocarpae Miq. affinis differt foliis basi truncato-rotundatis, haud cordatis, receptaculis majoribus, longiter pedunculatis.

A tree about 5 m high, the branches reddish-brown, wrinkled, glabrous, the very young branchlets supplied with scattered, spreading, slender, rather stiff hairs up to 6 mm in length.
Leaves alternate, long-petioled, broadly ovate, thickly chartaceous or subcoriaceous, 17 to 22 cm long, 12 to 16 cm wide, the base rather broadly truncate-rounded, apex acuminate, margins rather finely serrate, both surfaces rather harsh, the upper surface olivaceous, supplied with widely scattered, white, stiff, spreading hairs, the lower surface paler, distinctly pubescent on the midrib, nerves, and reticulations, and with scattered, elongated, stiff hairs on the midrib and lateral nerves similar to those on the upper surface; lateral nerves 10 to 12 on each side of the midrib, prominent, nearly straight, the primary reticulations subparallel, distinct; petioles 6 to 10 cm long, supplied with scattered, elongated, stiff hairs similar to those on the branchlets; stipules broad, up to 4 cm long, acuminate, glabrous except on the median portion of the back below, which is supplied with scattered, elongated hairs similar to those on the branchlets. Inflorescences caulin, apparently from near the base of the trunk, elongated, simple, up to at least 30 cm in length, glabrous or nearly so, the rachis about 5 mm in diameter. Receptacles fascicled at the nodes or on the stout, slightly produced, lateral branches, globose to ovoid, about 8 mm in diameter, brown when dry, distinctly lenticellate, minutely furfuraceous, their peduncles up to 12 mm long, the receptacles subtended by 3, ovate, minutely pubescent, acute bracts about 2.5 mm in length. Inside of the receptacles somewhat ciliate. Male flowers not seen. Fertile female flowers sessile or pediceled, their perianth segments oblong-ovate, about 2 mm long, slightly ciliate at the tips; styles about 1 mm long.

Luzon, Kalinga Subprovince, Mount Masingit, near Lubuagan, Bur. Sci. 37592 Ramos & Edano, February 17, 1920. Along streams in the mossy forest, altitude about 1,300 meters.

A species closely allied to Ficus myriocarpa Miq. which is known only from Amboina Island. It resembles this species in its habit, its vegetative characters, indumentum, and the arrangement of its receptacles. It differs notably in its truncate-rounded, not cordate, leaf bases and in its larger and longer-peduncled receptacles.

URTICACEAE

ELATOSTEMA Forster

ELATOSTEMA BONTOCENSE sp. nov.

Herba erecta, ramosa, succulenta, saltem ad 40 cm alta, ramis plus minusve adpressae hirsutis; foliis numerosisissimis, parvis, valde inaequilateralibus, chartaceis, glabras, olivaceis, circiter
1 cm longis, 5 mm latis, cystolithis paucis vel nullis, apice obtusis vel subacutis, dentibus utrinque 2 vel 3, obtusis; nervis 1 vel 2 utrinque; stipulis anguste oblongis, glabris, 1.4 mm longis; inflorescentiis 3 axillaribus, solitariis, sessilibus, paucifloris, bracteis liberis, exterioribus ellipticis, obtusis, 2 mm longis, bracteolis oblongis ad oblongo-ellipticis; floribus 3 vel 4, 5-meris, segmentis ellipticis, leviter cucullatis, ciliatis, 2 mm longis.

An erect, apparently succulent, much-branched herb, at least 40 cm high, the stems and branches somewhat appressed-hirsute with short hairs. Leaves very numerous, glabrous, chartaceous, very inequilateral, oblong to oblong-ovate, generally about 10 mm long and 5 mm wide, brownish olivaceous when dry, sometimes with obvious cystoliths along the midrib and nerves on the upper surface, more often without evident cystoliths, the apex obtuse or subacute, the base very inequilateral, acute on the narrower side and broadly rounded on the wider side, the narrower side with usually 2 teeth in the upper part, the broader side with usually 3 teeth, the teeth obtuse; nerves 1 or 2 on each side of the midrib; stipules narrowly oblong, glabrous, 1.4 mm long. Staminate inflorescences axillary, solitary, sessile, obovoid, few-flowered, 2 or 3 flowers only in each fascicle, the bracts free, the outer ones elliptic, obtuse, 2 mm long, the bracteoles oblong-elliptic, thinner than the bracts and about one-half as wide. Perianth segments 5, elliptic, slightly cucullate, rather prominently ciliate, about 2 mm long.

Luzon, Bontoc Subprovince, Mount Polis, Bur. Sci. 37660 Ramos & Edaño, February 25, 1920. On tree trunks in the mossy forest, altitude about 1,800 meters, with the local name ngalngaloi.

This species belongs in the group with Elatostema podophyllum Wedd. and E. benguetense C. B. Rob., but is easily distinguishable from these two species by the few, or more often obsolete, cystoliths.

**ELATOSTEMA CAPIZENSE** sp. nov.

Herba erecta ut videtur succulenta, usque ad 40 cm alta, simplex, caulis deorum prostratis; foliis membranaceis, plus minusve inaequilateralibus, oblongo-ellipticis ad anguste oblongo-ovatis, glabris, 11 ad 17 cm longis, olivaceis vel brunneis, cystolithis numerosis instructis, basi acutis, apice subabrupte caudato-acuminatis, margine in e superiore parte distanter crenato-serratis, deorum integris; nervis utrinque circiter 8,
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reticulis obscuris, laxis; inflorescentiis ♀ solitariis, sessilibus, 10 ad 12 mm diametro, bracteis connatis, lobis numerosis, linearis ad lineari-lanceolatis, circiter 3 mm longis, ciliatis, bracteolis linearis ad spatulatis, 2.5 ad 3 mm longis, perspicue ciliatis; pedicellis circiter 1.5 mm longis; acheniis brunneis, subellipsoides, subacutis, 0.6 mm longis.

An erect, apparently succulent, unbranched herb, up to 40 cm high, the basal portion of the stem somewhat prostrate, the stems apparently succulent when fresh, without cystoliths. Leaves membranaceous when dry, sessile or subsessile, somewhat inequilateral, oblong-elliptic to narrowly oblong-ovate, 11 to 17 cm long, 4 to 6 cm wide, olivaceous or brownish when dry, the apex slenderly and rather abruptly caudate-acuminate, the base somewhat inequilateral, narrow, acute on the narrower side, acute or slightly obtuse on the broader side, the margins in the lower one-half to two-thirds entire, in the upper part very distantly crenate-serrate, the upper surface with numerous cystoliths, distinctly visible to the naked eye, the lower surface of the same color as the upper, the cystoliths conspicuous; lateral nerves about 8 on each side of the midrib, distinct, anastomosing directly with the marginal nerves, the reticulations lax, obscure; stipules lanceolate, glabrous, membranaceous, acuminate, up to 1 cm long. Pistillate inflorescences axillary, solitary, 10 to 12 mm in diameter, apparently somewhat flattened, the bracts united to form a flattened receptacle 5 to 7 mm in diameter, the lobes of the receptacle numerous, linear to linear-lanceolate, acuminate, about 3 mm long, ciliate; bracteoles very numerous, linear to spatulate, 2.5 to 3 mm long, prominently ciliate; pedicels slender, about 1.5 mm long. Achenes brown, subellipsoid, about 0.6 mm long, subacute.

PANAY, Capiz Province, Mount Macosolon, Bur. Sci. 30748 Ramos & Edaño, April 19, 1918. On bowlders along small streams in damp forests at low altitudes.

This species was originally identified as Elatostema integrifolium Wedd., which it somewhat resembles in vegetative characters, but to which it is not closely allied. Striking differential characters of the present species are its membranaceous, caudate-acuminate leaves which are entire below and distinctly crenate-serrate above; its bracts being united to form a common receptacle, the tips of the bracts (lobes) being numerous and linear to lanceolate; and in being entirely glabrous throughout except for the inflorescences.
ELATOSTEMA EDANOII sp. nov.

Herba erecta, ramosa, glabra, succulenta, saltem 40 cm alta; foliis numerosis, lanceolatis, chartaceis, in siccitate atro-viridis, 9 ad 11 cm longis, leviter inaequilateralibus, apice acuminatis, basi acutis, margine in $\frac{4}{5}$ inferiore parte integris, sursum dentibus paucis distantibus instructis, cystolithis conspicuis; nervis utrinque circiter 7, tenuibus, supra subobsoletis, reticulis subtus obsolete; stipulis lanceolatis, glabris, 5 mm longis; inflorescentiis $\delta$ solitariis, sessilibus, depress-globosis, circiter 1 cm diametro, bracteis exterioribus liberis, margine ciliatis, reniformi-ovatis, 6 mm longis, 9 mm latis, carinatis, apiculatis, bracteolis oblongis ad obovatis, 4 mm longis, 2 ad 3 mm latis, truncatis, apice ciliatis, lineolatis; floribus 4-meris, pedicellatis, lobis ellipticis, 2.5 ad 3 mm longis, 2 acutis, 2 leviter cucullatis et corniculatis.

An erect, glabrous, branched, succulent herb, at least 40 cm high, the stems and branches apparently succulent, glabrous, without cystoliths. Leaves numerous, lanceolate, chartaceous when dry, dark green in color, 9 to 11 cm long, 1.7 to 2.5 cm wide, slightly inequilateral, the apex acuminate, the base acute, the margins in the lower three-fourths entire, the upper portion with few, very distant, serrate teeth, the upper surface supplied with numerous, irregularly disposed cystoliths which are distinctly visible to the naked eye, the lower surface somewhat paler, without cystoliths, smooth, the midrib conspicuous, the lateral nerves about 7 on each side of the midrib, slender, obsolete on the upper surface, not prominent on the lower surface, arched-anastomosing, the reticulations obsolete; petioles 1 to 2 mm long; stipules lanceolate, acuminate, somewhat falcate, glabrous, about 5 mm long. Staminate inflorescences axillary, solitary, sessile, depressed-globose, up to 1 cm in diameter, the outer two bracts reniform-ovate, about 6 mm long, 9 mm wide, subcoriaceous, keeled, slightly apiculate, the margins minutely ciliate; bracteoles very numerous, oblong to obovate, about 4 mm long, 2 to 3 mm wide, truncate, slightly ciliate at the apex, marked with numerous small, elongated, reddish-brown lines, all more or less concave. Flowers 4-merous, white, the pedicels 2.5 mm long, perianth lobes membranaceous, elliptic, 2.5 to 3 mm long, two acute and two somewhat cucullate and shortly spurred, the spur stout, 0.8 mm long, slightly ciliate.

LUZON, Kalinga Subprovince, Mount Masingit near Lubuagán, Bur. Sci. 37603 Ramos & Edano, February 17, 1920. On tree trunks in forests along streams, altitude about 1,300 meters.
A very strongly marked species, well characterized by its conspicuous cystoliths and its nearly entire, lanceolate, very slightly inequilateral, obscurely nerved leaves.

**ELATOSTEMA EUPHLEBIUM** sp. nov.

Herba suffruticosa, erecta, ramosa, caulis teretibus, 4 ad 5 mm diametro, ramis adpresses cinereo-hirsutis; foliis lanceolatis, subcoriaceis, rigidis, inaequilateralibus, 4 ad 8 cm longis, olivaceis, caudato-acuminatis, margine acute et grosse serratis, dentibus acuminatis, supra cystolithis numerosis instructis, juvenileibus plus minusve ciliatis, nervis utrinque 6 vel 7, impressis, subtus valde perspicuis et adpresae hirsutis; stipulis 4 mm longis; inflorescentiis solitariis, sessilibus vel subsessilibus, usque ad 6 mm diametro, multifloris, bracteis exterioribus orbiculari-ovatis, rotundatis, leviter ciliatis, liberis, bracteolis angustis, ciliatis, floribus 4-meris, lobis oblongo-ovatis ad spatulatis, 2 mm longis, haud corniculatis, 2 leviter cucullatis, supra leviter ciliatis.

An erect or ascending, much-branched, suffrutescent plant, the stems distinctly woody, terete, 4 to 5 mm in diameter, the branches usually 20 cm long or less, appressed-hirsute with cinereous hairs. Leaves inequilateral, lanceolate, rigid, subcoriaceous, 4 to 8 cm long, 10 to 18 mm wide, olivaceous, the apex caudate-acuminate, base inequilateral, acute on the narrower side, obtuse on the broader side, the margins sharply and rather coarsely serrate, the teeth somewhat acuminate, the upper surface with numerous cystoliths and when young supplied with numerous, stiff, white hairs, these hairs more or less deciduous on the older leaves, some, however, usually persisting, their bases often thickened, the lower surface paler than the upper, the midribs and nerves appressed-hirsute, the cystoliths conspicuous, the midrib and lateral nerves impressed on the upper surface, very prominent on the lower surface, the lateral nerves 6 or 7 on each side of the midrib, arched-anastomosing; stipules lanceolate, acuminate, about 4 mm long. Staminate inflorescences axillary, solitary or in pairs, sessile or very shortly peduncled, up to 6 mm in diameter, many-flowered, outer bracts orbicular-ovate, about 3 mm long, rounded, somewhat ciliate, free, the bracteoles narrow, ciliate. Flowers 4-merous, the lobes oblong-ovate to spatulate, 2 mm long, slightly ciliate above, two of them slightly ciliate, none spurred.

This species has much the habit of *Elatostema kalingaense* Merr. and, like that species, resembles in vegetative characters *E. contiguum* C. B. Rob. It differs from Robinson's species in the same characters as does *E. kalingaense*, and from the latter species in its much thicker, very conspicuously nerved leaves, the midribs and lateral nerves being strongly impressed on the upper surface.

**ELATOSTEMA KALINGAENSE** sp. nov.

Herba ramosa, glabra, caulis deorsum decumbens, ramis adpressae strigoso-hirsutis; foliis membranaceis, lanceolatis, leviter falcatis, 4 ad 6 cm longis, tenuiter caudato-acuminatis, bracteis libris, exterioribus late ovatis, acuminatis, 4 mm longis, bracteolis oblongis ad spatulatis, ciliatis; floribus 4-meris, sessilibus, segmentis perspicue ciliatis, baud comiculatis.

An ascending, branched herb, the lower parts of the stems creeping or prostrate and rooting where in contact with the substratum, greenish-olivaceous when dry, with numerous cystoliths, glabrous or nearly so, the younger branches appressed-strigose-hirsute, rather slender. Leaves membranaceous, dark green when dry, lanceolate, somewhat falcate, 4 to 6 cm long, 9 to 12 mm wide, the apex slenderly caudate-acuminate, the base inequilateral, acute on the narrower side, rounded to obtuse on the broader and longer side, the margins coarsely serrate, the teeth somewhat acuminate, the upper surface with numerous irregularly disposed cystoliths and with few, stiff, elongated, somewhat curved hairs from swollen bases, the lower surface slightly paler than the upper, the cystoliths distinct, the midrib and nerves more or less appressed-strigose-hirsute; stipules linear, lanceolate, about 2 mm long. Staminate inflorescences axillary, solitary, about 5 mm in diameter, many-flowered, conspicuously ciliate with grayish hairs, the bracts free, the outer ones broadly ovate, acuminate, prominently ciliate, about 4 mm long; bracteoles oblong, spatulate, ciliate and nearly as long as the bracts. Flowers numerous, sessile, 4-merous, the perianth segments oblong to spatulate, obtuse, 2 mm long, two somewhat cucullate, none spurred, all conspicuously ciliate above.


This species in vegetative characters closely approximates *Elatostema contiguum* C. B. Rob., but differs radically in its
habit, being freely branched, and further differs in its floral characters. It is very easily distinguished from *Elatostema lignosum* Merr. by its entirely different habit, the stems creeping and rooting below not being strictly erect and woody. The floral characters of the two species are radically different.

**ELATOSTEMA LIGNOSUM** sp. nov.

Erecta, ramosa, fruticosa, usque ad 80 cm alta, caulis tere-tibus, lignosis, 4 ad 5 mm diametro, ramis paucis, elongatis, adpresse strigoso-hirsutis; foliis chartaceis, fragilis, olivaceis, lanceolatis, usque ad 9 cm longis, tenuiter caudato-acuminatis, basi inaequilateralibus, acutis, margine subgrosse serratis, supra glabris, olivaceis, cystolithis numerosis instructis; nervis utrinque 5 ad 9, subtus valde perspicuis et adpresse strigoso-hirsutis; inflorescentiis axillaris, sessilibus, 4 ad 5 mm diametro, bracteis libris, exterioribus orbicularibus, rotundatis, leviter ciliatis, 3.5 mm longis, bracteolis spatulatis; floribus numerosis, 4-meris, segmentis oblongis ad ellipticis, 1.5 mm longis, haud corniculatis.

An erect, branched, woody plant up to 80 cm high, the stems terete, 4 to 5 mm in diameter, olivaceous when dry, the epidermis supplied with very numerous cystoliths, the branches few, elongated, up to 20 cm in length, the branchlets terete, appressed-strigose-hirsute, olivaceous. Leaves chartaceous, lanceolate, 5 to 9 cm long, 1.2 to 2.5 cm wide, brittle when dry, olivaceous, inequilateral, the base acute on both sides, one side longer and broader than the other, the apex slender, caudate-acuminate, the margins rather coarsely serrate except near the base, the upper surface olivaceous, densely covered with numerous, irregularly disposed cystoliths which are distinctly visible to the naked eye, the lower surface slightly paler than the upper, the midrib, marginal and lateral nerves very prominent, the lateral nerves 5 to 9 on each side of the midrib, anastomosing directly with the more or less arched marginal nerves, the cystoliths chiefly confined to the midrib, nerves, and reticulations, the midrib and primary nerves more or less appressed-strigose-hirsute; stipules lanceolate, acuminate, 3.5 mm long. Staminate inflorescences axillary, solitary or in pairs, sessile, 4 to 5 mm in diameter. Outer bracts orbicular, free or nearly so, 3.5 mm long, rounded, slightly ciliate; bracteoles spatulate, about 2 mm long, more or less ciliate above. Flowers numerous, 4-merous, the perianth segments oblong to elliptic, about 1.5 mm long, slightly ciliate at the apex, acute, two of them slightly cucullate, none spurred.
LUZON, Benguet Subprovince, near Baguio, Merrill 9697, May, 1914. In shaded places about limestone bowlders, altitude about 1,400 meters.

In vegetative characters this species somewhat resembles Elatostema contiguum C. B. Rob., but differs remarkably in its habit, being a much taller, strictly erect, branched plant, the stems being decidedly woody.

ELATOSTEMA SAMARENSE sp. nov.

Herba succulenta, parce ramosa, usque ad 50 cm alta, in siccitate pallide flavido-viridis, ramis parce ciliatis; foliis chartaceis, leviter inaequilateralibus, oblanceolatis, 6 ad 11 cm longis, tenuiter acuminatis, margine perspicue serratis, supra cystolithis numerosis instructis, scabris, foliis junioribus plus minusve ciliatis; nervis utrinque 4 ad 6, supra impressis, subtus valde perspicuis; stipulis anguste lanceolatis, circiter 1 cm longis; inflorescentiis 9 axillaribus, sessilibus, solitariis, 5 ad 10 mm diametro, bracteis connatis, lobis paucis, oblongis, 1.7 mm longis, ciliatis, bracteolis anguste oblongis, 2 mm longis; floribus numerosis, acheniis oblongis, brunneis, cylindraceis, 0.8 mm longis.

An erect, sparingly branched, succulent herb, about 50 cm high, pale greenish yellow when dry, the stem glabrous with numerous cystoliths, the branches with scattered, spreading, elongated, weak, white hairs. Leaves chartaceous when dry, somewhat inequilateral, oblanceolate, 6 to 11 cm long, 2 to 3 cm wide, the apex slenderly acuminate, the base somewhat inequilateral, acute on the narrower side, obtuse on the broader side, the margins rather conspicuously serrate except near the base, the upper surface with numerous cystoliths, scabrous, the younger leaves with numerous, spreading, elongated, weak hairs from swollen bases, the swollen bases persisting on the older leaves causing the surface to be distinctly scabrous, the lower surface of the same color as the upper with equally distinct cystoliths, the midrib and nerves with scattered, conspicuous, spreading, white hairs; lateral nerves 4 to 6 on each side of the midrib, impressed on the upper surface, very prominent on the lower surface, arched-anastomosing; stipules narrowly lanceolate, acuminate, somewhat ciliate, about 1 cm long. Pistillate inflorescences axillary, sessile, 5 to 10 mm in diameter, flattened, irregular, the bracts connate, forming an irregularly lobed receptacle about 6 mm in diameter, the lobes rather few, oblong, 1.7 mm long, ciliate; bracteoles very numerous, narrowly oblong, 2 mm long,
ciliate. Flowers very numerous, the achenes oblong, 0.8 mm long, brown, cylindric.


This species is perhaps as closely allied to *Elatostema barurin-gense* Elm. as to any other species, but differs radically in numerous characters. It is at once distinguishable from the above species in its scabrous leaves and in the type of its hairs, Elmer's species having softly pubescent leaves.

PIPTURUS Weddell

PIPTURUS ANGUSTIFOLIUS sp. nov.

Frutex dioicus, 2 ad 3 m high, ramis rubro-brunneis, hirsutis; foliis coriaceis, rigidis, lanceolatis, in siccitate pallidis, 5 ad 9 cm longis, 1.3 ad 2 cm latis, tenuiter acuminatis, basi obtusis, 3-nervis, margine crenato-dentatis, utrinque scabridis, subtus dense cinereo-puberulis et ad costa nervisque adpresso-strigoso-hirsutis, nervis utrinque 2 vel 3; floribus ♀ capitulato-fasciculatis, fasciculis spicatim dispositis, spicis 1 ad 2 cm longis, axillaribus, fasciculis 3 ad 5, 3 ad 4 mm diametro; acheniis ovoideis, 1 mm longis, breviter ferrugineo-pubescentibus.

A dioecious shrub, 2 to 3 m high, the branches and branchlets dark reddish-brown, more or less hirsute with short, stiff, pale hairs. Leaves coriaceous, rigid, brittle, lanceolate, pale when dry, 5 to 9 cm long, 1.3 to 2 cm wide, narrowed upward to the rather slenderly acuminate apex, the base obtuse, the margins crenate-dentate, the upper surface scabrid, sometimes with a very few scattered hairs, the lower surface paler than the upper, scabrid, the midrib, nerves, and reticulations appressed-strigose-hirsute and densely cinereous-puberulent on the surface; basal nerves 3, ascending, reaching to or beyond the middle of the leaf, the lateral nerves above the basal pair 2 or 3 on each side of the midrib, distinct, as are the reticulations; petioles 5 to 10 mm long, densely cinereous-hirsute; stipules lanceolate, acuminate, deciduous, about 5 mm long. Female flowers in spicately arranged fascicles, the spikes axillary, solitary, 1 to 2 cm long, the fascicles 3 to 5 on each spike, glabrous, dense, many-flowered, 3 to 4 mm in diameter; bracts lanceolate to obovate-lanceolate, acuminate, 2 to 3 mm long. Flowers numerous, crowded, sessile. Achenes ovoid, 1 mm long, ferruginous-pubescent with short hairs; styles 1.5 to 2 mm long, deciduous, pubescent.

The alliance of this species is manifestly with *Pipturus argenteus* Wedd., from which it is readily distinguishable by its unusually narrow, lanceolate leaves.

**POLYCHROA** Loureiro  
*(Pellionia* Gaudichaud)*

**POLYCHROA MULTINERVIA** sp. nov.

Suffruticosa, erecta vel subscandens, usque ad 50 cm alta, partibus junioribus et subtus foliis ferrugineo-pubescentibus; foliis membranaceis, lanceolatis, aequilateralibus, 15 ad 20 cm longis, tenuiter acuminatis, basi obtusis, margine grosse et regulariter dentatis, nervis utrinque circiter 30, perspicuis; cymis axillaris, parvis, circiter 1 cm diametro; floribus ♂ 5-meris, sepalis omnibus corniculatis, sub anthesin 3 mm longis, accrescentibus et sub fructu 6 mm longis, partibus inferioribus ellipticis; staminoides sub fructu valde incrassatis.

An erect or somewhat scandent simple suffrutescent plant up to 50 cm high, the younger parts and the nerves and midribs on the lower surface of the leaves distinctly ferruginous-pubescent. Stems somewhat woody, terete, brown when dry, 2 to 2.5 mm in diameter, the younger parts somewhat sulcate or angled. Leaves membranaceous, lanceolate, 15 to 20 cm long, 2.5 to 4 cm wide, equilateral, the base usually obtuse, gradually narrowed upward to the slenderly acuminate apex, the margins coarsely dentate except at the very base, the teeth 5 to 8 mm apart, the upper surface olivaceous, shining, glabrous, smooth, minutely and densely pitted, the pits very shallow, cystoliths entirely wanting; lateral nerves about 30 on each side of the midrib, very distinct on the lower surface, the reticulations lax; petioles ferruginous-pubescent, 5 to 8 mm long; stipules lanceolate, acuminate, glabrous, brown, about 1 cm long. Cymes axillary, solitary, rather dense, about 1 cm in diameter, their peduncles up to 5 mm long, the pedicels less than 1 mm long. Female flowers, in anthesis, 3 mm long, green. Sepals 5, the basal part elliptic, about 1 mm long, somewhat cucullate, all spurred from the back, the spurs slender, about 2 mm long. The sepals in fruit accrescent and including the spur up to 6 mm in length, the spur obscurely ciliate. Staminodes in fruit much thickened, obovate, somewhat 4-angled, truncate, about 1 mm long, and 0.8 mm wide. Achene elliptic-ovate, somewhat compressed, about 2 mm long.

A very strongly marked species and recognizable by its indumentum and its long, lanceolate, slender, acuminate, equilateral, and coarsely and regularly toothed leaves.

POLYCHROA FERRUGINEA sp. nov.

Frutex vel suffrutex scandens, ramosus, usque ad 50 cm altus, partibus junioribus et subtus foliis ferrugineo-pubescentibus; foliis membranaceis, oblongo-ellipticis ad oblongo-ovatis, 8 ad 14 cm longis, tenuiter acuminatis, basi inaequilateralibus, marginie grosse crenatis vel crenato-serratis, nervis utrinque 8 ad 10, perspicuis; cymis axillaribus, circiter 1 cm longis, sublaxis; floribus ♀ 5-meris, sepalis oblongis, 3 mm longis, cucullatis, omnibus corniculatis, accrescentibus, sub fructu 6 mm longis; staminodeis valde incrassatis.

A slender, scandent, more or less branched, somewhat woody vine up to 50 cm long, the stems brown, glabrous or nearly so, terete, the younger parts ferruginous-pubescent with crisped hairs, more or less angled or compressed. Leaves alternate, membranaceous, oblong-elliptic to oblong-obovate, 8 to 14 cm long, 3.5 to 5 cm wide, the apex slenderly acuminate, the base distinctly inequilateral, obtuse, the margins rather coarsely crenate or crenate-serrate, the upper surface olivaceous, shining, usually with numerous short scattered cystoliths, the lower surface brownish and ferruginous-pubescent with crisped hairs on the midrib and lateral nerves, the indumentum less conspicuous on the surface; lateral nerves 8 to 10 on each side of the midrib, rather prominent on the lower surface, slightly curved, the reticulations not prominent; petioles pubescent, 5 to 7 mm long. Cymes axillary, solitary, about 1 cm long, 1 to 1.5 cm wide, shortly peduncled, rather lax, glabrous or slightly pubescent. Female flowers 5-merous, the sepals oblong, 3 mm long, more or less cucullate, all extended into a slender, 3 mm long, acuminate spur, the total length approximating 6 mm in fruit. Achene subellipsoid, about 2 mm long. Staminodes in fruit oblong, much thickened, 4-angled, truncate, about 1 mm long.

The alliance of this species is manifestly with *Polychroa sinuata* (Blume) (*Procris sinuata* Blume), from which it is distinguished especially by its ferruginous indumentum.

The generic name *Polychroa* Loureiro which dates from 1790 is here adopted in the place of *Pellonia* Gaudich. which dates from 1826. The two are congeneric, the type of Loureiro's genus being *Polychroa repens* Lour., with which the much more recently described *Pellonia davieauana* N. E. Br. (1880) is identical.

**MENISPERMACEAE**

**PYCNARRHENA MEMBRANIFOLIA** Miers

**PYCNARRHENA MEMBRANIFOLIA** sp. nov.

Frutex scandens, inflorescentiis minute pubescentibus exceptis glaber; foliis membranaceis, oblongis, 9 ad 12 cm longis, in siccitate atro-olivaceis, nitidis, tenuiier acuminatis, basi acutis, nervis utrinque 5 vel 6, tenuibus, petiolo 1 ad 2 cm longo; inflorescentiis cymosis, cymis fasciculatis, e caulis vetustioribus, tenuiter pedunculatis, paucifloris, circiter 3 cm longis, sepalis interioribus 3 vel 4 majoribus, incrassatis, obovatis, rotundatis, concavis, 2.3 mm longis, petalis 3, orbiculares ad obovatis, 1 mm diametro; staminibus circiter 6, obovodeis ad anguste obovodeis, 0.8 mm longis.

A woody vine, glabrous except for the minutely pubescent inflorescences, the branches terete, about 8 mm in diameter, brownish, the leaf-bearing branchlets about 2 mm in diameter, these sometimes solitary, sometimes fascicled. Leaves membranaceous, oblong, dark olivaceous when dry, shining, 9 to 12 cm long, 3 to 4.5 cm wide, slenderly acuminate, base acute; lateral nerves 5 or 6 on each side of the midrib, distant, slender but distinct, anastomosing; petioles 1 to 2 cm long. Staminate inflorescences fascicled on tubercles along the main stems or leafless branches, the cymes about 3 cm long, slenderly peduncled, few-flowered, obscurely pubescent. Flowers yellow, black when dry, their pedicels 4 to 7 mm long, the external sepals small, slightly pubescent, ovate, acuminate, less than 1 mm in length, the next 3 or 4 larger, thickened, obovate, rounded, concave, glabrous, about 2.3 mm long, imbricate. Petals 3, orbicular to obovate, glabrous, about 1 mm in diameter. Stamens 6, narrowly obovoid, 0.8 mm long.

**MINDANAO, Zamboanga District, Malangas, Bur. Sci. 37536 Ramos & Edano, October 26, 1919.** In forests at low altitudes, locally known as *dalupat*. 
This species is radically different from known Philippine representatives of the genus both in its membranaceous leaves and in its lax, few-flowered, slenderly peduncled inflorescences. It is apparently most closely allied to *Pycnarrhena cauliflora* Diels, but differs from that species in numerous characters, especially in its smaller leaves which are acute at the base and slenderly acuminate at the apex, with fewer nerves than in Diels’s species. The number cited above was distributed under the generic name *Fibruarea*.

**ANONACEAE**

**GONIOTHALAMUS** Hooker f. and Thomson

**GONIOTHALAMUS PUNCTICULIFOLIUS** sp. nov.

Frutex vel arbor parva, ramis tenuibus, glabris, leviter adpresse cupreo-pubescentibus; foliis chartaceis, anguste oblongis, 8 ad 12 cm longis, nitidis, glabris vel subtus ad costa leviter pubescentibus, acutis vel leviter acuminatis, basi acutis, subtus minutissime rubro-puncticulatis, nervis utrinque circiter 10, tenuibus, reticulis laxis, obscuris; floribus axillaris, solitariis, circiter 2 cm longis; sepalis late ovatis, 6 mm longis, leviter cupreo-pubescentibus; petalis valde incrassatis, utrinque pubescentibus, exterioribus 2 cm longis, oblongo-ovatis ad oblongo-lanceolatis, acutis, interioribus conniventibus, oblongo-ovatis, 1.5 cm longis, acutis; carpellis circiter 12, pubescentibus, stylis glabris, quam carpellis duplo longioribus; ovulis paucis.

A subglabrous shrub or small tree, the branches terete, slender, rugose, dark-colored when dry, the very young branchlets and buds sparingly appressed-pubescent with cupreous hairs. Leaves chartaceous, narrowly oblong, 8 to 12 cm long, 2 to 3 cm wide, the upper surface pale-olivaceous, strongly shining, smooth, the lower surface somewhat paler, minutely reddish-puncticulate, glabrous on both surfaces or the midrib beneath sparingly appressed-pubescent, the apex acute to slightly acuminate, the base acute; lateral nerves slender, about 10 on each side of the midrib, not prominent, arched-anastomosing, the reticulations lax, indistinct; petioles about 5 mm long, the younger ones sparingly cupreous-pubescent, in age glabrous. Flowers axillary, solitary, about 2 cm long, yellow, slightly fragrant, their pedicels 1 cm long or less, appressed cupreous-pubescent, subtended by 2 or 3 ovate, obtuse, pubescent, 2-mm long bracts. Sepals broadly ovate, acute to obtuse, about 6 mm long, reticulate in transmitted light, sparingly cupreous-
pubescent. Outer three petals oblong-ovate to oblong-lanceolate, very thick, pubescent on both surfaces, the indumentum soft, cinereous to ferruginous, rather dense on the inner surface, about 2 cm long, 7 to 10 mm wide, narrowed upward to the acute apex; inner three petals connivent, forming a cone surrounding the stamens, oblong-ovate, acute, thickened, pubescent, about 1.5 cm long and 9 mm wide. Stamens indefinite, 2 mm long, truncate. Carpels about 12, oblong-ovoid, 2 mm long, appressed-pubescent, narrowed upward; styles glabrous, twice as long as the carpels; ovules few.

Mindoro, Paluan, Bur. Sci. 39660 (type), 39519, 39676 Ramos, April, 1921. In dry forests at low altitudes.

A species in vegetative characters somewhat resembling Goniothalamus amuyon (Blanco) Merr., but differing radically in its floral characters. It is well characterized by its minutely puncticulate leaves and its elongated styles.

LAURACEAE

CRYPTOCARYA R. Brown

CRYPTOCARYA EDANOIL sp. nov.

Arbor, ramulis et inflorescentiis et subtus foliis ad costa nervisque dense ferrugineo-villosis; foliis coriaceis, ovatis ad sub-ellipticis, usque ad 17 cm longis et 12 cm latis, supra, costa excepta, glabris, subolivaceis, minutissime et obscure foveolatis, subtus glaucescentibus, basi plerumque latissime rotundatis, apice abrupte et brevissime apiculato-acuminatis; nervis et reticulis primariis supra impressis, subtus valde perspicuis, nervis utrinque circiter 10; paniculis usque ad 15 cm longis, ramis ramulisque crassis, densissime ferrugineo-villosis, fructibus junioribus oblongo-ellipsoideis, 12 mm longis, nigris, leviter ferrugineo-pubescentibus.

A tree, the branchlets and inflorescences very densely ferruginous-villous, the leaves ferruginous-villous beneath on the midrib, nerves, and reticulations. Ultimate branches up to 7 mm in diameter, pubescent. Leaves coriaceous, the normal ones ovate, those on the younger branchlets subelliptic, 13 to 17 cm long, 7 to 12 cm wide, the upper surface subolivaceous, somewhat shining, glabrous except for the pubescent midrib, minutely and shallowly foveolate, the midrib, nerves, and primary reticulations impressed, the lower surface somewhat glaucous, the midrib, nerves, and reticulations pale brownish, the base usually broadly rounded, the apex abruptly and shortly apiculate-acuminate;
lateral nerves about 10 on each side of the midrib, somewhat curved-anastomosing at the very margin, very prominent on the lower surface as are the reticulations; petioles densely pubescent, about 1 cm long. Panicles terminal, about 15 cm long and with smaller ones in the uppermost axils, all parts densely ferruginous-villous, the branches and branchlets few, thickened, the ultimate branchlets 2 to 3 mm in diameter. Immature fruits oblong-ellipsoid, black when dry, about 12 mm long, obscurely longitudinally sulcate, more or less ferruginous-villous, the indumentum apparently deciduous.


CRYPTOCARYA CAGAYANENSIS sp. nov.

Arbor glabra (floribus ignotis); foliis oblongis, coriaceis, 20 ad 25 cm longis, supra olivaceis vel atro-olivaceis, nitidis, subtus glaucescentibus, nervis utrinque circiter 15, perspicuis, reticulis primariis subparallelis; paniculis terminalibus, sub fructu 10 ad 14 cm longis, fructibus ovoideis, 3 cm longis, supra angustatis, obtusis, in siccitate nigros.

A glabrous tree (flowers unknown), the ultimate branches about 4 mm in diameter, brownish or grayish, somewhat rugose and sulcate when dry. Leaves oblong, thickly coriaceous, 20 to 25 cm long, 5.5 to 8 cm wide, the apex shortly and obtusely acuminate, the base broadly acute, the upper surface dark-olivaceous, somewhat shining, smooth, the lower surface more or less glaucous, glabrous, not at all foveolate; lateral nerves about 15 on each side of the midrib, nearly straight, prominent on the lower surface, ascending at an angle of nearly 45°, anastomosing close to the margin, the primary reticulations slender, subparallel; petioles about 2 cm long. Fruiting panicles terminal, 10 to 14 cm long, the branches few, stout, glabrous. Fruits ovoid, narrowed upward to the blunt apex, about 3 cm long, 1.5 to 1.8 cm in diameter, dark brown or nearly black when dry, glabrous, obscurely longitudinally ridged or nearly smooth.


A species strongly characterized by its thickly coriaceous, oblong leaves, which are somewhat glaucous beneath, and especially by its unusually large, ovoid fruits, which are about 3 cm in length, rather abruptly narrowed at the base and gradually narrowed upward to the obtuse apex.
The Philippine Journal of Science 1922

LITSEA Lamarck

LITSEA ODORIFERA Valeton in Ic. Bogor. 3 (1909) t. 276.

PALAWAN, Puguiauan, For. Bur. 27884 Cenabre, Baldemor, & Adwiso, February 5, 1920. On forested ridges, altitude 150 meters, with the Tagbanua name magtagbak. Sumatra, Java (introduced), Borneo.

ROSACEAE

RUBUS Linnaeus

RUBUS PERFULVUS sp. nov. § Malachobatus, Moluccani, Rugosi.

Species R. rolfei affinis differt foliis minoribus, haud lobatis, basi truncatis, haud cordatis, subtus vix foveolatis.

A scandent shrub, the branches glabrous, reddish-brown, aculeate, the aculeae 1 mm long or less, slightly curved, the branchlets densely fulvous-tomentose. Leaves coriaceous, ovate, 6 to 9 cm long, 4 to 7 cm wide, shortly acuminate, base broadly truncate, irregularly toothed, not lobed, the upper surface dark olivaceous brown, glabrous, or when young more or less ciliate-pilose, shining, somewhat rugose, the lower surface very densely fulvous-tomentose, the indumentum obscuring all but the primary reticulations, the midrib and nerves with scattered small spines hidden in the indumentum, base 3-nerved, the primary lateral nerves above the basal pair usually 4 on each side of the midrib, prominent; petioles about 1 cm long, densely fulvous-tomentose and retrorsely aculeate, the aculeae hidden in the indumentum; stipules free, narrowly oblong, entire, deciduous, about 1.5 cm long, 3 mm wide, outside densely tomentose, inside glabrous. Inflorescences terminal, about 5-flowered, the flowers somewhat crowded, large, about 5 in each raceme, often solitary flowers also in the upper axils, the pedicels densely tomentose, 1 cm long or less. Calyx about 13 mm long, the lobes lanceolate, acuminate, densely fulvous-tomentose. Achenes about 3 mm long, somewhat rugose, glabrous, strongly ventricose-curved, the styles about 5 mm long. Fruit red when mature.


A very distinct species, among the hitherto described forms most closely allied to Rubus rolfei Vid. but very different from that species in its vegetative characters.
RUBUS HETEROSEPALUS sp. nov. § Malachobatus, Moluccani.

Frutex scandens, ramis et ramulis et subtus foliis densissime subfulvo-tomentosis aculeatisque; foliis suborbicularibus, cordiacis, 5-lobatis, 12 ad 15 cm longis, basi cordatis, apice acutis vel leviter acuminatis, supra rugosis, olivaceis, petiolo 3.5 ad 5 cm longo; stipulis deciduis, liberis, laciniatis: inflorescentiis terminalibus, paniculatis, 15 ad 20 cm longis; floribus con- fertis, magnis, calycibus 3.5 cm diametro; sepalis 2 lanceolatis, circiter 5 mm latis, acuminatis, integris, 3 obovatis, profunde laciniatis, 10 ad 14 mm latis: bracteolis obovatis, circiter 15 mm longis, usque ad ½ laciniatis, laciniae circiter 15, lineari-lanceolatae.

Scendent, woody, the branches, petioles, and lower surface of the leaves very densely and uniformly tomentose with brownish to fulvous hairs, the branches, branchlets, petioles, midribs, and primary nerves on the lower surface supplied with numerous, rather slender, slightly curved spines, 1.5 to 3 mm in length. Leaves simple, orbicular-ovate in outline, coriaceous, distinctly 5-lobed, the sinuses rather shallow, apex acute or slightly acuminate, base rather deeply cordate, 12 to 15 cm long, 11 to 13 cm wide, the upper surface olivaceous, rugose, the midrib and primary nerves rather densely hirsute, the surface with scattered, similar, indumentum; petioles 3.5 to 5 cm long; stip- ules deciduous, densely pubescent, free, 10 to 14 mm long, lacinate. Inflorescences terminal, 15 to 20 cm long, paniculate, the lower branches about 7 cm long, all parts densely pubescent, the rachis and branches aculeate. Flowers numerous, crowded, the subtending bracteoles obovate, about 15 mm long and wide, divided nearly to the midrib into about 15 linear-lanceolate laciniae. Calyx when spread about 3.5 cm in diameter, the sepals all densely pubescent, two narrow, lanceolate, acuminate, entire, about 1.5 cm long, 5 mm wide below; three obovate, deeply lacinate, about 18 mm long, 10 to 14 mm wide. Petals not seen. Stamens numerous, about 5 mm long, gla- brous. Fruit red, the achenes numerous, inequilateral, obovoid, about 4 mm long; style about 5 mm long.

LUZON, Bontoc Subprovince, Mount Polis, Bur. Sci. 37609 Ramos & Edaño, February 25, 1920. In the mossy forest, altitude about 1,800 meters, with the local name tukong.

This was originally identified as Rubus rolfei Vid., but is remarkably distinct from that species and from all other described forms in its calyx characters. It resembles Vidal's
species, but is at once distinguished by its aculeate branches, petioles, and leaves, as well as by its rather larger paniculate inflorescences. The most striking character of the present species is found, however, in the sepals which are remarkably dissimilar, two being narrowly lanceolate and entire, the other three being obovate and deeply laciniate.

**LEGUMINOSAE**

**CASSIA** Linnaeus

**CASSIA MINDANAENSIS** sp. nov. § Chamaecrista, Leiocalyx, Subcoriaceae.

A tree about 5 m high, the young parts somewhat appressed-pubescent. Branches about 2 mm in diameter, brown, terete, slightly pubescent, ultimately glabrous. Leaves 7 to 10 cm long, the rachis slightly pubescent and with a single conspicuous gland halfway between the lower pair of leaflets and the base of the petiole; leaflets 20 to 28, subcoriaceous, inequilateral, sessile, subolivaceous, ultimately glabrous, the apex obtuse and minutely apiculate, the base rounded, the midrib situated in about the upper one-third of the leaf, the lateral nerves ascending, slender, about 6 on each side of the midrib; stipules linear-lanceolate, acuminate, 3 mm long. Flowers yellow, about 2 cm in diameter, in few-flowered, supra-axillary fascicles or the lower inflorescences racemose, the rachis produced about 5 mm, the inflorescences usually in pairs; bracts about 2 mm long, abruptly linear-lanceolate, and acuminate from a broad base; bracteoles 2, near the apex of the pedicels, linear-lanceolate, acuminate, 2 to 2.5 mm long. Sepals lanceolate to elliptic-lanceolate, sparingly appressed-pubescent, acutely acuminate, about 8 mm long. Petals obovate, 10 mm long, 7 to 8 mm wide, rounded, base cuneate, glabrous. Anthers 4 to 5 mm long, their filaments 1 mm long or less. Ovary and style about 10 mm long, the former appressed-pubescent, about 5-ovulate. Pods thin, narrowly oblong, oblique at both base and apex, slightly
acuminate, sparingly pubescent, obscurely reticulate, about 3 cm long, 6-mm wide, usually with 3 or 4 seeds.


This species rather strongly resembles Cassia polyadenia DC. of tropical America and is manifestly allied to it, although differing in numerous details.

MUCUNA Adanson

MUCUNA FOVEOLATA sp. nov. § Zoonthalmum, Citta.

Frutex scandens, partibus junioribus plus minusve adpressae cinereo-pubescentibus, ramulis tenuibus; foliolis membranaceis, ovatis, acuminiatis, olivaceis, nitidis, 10 ad 15 cm longis, subtus parce pubescentibus, stipellis linearis, usque ad 3 cm longis, 6 ad 8 cm latis, 15 cm crassis, apice abrupte et tenuiter acuminati, profunde foveolatis, foveolis numerosis, rotundatis ad oblongis, 0.5 ad 1.5 cm longis, haud oblique dispositis.

A more or less woody vine, the branches terete, glabrous, reddish-brown or brown when dry, the branchlets slender, nearly black when dry, sparingly pubescent with appressed-cinereous hairs. Petioles 6 to 10 cm long, slightly cinereous-pubescent; stipules narrowly lanceolate, about 3 mm long; leaflets membranaceous, ovate, dark olivaceous when dry, somewhat shining, 10 to 15 cm long, 6 to 8 cm wide, slenderly acuminate, slightly pubescent on the upper surface, ultimately glabrous, the lower surface sparingly pubescent, the terminal one equilateral and subacute at the base, the lateral ones inequilateral, rounded to subacute; stipels linear, up to 5 mm long. Flowers unknown. Peduncles of the infructescences pendulous, up to 80 cm long, glabrous or nearly so. Persistent calyces cinereous-pubescent with long, scattered, appressed, rigid, brown hairs, the tube about 12 mm long, the lobes lanceolate, acuminate, up to 1 cm long. Pods oblong, flattened, 20 to 24 cm long, 5 to 6 cm wide, about 1.5 cm thick, the base subacute, the apex abruptly and slenderly acuminate, the acumen about 1.5 cm long, when young more or less ferruginous-hirsute, at full maturity nearly glabrous, both surfaces irregularly and deeply foveolate throughout, the foveolae rounded to
oblong, 0.5 to 1.5 cm long, up to 1 cm deep. Seeds about 6, flattened, nearly black when dry, orbicular, about 22 mm in diameter.


A remarkably distinct species characterized by its very long-peduncled infructescences and its elongated pods which are not transversely plicate, but very deeply and irregularly foveolate; the central foveolae are mostly rounded or angular in outline, the marginal ones more or less elongated transversely. The species is manifestly allied to Mucuna nigricans DC., but is at once distinguishable by its fruit characters.

MUCUNA SAMARENSIS sp. nov.

Frutex scandens, partibus junioribus plus minusve cinereo-hirsutis, inflorescentiis cinereo-pubescentibus et pilis ferrugineis urentibus instructis; foliolis glabris, membranaceis, 11 ad 13 cm longis, oblongo-ovatis ad oblongo-lanceolatis, tenuiter obtuse acuminatis, stipellis linearis, 3 mm longis; inflorescentiis usque ad 40 cm longis, pedunculo 15 cm longo, ramis paucis, usque ad 22 cm longis; floribus atro-purpureis, 6.5 cm longis, pedicellis usque ad 3 cm longis, bracteis oblongo-ellipticis, membranaceis, acuminatis, cinereo-pubescentibus, 3 cm longis et 12 mm latis, bracteolis minoribus, 2.5 cm longis, 8 mm latis, deciduis; calycis late cupulatis, cinereo-pubescentibus, pilis urentibus instructis; petalis glabris; ovario oblongo, 10 mm longo, dense hirsuto.

A more or less woody vine, the younger parts more or less hirsute with appressed-cinereous hairs, the inflorescences cinereous-pubescent and supplied with scattered, stiff, brown, stinging hairs, the branchlets nearly black when dry, about 2 mm in diameter. Petioles 6 to 8 cm long; stipules narrowly lanceolate, about 3 mm long. Leaflets membranaceous, oblong-ovate to oblong-lanceolate, olivaceous, shining, glabrous, 11 to 13 cm long, 4.5 to 6 cm wide, rather slenderly but obtusely acuminate, the terminal ones equilateral, obtuse at the base, the lateral ones distinctly inequilateral and rounded; stipels linear, 3 mm long. Inflorescences up to 40 cm long, the peduncles about 15 cm long, the branches few, 20 to 22 cm long. Flowers purplish-black when dry, about 6.5 cm long, the pedicels
in anthesis about 3 cm long, the buds subsessile or shortly pedicelled. Each flower is subtended by an oblong-elliptic, membranaceous, cinerous-pubescent bract which is supplied also with few, scattered, stinging, brown hairs, and is about 3 cm long and 12 mm wide, and by two similar but smaller bracteoles about 2.5 cm long and 8 mm wide, the bracts and bracteoles deciduous. Calyx broadly cup-shaped, cinerous-pubescent with numerous, brown, stinging hairs, the tube about 1 cm long, the upper lobe broadly ovate, obtuse, 4 to 5 mm long, the lower lip 3-lobed, the lobes narrowly lanceolate, acuminate, the two lateral ones 5 to 7 mm long, the middle one up to 1 cm in length. Standard oblong-ovate, obtuse, 4 cm long, 2 cm wide, glabrous; wings oblong, obtuse, 7 cm long, 1.5 cm wide, shortly clawed, the basal auricle oblong, obtuse, 2.5 mm long, somewhat pubescent near the base; keel equaling the wings, 1 cm wide (folded), slightly curved above, acute. Stamens glabrous, all parts free; filaments about 10 mm long. Ovary oblong, 10 mm long, densely hirsute with long hairs; style appressed-hirsute.


This species belongs in the section Zoopthalmum and probably in the subsection Citta, although fruiting material is necessary to verify this. Striking characters are its membranaceous, glabrous leaflets; its short-peduncled infructescences; its membranaceous, conspicuous, deciduous bracts and bracteoles; and its purplish-black flowers.

**RUTACEAE**

**EVODIA** Forster

**EVODIA CONFUSA** sp. nov.


Arbor 5 ad 10 m alta, inflorescentiiis exceptis glabra; ramulis incrassatis; foliis 3-foliolatis, foliolis oblongo-ellipticis ad obovatis, coriaceis vel subcoriaceis, nitidis, 15 ad 25 cm longis, breviter acuminatis, basi acutis, subtus punctatis, nervis utrinque 12 ad 15, perspicuis; cymis axillaribus, 10 ad 15 cm longis, usque ad 15 cm latis, pedunculatis, multifloris; floribus albidis; fructibus circiter 1 cm diametro, 4-coccis, coccis subovoideis, leviter compressis.
A tree, 5 to 10 m high, glabrous or nearly so except the cinereous-pubescent inflorescences. Branches usually grayish, the branchlets stout, more or less compressed. Leaves 3-foliate, their petioles 5 to 10 cm long; leaflets coriaceous or subcoriaceous, in general oblong-elliptic to obovate, 15 to 25 cm long, 6 to 12 cm wide, apex somewhat acuminate, base acute, shining, lower surface punctate, both surfaces usually greenish-olivaceous when dry; lateral nerves 12 to 15 on each side of the midrib, prominent; petiolules 0.5 to 1.5 cm long.

Inflorescences axillary, peduncled, many-flowered, more or less cinereous-pubescent, 10 to 15 cm long, up to 15 cm wide, the peduncles 3 to 9 cm long. Flowers white, their pedicels 2 to 3 mm long, slightly pubescent. Sepals 4, oblong to obovate, obtuse, somewhat pubescent, about 1 mm long. Petals elliptic, glabrous, 2.5 mm long. Stamens 4; filaments 3 mm long. Fruits about 1 cm in diameter, of 4 subovoid, somewhat compressed cocci.

This species, long confused with *Evodia glabra* Blume, chiefly on account of the erroneous identification of *Cuming 1745* with Blume’s species, is found from northern Luzon to Mindanao, and apparently also in Celebes (Koorders 18758, erroneously identified as *Evodia minahassae* Teysm. & Binn.). It is represented by very numerous specimens, as follows:

Elmer 13519. Often common in forests at low and medium altitudes.

This species closely resembles material from the Malay Peninsula identified as *Evodia latifolia* DC. which I do not think can be referred to de Candolle's species which was based wholly on *Ampacus latifolia* Rumph. Herb. Amb. 2: 186, t. 61, a species with membranaceous pubescent leaves and in all probability identified with Miquel's conception of the species as redescribed by him from Halmahera specimens.² *Evodia glabra* Blume is remote from the present species and is identical with *E. aromatica* Blume, which in turn is scarcely distinct from *E. lunur-ankenda* (Gaertn.) Merr.

**MELIACEAE**

**AGLAIA Loureiro**

**AGLAIA CUPREO-LEPIDOTA** sp. nov. § *Euaglaia*.

_Arbor parva, partibus junioribus dense cupreous-lepidotis, ramis glabris, lenticellatis, teretibus, ramulis ultimis 2 mm diametro; foliis 12 ad 17 cm longis, 5-foliolatis, alternis, foliolis chartaceis ad subcoriaceis, elliptico-ovatis, 5 ad 8 cm longis, breviter obtuse acuminatis, basi acuminatis vel acutis, supra glabris, pallide olivaceis, utrinque puncticulatis, subtus parcellissime cupreolepidotis, petiolo subaequantibus; floribus racemose dispositis, 5-meris, calycis dense cupreolepidotis, lobis late ovatis, rotundatis, 1 mm diametro; petalis liberis, glabris, 2 mm longis; tubo glabro, cupulato, truncate, 1.2 mm diametro; antheris 5, inclusis._

A small tree, the younger parts densely cupreous-lepidote, the branches terete, glabrous, pale-brownish, somewhat lenticellate, the ultimate branchlets about 2 mm in diameter. Leaves pinnate, 12 to 17 cm long, 5-foliolate, the petioles and rachis lepidote; leaflets opposite, chartaceous to subcoriaceous, elliptico-ovate, pale-olivaceous and shining when dry, 5 to 8 cm long, 2.5 to 3.5 cm wide, the apex rather abruptly and obtusely acuminate, the base acuminato or acute, the upper surface smooth, glabrous, both surfaces minutely puncticulate, the lower surface sparingly cupreous-lepidote especially near the midrib and nerves, ultimately glabrous; lateral nerves about 7 on each side of the midrib, slender; petiolules lepidote, 5 to 10 mm long. Panicles axillary, solitary, about 4 cm long, branched from near

² Ann. Mus. Bot. Lugd.-Bat. 3 (1867) 244.
the base, the lower branches up to 3 cm in length, spreading, all parts densely cupreous-lepidote. Flowers yellow, 5-merous, comparatively few, racemously arranged on the ultimate branchlets, the buds ovoid, the pedicels 1 to 1.5 mm long. Calyx densely lepidote, the lobes 5, broadly ovate, rounded, 1 mm in diameter. Petals glabrous, free, ovate to elliptic-ovate, 2 mm long. Staminal tube free, glabrous, cup-shaped, 1.2 mm in diameter, truncate, the anthers 5, inserted below the rim, included.

MINDORO, Paluan, Bur. Sci. 39579 (type), 39758 Ramos, April, 1921. In dry primary forests at low altitudes.

In its puncticulate leaves this species resembles Aglaia pyriformis Merr. and A. robinsonii Merr., but is not at all allied to these species. Its true alliance appears to be with Aglaia denticulata Turcz., from which it is at once distinguished by its short panicles which do not exceed the petioles in length.

**DICHAPETALACEAE**

**DICHAPETALUM Thouars**

**DICHAPETALUM EUPHLEBIUM** sp. nov.

Frutex scandens, ramis glabris, lenticellatis, ramulis adpresse pubescentibus; foliis membranaceis vel chartaceis, viridis, nitidis, oblongis ad oblongo-ellipticis, 9 ad 13 cm longis, acuminatis, nervis utr ineque 5 vel 6, subtus valde perspicuis; cymis axillaribus, brevibus, paucifloris, pedunculo 3 ad 5 mm longo; petalis oblongis, obtusis, 2 mm longis, integris; fructibus obovoideis, dense pubescentibus, apice leviter retusis.

A scendent shrub, the branches glabrous, lenticellate, the branchlets appressed-pubescent with short, dirty-brown hairs. Leaves membranaceous to chartaceous, oblong to oblong-elliptic, green when dry, somewhat shining, 9 to 13 cm long, 3 to 5 cm wide, the base acute to obtuse, the apex distinctly acuminate, the upper surface glabrous, the lower surface somewhat appressed-pubescent on the midrib and nerves, ultimately nearly glabrous; lateral nerves 5 or 6 on each side of the midrib, very prominent on the lower surface, curved-ascending, prominent, anastomosing, the reticulations lax, very distinct; petioles about 5 mm long, appressed-pubescent. Inflorescences axillary, solitary, cymose, few-flowered, the peduncles 3 to 5 mm long, appressed-pubescent, rather stout, the pedicels 1.5 to 2 mm long; bracteoles narrowly oblong to linear-oblong, up to 2 mm long. Sepals oblong to oblong-elliptic, obtuse, 2 mm long, pubescent. Petals glabrous, oblong, obtuse, not cleft at the apex, 2
mm long. Filaments 2 mm long, glabrous, base thick, attenuate upward. Immature fruits densely pubescent, obovoid, the apex somewhat retuse, about 8 mm long, normally 2-celled.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, Bur. Sci. 37284 (type), 36702 Ramos & Edaño, October, 1919. In secondary forests at low altitudes.

A species closely allied to Dichapetalum holopetalum Merrill, from which it is distinguished especially by its glabrous, not ciliate branches, and otherwise by its scanty, very different indumentum, in the present species the nerves, branches, etc., being merely appressed-pubescent with short hairs, while in Dichapetalum holopetalum the hairs are elongated and spreading.

EUPHORBIACEAE

CROTON LANCILIMBUS sp. nov.

Frutex circiter 1 m altus, partibus junioribus plus minusve lepidotis; foliis numerosis, anguste lanceolatis, membranaceis, 10 ad 15 cm longis, 1 ad 1.5 cm latis, in siccate pallidis, basi plerumque cuneatis, apice tenuiter caudato-acuminatis, supra glabris, subtus minute stellato-lepidotis, nervis utrinque circiter 10, tenuibus, petiolo 3 ad 5 mm longo; infructescentiis tenuibus, circiter 4 cm longis, lepidotis, capsulis paucis, circiter 6 mm diametro, brunneo-lepidotis, stilis 3 mm longis, trifidis.

A shrub about 1 m high, the younger parts and the lower surface of the leaves more or less lepidote, branches terete, rather slender, glabrous, the branchlets rather densely lepidote with dark-brown, minute scales. Leaves narrowly lanceolate, membranaceous, 10 to 15 cm long, 1 to 1.5 cm wide, pale when dry, subequally narrowed to the cuneate or abruptly obtuse base and to the slenderly caudate-acuminate apex, the upper surface glabrous, shining, the lower surface supplied with scattered, minute, white, shining, stellate scales which are closely appressed to the surface; lateral nerves very slender, about 10 on each side of the midrib, distant, anastomosing; petioles 3 to 5 mm long, biglandular at the apex. Infructescences in the uppermost axils or terminal, simple, slender, about 4 cm long, lepidote, the capsules few, about 6 mm in diameter, brown-lepidote, the persistent styles about 3 mm long, trifid.

MINDANAO, Zamboanga District, Malangas, Bur. Sci. 36855 (type), 37078 Ramos & Edaño, October, 1919. Along the banks of rivers at low altitudes.
A species strongly characterized by its very narrow, slender, caudate-acuminate, thin leaves, which are supplied on the lower surface with rather numerous, scattered, white, shining, stellate scales which do not, however, form a continuous covering.

**TRIGONOSTEMON** Blume

**TRIGONOSTEMON ANGUSTIFOLIUS** sp. nov. § **Eutrigonostemon.**

Frutex dioicus, 1 ad 3 m altus, partibus junioribus plus minusve pubescentibus; folis lanceolatis, integris, chartaceis, 12 ad 20 cm longis, 2.5 ad 4 cm latis, utrinque subaequaliter angustatis, basi plerumque cuneatis, apice tenuiter acuminatis, nervis utrinque 9 ad 11, subtus perspicuus, petiolo 5 ad 15 mm longo; inflorescentiis 9 axillaribus, tenuibus, circiter 6 cm longis, spicatis vel subracemosis, bracteis lanceolatis, 8 ad 14 mm longis; floribus paucis, calycis eglandulos, lobis lanceolatis, acuminatis, 6 mm longis, petalis oblongis, glabris, atro-purpureis, 5 ad 6 mm longis; capsulis depresso-globosis, 12 mm diametro, leviter adpresse pubescentibus, sepalis accrescentibus, persistentibus, usque ad 12 mm longis et 6 mm latis.

A dioecious shrub, 1 to 3 m high, the younger parts more or less pubescent, branches terete, glabrous, grayish. Leaves lanceolate, entire, chartaceous, 12 to 20 cm long, 2.5 to 4 cm wide, subequally narrowed to the usually cuneate base and to the rather slenderly acuminate apex, the acumen blunt, the upper surface dark olivaceous, slightly shining, glabrous, smooth, the lower surface usually brownish, sparingly pubescent along the midrib; lateral nerves 9 to 11 on each side of the midrib, prominent on the lower surface, distant, arched-anastomosing, the reticulations lax, often rather distinct; petioles somewhat pubescent, 5 to 15 mm long. Pistillate inflorescences axillary, slender, simple, up to 6 cm long, spicate or subracemose, pubescent, few-flowered, the bracts lanceolate, 8 to 14 mm long, 2.5 to 3 mm wide, slightly pubescent, sometimes more or less falcate. Sepals eglandular, lanceolate, acuminate, slightly pubescent, 6 mm long, 2.5 mm wide. Petals glabrous, dark purple, 5 to 6 mm long. Ovary glabrous; styles 3, cleft nearly to the base, the style-arms linear, acuminate, 1.5 mm long. Capsules depressed-globose, about 12 mm in diameter, brown, composed of 3 cocci, sparingly appressed-pubescent, the sepals accrescent in fruit and up to 12 mm long and 6 mm wide.

MINDANAO, Zamboanga District, Malangas, **Bur. Sci.** 36764.
Merrill: Noteworthy Philippine Plants, XVII 397

(type) 36560 Ramos & Edaño, October, 1919. On forested slopes at low altitudes, with the local name *pululi*.

A species well characterized by its narrow, lanceolate, rather slenderly acuminate leaves.

**CYCLOSTEMON** Blume

**CYCLOSTEMON BAWANII** sp. nov.

Arbor circiter 15 m alta, floribus et fructibus exceptis glabra; foliis oblongis, integris, coriaceis, nitidis, pallide olivaceis, 10 ad 14 cm longis, basi plus minusve decurrento-acuminatis, leviter inaequilateralibus, apice obtuse acuminatis, nervis utrinque circiter 8, tenuibus; floribus ♀ axillaribus, fasciculatis, pedicellatis, pedicellis 6 ad 8 mm longis; sepalis 4, obovatis, circiter 7 mm longis, exterioribus leviter, interioribus dense pubescentibus; staminibus circiter 15; fructibus ellipsoideis, brunneis, solitariis, leviter adpresse pubescentibus, 1.5 cm longis, obtusis, 2-locellatis, pericarpio fragile.

A tree about 15 m high, glabrous except the flowers and fruits, branches and branchlets pale brown or straw-colored when dry. Leaves oblong, entire, coriaceous, shining, pale olivaceous or somewhat brownish when dry, 10 to 14 cm long, 2.5 to 5 cm wide, narrowed below to the somewhat decurrent-acuminate and slightly inequilateral base, and above to the blunt-acuminate apex; lateral nerves about 8 on each side of the midrib, slender, slightly projecting on the lower surface, and somewhat curved, the reticulations rather distinct; petioles about 1 cm long. Staminate flowers axillary, fascicled, white, fragrant, their pedicels slightly pubescent, 6 to 8 mm long. Sepals 4, obovate, about 7 mm long, the two outer ones slightly pubescent, the two inner ones densely and uniformly pubescent with short, pale-brownish hairs. Stamens about 15, the filaments 2 to 2.5 mm long, glabrous. Anthers oblong-ovate, 2.2 mm long. Fruits solitary, ellipsoid, pale brown and slightly verrucose when dry, sparingly appressed-pubescent, about 1.5 cm long, 1 cm wide, obtuse, 2-celled, but often only one seed developing, the pericarp rather thin, brittle; pedicels about 5 mm long, slightly pubescent.


The alliance of this species seems to be with *Cyclostemon mindanaensis* Merr., from which it is distinguished by its smaller, differently shaped fruits.
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CYCLOSTEMON OLIGOPHLEBIUM sp. nov.

Arbor glabra; foliis chartaceis, oblonto-ovatis ad ellipticis, 8 ad 12 cm longis, integris, in siccitate pallide olivaceis, basi acutis ad rotundatis, equilateralibus vel leviter inaequilateralibus, apice tenuiter acuminati, nervis utrinque circiter 5, perspicuis; floribus ♂ axillaris, solitariis, breviter (2 mm) pedicellatis, sepalis late ovatis, rotundatis, 5 ad 6 mm longis, leviter pubescentibus, ovario pubescente; fructibus globosis, glabris, circiter 2.5 cm diametro, 2-locellatis, pericarpio fragile, seminibus 2, plano-convexis, ellipticis, 1.3 cm longis.

A glabrous tree, 8 to 12 m high, the branches and branchlets grayish, slender. Leaves chartaceous, oblong-ovate to elliptic, 8 to 12 cm long, 3.5 to 6 cm wide, pale olivaceous and slightly shining when dry, entire, the base acute to rounded, equilateral or slightly inequilateral, the apex rather slenderly acuminate; lateral nerves about 5 on each side of the midrib, slender, curved, anastomosing, distinct on the lower surface as are the lax reticulations; petioles 5 to 8 mm long. Pistillate flowers solitary, axillary, their pedicels about 2 mm long, glabrous. Sepals 4, broadly ovate, rounded, 5 to 6 mm long, slightly pubescent. Ovary globose, pubescent, 4 mm in diameter, the stigma broadly 2-lobed, the lobes reniform, about 2 mm wide. Fruits globose, glabrous, about 2.5 cm in diameter, 2-celled, 2-seeded, brown when dry, brittle. Seeds plano-convex, elliptic, about 1.3 cm long.


A species probably as closely allied to Cyclostemon microphyllus Merr. as any other described form, apparently well characterized by its few-nerved leaves.

HOMALANTHUS Jussieu

HOMALANTHUS CONCOLOR sp. nov. § Monosepali.

Frutex glaber; foliis orbiculares, obscure obtuseque acuminati, basi late rotundatis, peltatis, subtus perspicue biglandulosi, olivaceis, nitidis, utrinque concoloribus, 5 ad 7 cm longis; floribus ♂ numerosis, bracteis biglandulosi, unifloris, staminalibus circiter 30; fructibus circiter 5 mm diametro.

An entirely glabrous monoecious shrub, the branches and branchlets brownish olivaceous, smooth. Leaves peltate, orbicular-ovate, chartaceous, 5 to 7 cm long, shining, olivaceous and of the same color on both surfaces, apex broadly rounded,
the petioles 3 to 6 cm long, inserted 0.3 to 1 cm from the margin and with two conspicuous glands at the juncture with the lamina; lateral nerves 6 to 8 on each side of the midrib, conspicuous. Inflorescences up to 10 cm long. Staminate flowers numerous, about 1.5 mm in diameter, their pedicels up to 3 mm long, the bracts small, entire, 1-flowered, each with two conspicuous contiguous glands; sepal 1, orbicular-reniform, about 1 mm in diameter; stamens about 30, the anthers subsessile, minutely papillate. Fruits 8 to 10 at the base of the inflorescence, subglobose, about 5 mm in diameter, their pedicels about 4 mm long; styles very early deciduous, not seen.

MINDANAO, Bukidnon Subprovince, near Tankulan, Bur. Sci. 39166 Ramos & Edano, July, 1920, with the local name labagti. Habitat not recorded, altitude indicated as about 1,000 meters.

**ALCHORNEA** Swartz

**ALCHORNEA PUBESCENS** sp. nov. § Cladodes.

Species A. rugosae affinis, differt ramulis et infructescentiis et subtus foliis molliter subferrugineo-villosis, foliis caudato-acuminatis, nervis magis numerosis, utrinque circiter 15.

A shrub about 3 m high, the branchlets, inflorescences, and lower surface of the leaves softly subferruginous-villosus, the indumentum often dense. Leaves oblanceolate, 17 to 25 cm long, 3 to 6 cm wide, slenderly caudate-acuminate, the acumen often falcate, narrowed below to the abruptly auriculate-cordate base, the margins distantly glandular-toothed, the upper surface glabrous except for the slightly hirsute midrib, olivaceous, the base with 1 or 2 conspicuous glands and usually with 1 or 2 similar glands between each pair of nerves in the lower one-half to two-thirds; lateral nerves about 15 on each side of the midrib, prominent, curved, arched-anastomosing, the primary reticulations also prominent; petioles densely pubescent, about 5 mm long; stipules linear, pubescent, 7 to 10 mm long. Pistillate inflorescences terminal or subterminal, more or less pubescent, spiciform, 7 to 10 cm long, each flower subtended by a pair of conspicuous glands. Fruits depressed-globose, about 9 mm wide, pubescent, the style arms 3, slightly pubescent, about 5 mm long.


A species very similar and manifestly closely allied to Alchornea rugosa Muell.-Arg., from which it differs in its softly
villous branchlets and lower surface of the leaves and in its slenderly caudate-acuminate leaves which are more numerously nerved than in the latter species.

**CLEISTANTHUS** Hooker f.

**CLEISTANTHUS BARROSII** sp. nov. § *Ferruginosi.*

A tree about 8 m high, the branchlets, petioles, and midribs and nerves on the lower surface of the leaves rather densely ferruginous-pubescent. Branches terete, smooth, glabrous, 3 to 4 mm in diameter, grayish or brownish when dry. Leaves oblong-ovate to oblong-elliptic, 14 to 20 cm long, 5 to 8 cm wide, chartaceous, olivaceous, somewhat shining, distinctly acuminate, base acute, the upper surface entirely glabrous; lateral nerves about 8 on each side of the midrib, prominent, ascending, the reticulations distinct; petioles about 1 cm long. Fascicles axillary, densely ferruginous-pubescent, the bracts broadly ovate, slightly acuminate, about 3 mm long. Pistillate calyx appressed-pubescent, the tube about 1.4 mm long, the lobes oblong-lanceolate, somewhat acuminate, about as long as the tube. Petals obovate, 1 mm long or less. Fruits reddish-yellow when fresh, dark-brown when dry, distinctly stipitate, ellipsoid or obovoid, retuse, 8 to 10 mm long, the younger ones sparingly ferruginous-villous, in age glabrous or nearly so.


A species belonging in the section *Ferruginosi* and apparently most closely allied to *Cleistanthus rufescens* Jabl.

**CLEIDION** Blume

**CLEIDION RAMOSII** (Merr.) comb. nov.


*Malloitus samarensis* Merr. op. cit. 9 (1914) 488; Pax & Hoffm. op. cit. 68 (1919) 18.

Additional material shows that the two species described by me can scarcely be maintained as distinct, and further that the species belongs in Cleidion rather than in Mallotus, although the connectives are scarcely produced. The leaves are eglandular, the staminate inflorescences are simply spicate, while the capsules are glabrous, unarmed, and eglandular. The plant is monoecious, the pistillate inflorescences being racemose, few-flowered (sometimes only 1-flowered) and 4 to 12 cm long. The capsules are composed of 3, dehiscent, glabrous coci, and are about 8 mm in diameter. Seeds mottled.

ANACARDIACEAE

MANGIFERA Linnaeus

MANGIFERA PARVIFOLIA sp. nov.

Arbor, inflorescentiis exceptis glabra; foliis subcoriaceis, oblongo-ovatis, 5 ad 10 cm longis, utrinque subaequaliter angustatis, acuminatis, basi acutis, nervis utrinque circiter 10, distinctis, paniculis pubescentibus, 4 ad 9 cm longis; floribus 4-meris, sepalis glabris, 2.5 mm longis, petalis subellipticis, obtusis, 3.5 mm longis, deorsum perspicue 3-costatis, costae confluentibus, sursum tenuibus, evanescentibus; staminibus fertilibus 1, staminoides 3, minutis; fructibus junioribus ellipsoides, 2 cm longis, seminibus laevis. Species M. monandrae Merr. affinis.

A tree up to 20 m high, glabrous except the inflorescences. Leaves subcoriaceous, oblong-ovate, rather pale when dry, 5 to 10 cm long, 2 to 3 cm wide, subequally narrowed to the acute or somewhat decurrent base and to the distinctly acuminate apex; lateral nerves about 10 on each side of the midrib, slender, distinct, projecting on both surfaces, the reticulations rather distinct; petioles 1.5 to 2.5 cm long. Panicles terminal, pubescent, 4 to 9 cm long. Flowers white, 4-merous. Sepals oblong-ovate to oblong-lanceolate, obtuse, glabrous, about 2.5 mm long. Petals elliptic to oblong-elliptic, obtuse, 3.5 mm long, prominently 3-costate in the lower half, the costae confluent below, attenuate in the upper half and not reaching the margins and with two lateral, slender nerves which are not thickened into distinct ridges in the lower part. Disk thick, 4-lobed, wider than the
ovary. Ovary ovoid, inequilateral, glabrous. Fertile stamen 1, the filament 3 mm long; staminodes 3, very slender, 0.5 mm long or less. Immature fruits ellipsoid, 2 cm long, glabrous, the seed compressed and apparently smooth.

LUZON, Zambales Province, Masinloc, Merrill 2946, May, 1903, For. Bur. 27169 Maneja & Bawan (type), May, 1918. To this species I also refer For. Bur. 25497 Cruz from Lanao District, Mindanao, although this specimen differs from the type in its very slenderly acuminate leaves.

Among the Philippine species the present one is most closely allied to Mangifera monandra Merr., from which it is distinguished by its much smaller leaves, smaller flowers, and pubescent inflorescences. It belongs in the group with M. quadrifida Jack.

CELASTRACEAE

LOPHOPETALUM Wight

LOPHOPETALUM PAUCINERVUM sp. nov.

Arbor glabra, circiter 10 m alta; foliis coriaceis, oblongo-ellipticis, 10 ad 16 cm longis, integris, breviter obtuse acuminatis, basi rotundatis ad late acutis, in siccitate brunneo-olivaceis, subtus pallidioribus, nervis utrinque 5 vel 6, curvato-adscendentibus, perspicuis; paniculis axillaris terminalibusque, 12 ad 15 cm longis; floribus circiter 7 mm diametro, calycis 5-angulatis, lobis brevissimis, acutis, petalis ovatis, obtusis, 3 mm longis, longitudinaliter cristatis, junioribus apice leviter fimbriatis, vetustioribus integris.

An entirely glabrous tree about 10 m high, the branches and branchlets purplish-black when dry, somewhat rugose. Leaves coriaceous, oblong-elliptic, entire or the margins obscurely undulate, 10 to 16 cm long, 5 to 8 cm wide, the apex with a broad, short, obtuse acumen, the base rounded to broadly acute, the upper surface when dry brownish-olivaceous, the lower paler; lateral nerves 5 or 6 on each side of the midrib, curved-ascending, obscurely anastomosing, prominent on the lower surface, the reticulations slender; petioles 1 to 2 cm long. Panicles axillary and terminal, 12 to 15 cm long. Flowers white, about 7 mm in diameter, their pedicels up to 4 mm long, the bracteoles lanceolate, acuminate, about 0.6 mm long. Calyx about 4 mm in diameter, 5-angled, the lobes short, acute. Petals ovate, obtuse, 3 mm long, the younger ones slightly fimbriate at their apices, the older ones entire, longitudinally cristate on the inner face.
Filaments 2 mm long; anthers 1.2 mm in length. Disk 5-angled, filling the shallow calyx tube, about 4 mm in diameter.


The second species of the genus to be found in the Philippines, readily distinguishable from Lophopetalum toxicum Loher by its few-nerved leaves.

SABIACEAE

MELIOSMA Blume

MELIOSMA BONTOCENSIS sp. nov.

A shrub or small tree, glabrous except the inflorescences, the ultimate branches about 4 mm in diameter. Leaves simple, subelliptic, coriaceous, 5 to 10 cm long, 3.5 to 5 cm wide, brownish-olivaceous and more or less shining when dry, the lower surface paler than the upper, the midrib and nerves very dark brown in contrast to the paler surface, the apex obtuse to rounded or very shortly subapiculate, the base acute, the margins entire; lateral nerves about 8 on each side of the midrib, more or less impressed on the upper surface, very prominent on the lower surface, anastomosing, the reticulations distinct; petioles 1.2 to 2 cm long. Panicles 10 to 12 cm long, the younger parts ferruginous-pubescent, the older parts glabrous or nearly so, the primary branches 3 to 6 cm long. Flowers yellow when fresh, crowded, sessile. Sepals 5, brown, orbicular to orbicular-ovate, rounded, 1.8 mm in diameter, the margins somewhat ciliate, the calyx subtended by 2 or 3 bracteoles similar to the sepals but smaller in size. Outer three petals imbricate, glabrous, orbicular to obovate, concave, about 2.5 mm in diameter, the inner two oblong-obovate to spatulate, thin, entire, free, about 1.8 mm long. Filaments of the fertile stamens 1 mm long. Sterile stamens
suborbicular, bifid, 1 to 1.2 mm in diameter. Ovary oblong-ovoid, glabrous, about 1 mm long. Disk thin, truncate, 0.5 mm high.


A species closely allied to *Meliosma vulcanica* Merr. but with thicker leaves which are rounded to obtuse or merely apiculate, not acuminate at the apex, shorter petioles, and more conspicuous lateral nerves which are usually more or less impressed on the upper surface.

**SAPINDACEAE**

**GUIOA** Cavanilles

**GUIOA MINDORENSIS** sp. nov.

Frutex subglaber, ramulis junioribus leviter adpressae pubescentibus; foliis circiter 12 cm longis, rhachibus glabris, sursum angustae alatis vel carinatis, foliolis plerumque 7, oblongo-ellipticis ad oblongo-lanceolatis, subcoriaceis, 5 ad 7 cm longis, subtus parissime pubescentibus, apice obtuse acuminate, basi decurrente-acuminatis, plerumque inaequilateralibus, nervis utrinque circiter 6, subtus cum reticulis perspicuis; infructescentiis axillariis, paniculatis, circiter 6 cm longis; sepalis ovatis, 2 mm longis, margine ciliatis; fructibus late obovatis, retusis, glabris, 1 cm longis latisque.

A nearly glabrous shrub about 4 m high, the branches terete, dark-colored when dry, the very young branchlets obscurely appressed-pubescent. Leaves about 12 cm long, the petiole and rachis glabrous, the rachis in the upper part very narrowly winged or carinate; leaflets usually 7, oblong-elliptic to oblong-lanceolate, subcoriaceous, 5 to 7 cm long, 1.3 to 2 cm wide, the upper surface olivaceous, smooth, glabrous or slightly pubescent along the midrib, the lower surface paler, glabrous or with very few, widely scattered, short hairs, narrowed above to the obtusely acuminate apex and below to the usually inequilateral and decurrent-acuminat base; lateral nerves about 6 on each side of the midrib, prominent on the lower surface, arched-anastomosing, the primary reticulations distinct. Infuctescences axillary, paniculate, about 6 cm long, slightly pubescent. Sepals broadly ovate, rounded, 2 mm long, their margins somewhat ciliate. Fruits broadly obovate, equally 3-winged, the apex retuse and apiculate, about 1 cm long and usually slightly wider than long, glabrous, smooth, shining.

In aspect this species rather closely resembles a small-leafed form of *Guioa koelreuteria* (Blanco) Merr. (*G. perrottetii* Radlk.). Its distinguishing characters are its small leaflets and the narrowly winged or carinate upper portions of the leaf rachises. In the latter character it somewhat approaches *Guioa pleuropteris* Radlk., but is remote from that species in all other characters.

**Rhamnaceae**

**Rhamnus** Toumefort

**Rhamnus mollis** sp. nov.

Frutex scandens, molliter pubescens; foliis subcoriaceis, ellipticis, 10 ad 13 cm longis, breviter acuminatis, basi rotundatis, margine minute crenato-dentatis, nervis utrinque 6, perspicuus; infructescentiis paniculatis, circiter 12 cm longis, ramis racemose dispositis, 5 ad 10 cm longis; fructibus pedicellatis, obovoidis, glabris, circiter 8 mm longis, calycis persistentibus, truncatis, disciformibus, pubescentibus, 2 mm diametro.

A scandent shrub, the younger parts, leaves, and inflorescences softly subferruginous-pubescent, branches terete, about 3 mm in diameter. Leaves subcoriaceous, elliptic, 10 to 13 cm long, 6 to 7.5 cm wide, olivaceous, shortly acuminate, base usually rounded, the margins rather minutely crenate-dentate, the lower surface densely and softly pubescent with short hairs; lateral nerves 6 on each side of the midrib, prominent; petioles more or less pubescent, about 1.5 cm long. Fruits racemose arranged on leafless branches forming a paniculate infructescence about 12 cm long, this infructescence sometimes supplied with a few very greatly reduced leaves, the branches 5 to 10 cm long. Fruits solitary or in pairs, obovoid, glabrous, brown when dry, about 8 mm long, the persistent calyx disklike, truncate, pubescent, about 2 mm in diameter.

Luzon, Bontoc Subprovince, Mount Polis, Bur. Sci. 37689 Ramos & Edano, February 25, 1920. In the mossy forest, altitude about 1,600 meters.

Among the Philippine species the present one is manifestly allied to *Rhamnus philippinensis* C. B. Rob., from which it is at once distinguishable by its indumentum; among the extra-Philippine species it is apparently closest to *R. triqueter* Wall. of India.
LEE NITIDA sp. nov.

Arbor glabra, 5 ad 6 m alta, ramis lenticellatis; foliis pinnatis, circiter 30 cm longis, foliolis 5 ad 7, oblongo-ovatis ad late oblongo-lanceolatis, chartaceis, nitidis, in siccitate brunneo-olivaceis, 12 ad 18 cm longis, 4 ad 6 cm latis, caudato-acuminate, basi acutis, margine repando-dentatis vel undulato-denticulatis, eglandulosis, nervis utrinque circiter 8, distinctis; cymis 5 ad 6 cm longis, pedunculatis, paucifloris; floribus albis, 4-meris, breviter pedicellatis, calycis cupulatis, 4 ad 5 mm longis, basi cuneatis, lobis late ovatis, obtusis vel subacutis, usque ad 1.5 mm longis, corolla 6 mm longa, lobis patulis, 3 mm longis, intus ad apicem appendiculatissimis; fructibus obovoides, 1 ad 1.5 cm diametro, seminibus plerumque 4.

A glabrous tree 5 to 6 m high, the branches lenticellate, the ultimate branchlets rugose, 2.5 to 3 mm in diameter. Leaves pinnate, about 30 cm long, the leaflets 5 to 7, oblong-ovate to broadly oblong-lanceolate, chartaceous, shining, when dry brownish-olivaceous, eglandular, 12 to 18 cm long, 4 to 6 cm wide, rather slenderly caudate-acuminate, the base acute, the margins repand-dentate or undulate-denticulate; lateral nerves about 8 on each side of the midrib, distinct, as are the reticulations; petiolules 8 to 12 mm long. Cymes including the peduncles 5 to 6 cm long, about as wide as long, few-flowered, the flowers white, 4-merous, shortly pedicelled; calyx cup-shaped, 4 to 5 mm long, the base cuneate, the lobes broadly ovate, obtuse to subacute, about 1.5 mm long. Corolla 6 mm long, the lobes spreading, 3 mm long, appendiculate at the apex inside, the staminal tube exserted, about 2 mm, 8-toothed; anthers 2 mm long. Fruits obovoid, 1 to 1.5 cm in diameter, reddish. Seeds usually 4.


A species apparently belonging in the group with Lea philippinensis Merr., well characterized by its small, few-flowered, rather lax cymes and its chartaceous, shining leaflets.
SAURAUIA LONGIPEDICELLATA sp. nov.

Frutex glaber; foliis oblongo-lanceolatis, chartaceis ad subcoriaceis, 11 ad 20 cm longis, breviter acuminatis, deorsum sensim angustatis, basi cuneatis, margine minute dentatis, nervis utrinque circa 14, perspicuis; floribus paucis, longe pedicellatis, 1.8 cm diametro, fasciculatis, caulinis et axillaris, pedicellis usque ad 5 cm longi, sepalis exterioribus 3 ad 3.5 mm longis, interioribus majoribus; staminibus 20; stylis 3, circiter 4 mm longis, deorsum breviter connatis.

An entirely glabrous shrub, the ultimate branches brownish, smooth, about 5 mm in diameter. Leaves oblongo-lanceolate, chartaceous to subcoriaceous, 11 to 20 cm long, 4 to 5.5 cm wide, brown when dry, slightly shining, the apex rather abruptly and shortly acuminate, gradually narrowed below to the cuneate base, the margin except in the lower one-third to one-half rather finely dentate; lateral nerves about 14 on each side of the midrib, abruptly curved and then ascending. Flowers white, fascicled on the trunk and larger branches and also in the leaf axils, about 1.8 cm in diameter, their pedicels slender, up to 5 cm long, usually with a pair of small, lanceolate bracts at or near the middle from 1 to 3 mm in length. Outer 2 sepals elliptic-ovate, 3 to 3.5 mm long, the inner 3 thinner, orbicular-elliptic, 5 mm long, broadly rounded, all entirely glabrous. Corolla lobes 7 to 8 mm long, 5 mm wide, retuse. Stamens 20, their filaments 2 mm long, the anthers equaling the filaments. Styles 3, about 4 mm long, united for the lower 1 mm. Fruits ovoid, about 6 mm in diameter.


A species strongly characterized by being entirely glabrous throughout, as well as by its unusually long, slender pedicels. It apparently belongs in the general group with S. trunciflora Merr.

THEACEAE

PYRENARIA Blume

PYRENARIA MINDANAENSIS sp. nov.

Frutex circiter 3 m altus, partibus junioribus parce pubescentibus, ramis teretibus, glabris; foliis chartaceis vel sub-
coriaceis, oblongo-ovovatis, subolivaceis vel viridis, nitidis, utrinque glabris, 8 ad 15 cm longis, acuminatis, basi cuneatis, margine crenato-serratis, dentibus glanduloso-apiculatis, nervis utrinque circiter 12, subitus valde perspicuis, arcuato-anastomo-santibus, reticulis laxis, perspicuis; floribus axillaribus, solitariis, sessilibus, circiter 3 cm diametro; sepalis suborbicularis cum bracteolis persistentibus, 6 ad 7 mm longis; petalis 5, obovatis, circiter 1.8 cm longis, extus adpresse pubescentibus; filamentis numerosis, 8 ad 10 mm longis, glabris, deorsum (2 mm) connatis; fructibus ovoideis, 1.5 ad 2 cm longis, 2- vel 3-locellatis.

A shrub about 3 m high, the younger parts more or less appressed-pubescent, the older parts glabrous, branches terete, grayish or brownish, the young branchlets greenish when dry. Leaves chartaceous to subcoriaceous, oblong-ovovate, subolivaceous or greenish when dry, somewhat shining, glabrous on both surfaces or when young very slightly hirsute on the lower surface, 8 to 15 cm long, 2.5 to 5.5 cm wide, obtusely acuminate, the base cuneate, the margins crenate-serrate, the teeth glandular, apiculate; lateral nerves about 12 on each side of the midrib, very prominent on the lower surface as are the lax reticulations; petioles 5 to 8 mm long. Flowers axillary, solitary, sessile, about 3 cm in diameter. Sepals subcoriaceous, persistent, broadly ovate to reniform-ovate or orbicular, rounded, 6 to 7 mm long, externally densely appressed-pubescent, the subtending bracts numerous, imbricate, similar to the sepals but smaller. Petals 5, obovate, about 18 mm long, rounded, externally appressed-pubescent. Stamens indefinite, the filaments 8 to 10 mm long, glabrous, united for the lower 2 mm, the anthers broadly ovoid, about 1.2 mm long. Ovary ovoid, pubescent, 2 to 2.5 mm long; styles 5 to 6 mm long, glabrous, the 5 arms about 2 mm in length. Fruits ovoid, brown, ultimately glabrous, 1.5 to 2 cm long, usually 2- or 3-celled and with a single seed in each cell, the seeds smooth, slightly compressed, narrowed at both ends, about 1.5 cm long.


This is the first representative of the genus to be found in the Philippines. In vegetative characters it rather closely resembles Pyrenaria camelliaeflora Kurz, but is very different in its floral characters.
CALOPHYLLUM OBLIQUE-OBVIAEVM sp. nov. § Inophyllum.

Arbor glaberrima, 7 ad 12 m alta, ramulis plus minusve 4-angulatis; foliis coriaceis, oblongo-obovatis ad ob lanceolatis, nitidis, 5 ad 9 cm longis, obtusis ad breviter obtuse acuminitatis, basi cuneatis; nervis utrinque numerosis, obliquis, obscuris; inflorescentiis racemosis, foliis subaequantibus; floribus circiter 1.5 cm diametro, sepalis exterioribus orbiculari-obvatis, concavis, 3.5 ad 5 mm diametro, interioribus majoribus, ovatis ad obovatis; petalis 4, 7 ad 9 mm longis, ob lanceolatis ad anguste obovatis; fructibus globosis, apiculatis, circiter 1.5 cm diametro.

An entirely glabrous tree 7 to 12 m high, the branches terete, dark reddish-brown, the younger branchlets more or less 4-angled. Leaves coriaceous, oblong-obovate to ob lanceolate, shining, olivaceous or brownish olivaceous when dry, 5 to 9 cm long, 1.5 to 3.5 cm wide, narrowed upward to the obtuse or very shortly and obtusely acuminate apex and below to the cuneate base; lateral nerves very numerous, crowded, slender, sometimes scarcely distinguishable, ascending at an angle of about 45°; petioles 1 to 1.5 cm long. Inflorescences racemose, axillary, usually solitary, about as long as the leaves, the buds globose, the flowers white, fragrant, about 1.5 cm in diameter, their pedicels 5 to 12 mm in length. Outer 2 sepals orbicular-ovate, concave, rounded, 3.5 to 5 mm in diameter, the inner 2 ovate to obovate, rounded, 7 to 8 mm long. Petals 4, ob lanceolate to narrowly obovate, obtuse, 7 to 9 mm long, 2 to 5 mm wide. Stamina very numerous, their filaments 2.5 to 3.5 mm long. Ovary glabrous; style 4 to 5 mm long. Fruits globose, very shortly apiculate, about 1.5 cm in diameter.

A species well characterized by its simple, racemose inflorescences and its obliquely nerved leaves, the very slender and often obscure lateral nerves ascending at an angle of about 45° and giving the leaf surface a striated appearance; the individual nerves are scarcely distinguishable under a lens. The alliance of this species appears to be with Calophyllum buxifolium Vesque, but it has much larger leaves than the latter species.

**FLACOURTIACEAE**

**CASEARIA MINDANAENSIS** sp. nov.

Frutex vel arbor parva, subglabra; foliis magnis, oblongis ad oblongo-ellipticis, circiter 30 cm longis, subcoriaceis, acuminatis, basi subacutis ad obtusis, margine minute denticulatis vel deorsum integris, subtus ad costa nervisque leviter puberulis, vetustioribus glabris, nervis utrinque circiter 9, adscendentibus, subtus valde perspicuis, reticulis subconfertis, distinctis, petiolo incrassato, 8 ad 10 mm longo; floribus fasciculatis, ut videtur paucis, brevissime pedicellatis, sepalis 4 mm longis, obtusis, punctato-glandulosis, glabris; capsulis 1.5 ad 1.8 cm longis, 2-valvis, haud costatis, subellipsoidis, acutis vel brevissime apiculatis; seminibus 4 ad 4.5 mm longis, obtusis, inaequilaterralibus, arillo grosse fimbriato.

A shrub or small tree, the younger parts sparingly pubescent, ultimately glabrous, branches terete, grayish, about 5 mm in diameter, glabrous, distinctly lenticellate, the very young branchlets more or less pubescent. Leaves oblong to oblong-elliptic, about 30 cm long, 11 to 12 cm wide, the upper surface olivaceous, glabrous, the lower surface somewhat brownish and when young obscurely pubescent on the midrib and nerves, ultimately glabrous, the apex acuminate, the base subacute to obtuse, the margins minutely denticulate or entire in the lower part; lateral nerves about 9 on each side of the midrib, ascending, very prominent on the lower surface, the reticulations distinct, rather close; petioles thickened, 8 to 10 mm long. Flowers fascicled, apparently few, very shortly pedicelled, persistent sepals 4 mm long, obtuse, glandular-punctate, glabrous or nearly so. Capsules glabrous, reddish yellow when fresh, dark brown when dry, subellipsoid, acute or very shortly apiculate, not costate, 1.5 to 1.8 cm long, 2-valved; seeds 4 to 4.5 mm long, inequilateral, somewhat compressed, obtuse, the aril exceeding the seed in length and coarsely fimbriate.
MINDANAO, Zamboanga District, Mount Tubuan, *Burr. Sci.* 36567 Ramos & Edano, October, 1919. In forests along streams at an altitude of about 200 meters; locally known as *dalipa*.

A species well characterized among the Philippine forms by its unusually large leaves.

**THYMELAEACEAE**

**AQUILARIA** Lamarck

**AQUILARIA APICULATA** sp. nov.

Frutex subglaber, ramis teretibus, glabris, ramulis leviter pubescentibus; foliis chartaceis vel subcoriaceis, breviter petiolatis, oblongis, in siccitate brunneis, nitidis, 6 ad 11 cm longis, tenuiter acutus acuminatus, basi acutis, subtus leviter pubescentibus, nervis primariis utrinque circiter 16, tenuiter acuminatis, basi leviter pubescentibus, subellipsoides, pedunculatis, circiter 1.7 cm longis; 2-locellatis, perspicue apiculato-acuminatis, basi acutis.

A subglabrous shrub about 3 m high, the branches brown or reddish brown, glabrous, the branchlets more or less appressed-pubescent, slender. Leaves chartaceous to subcoriaceous, oblong, brownish when dry, shining, 6 to 11 cm long, 2.5 to 4 cm wide, the apex slenderly and sharply acuminate, the base acute, the upper surface glabrous, the lower paler, sparingly pubescent, lateral nerves about 16 on each side of the midrib, slender, distinct; petioles about 3 mm long. Flowers subumbellate or somewhat cymose, yellow, the peduncles up to 3 mm long, somewhat pubescent, the flowers few, mostly 3 to 5 on each peduncle, their pedicels slender, up to 7 mm long. Perianth about 5 mm long, somewhat widened upward and about 2.5 mm in diameter at the throat but scarcely campanulate, glabrous, the lobes 5, spreading or reflexed, very slightly pubescent, orbicular-ovate, rounded, 2 mm long. Anthers 10, 0.8 to 1 mm long, inserted immediately below and alternate with the orbicular, pubescent, 0.8 mm long scales, which are inserted at the apex of the perianth tube. Ovary obovoid, 2-celled, compressed, pubescent, shortly stipitate. Stigma about 1 mm in diameter. Capsules subellipsoid, red when fresh, dark brown when dry, distinctly peduncled, the peduncle at least as long as the persistent perianth tube, 2-celled, 2-valved, about 1.7 cm long, the base acute, the apex distinctly apiculate-acuminate. Seeds dark brown, smooth,
shining, about 8 mm long excluding the basal appendage which is conical in shape and about 3.5 mm long.


This species is probably most closely allied to *Aquilaria malaccensis* Lam. from which it is readily distinguished by its apiculate and retuse capsules and by characters of its inflorescences and flowers.

**MYRTACEAE**

**EUGENIA** Linnaeus

**EUGENIA MIRABILIS** sp. nov. § Jambosa.

Arbor parva, glabra, ramulis valde incrassatis, usque ad 2 cm diametro; foliis verticillatis, sessilibus, ob lanceolatis, coriaceis, usque ad 70 cm longis, deorsum valde angustatis, basi obtusis, nervis utrinque circiter 30, valde perspicuis; floribus caulinis, fasciculatis, sessilibus, 4-meris, calycis infundibuliformibus, circiter 1 cm longis, lobis orbiculari-reniformibus, circiter 8 mm diametro; filamentis usque ad 3.5 cm longis.

A glabrous shrub or small tree about 4 m high, the ultimate branches thick, somewhat angled, up to 2 cm in diameter. Leaves sessile, verticillate, in whorls of 4 or 5, oblong-ob lanceolate, coriaceous, 60 to 70 cm long, 10 to 12 cm wide, smooth, brownish or olivaceous on the upper surface when dry, the lower surface pale, apex acute or acuminate, gradually narrowed to the abruptly obtuse base, the basal portion of the leaves 2.5 to 3 cm wide, the midrib very prominent on the lower surface and usually about 5 mm in diameter; lateral nerves about 30 on each side of the midrib, rather distant, very prominent, anastomosing 5 to 10 mm from the margin with the equally prominent, somewhat arched marginal nerves, the reticulations rather lax, not prominent. Flowers white, sessile, in fascicles or 5 or 6 on small tubercles along the trunks, the buds oblong-ovoid. Calyx about 1 cm long, funnel-shaped, the throat about 1 cm in diameter, lobes orbicular-reniform, about 8 mm in diameter; filaments slender, up to 3.5 cm long.

Mindanao, Zamboanga District, Malangas, Bur. Sci. 36772 (type), 37238, 37347 Ramos & Edaño, October, 1919. In forests at low altitudes, locally known as culodlab and as gulodlab.

A remarkable species, at once distinguished by its greatly elongated, ob lanceolate, sessile, verticillate leaves and by its ses-
sile, fascicled flowers which are borne on small tubercles on the trunks.

**EUGENIA LANCILIMBA** sp. nov. § *Jambosa.*

Frutex erectus glaber, ramis ramulisque teretibus, ramulis sulcatis; foliis oppositis, lanceolatis, subcoriaceis, 14 ad 20 cm longis, 2 ad 3.5 cm latis, utrinque subaequaliter angustatis, basi cuneatis, apice acuminatis, subtus perspicue glanduloso-punctatis, nervis utrinque circiter 20, tenuibus; cymis solitariis vel fasciculatis, plerumque e axillis defoliatis, 4 ad 6 cm longis, breviter pedunculatis vel e basi ramosis, laxis, ramis plerumque 3-floris, floribus omnibus pedicellatis, calycis tubo circiter 1 cm longo, cuneato, lobis 4, petalis circiter 1 cm diametro, staminibus circiter 2 cm longis, fructibus junioribus urceolatis.

An erect glabrous shrub 2 to 3 m high, the branches and branchlets terete, the former pale gray, the latter reddish brown and 3 to 4 mm in diameter. Leaves lanceolate, opposite, subcoriaceous, olivaceous and scarcely shining when dry, 14 to 20 cm long, 2 to 3.5 cm wide, subequally narrowed to the cuneate base and to the somewhat acuminate apex, the lower surface slightly paler than the upper and it and also often the upper surface conspicuously glandular-punctate, the midrib strongly impressed on the upper surface, prominent on the lower surface; lateral nerves slender, about 20 on each side of the midrib, anastomosing with the equally slender marginal nerves 1 to 2 mm from the edge of the leaf; petioles reddish brown, 10 to 14 mm long. Cymes mostly from the axils of fallen leaves, solitary or fascicled, shortly peduncled, 4 to 6 cm long, few-flowered, the ultimate branches for the most part 3-flowered, the axis and branches distinctly glandular-punctate. Flowers 4-merous, white, their pedicels 7 to 10 mm long. Calyx tube about 1 cm long, terete, cuneate, the throat 5 to 7 mm in diameter, the lobes broadly rounded, persistent, and conspicuously glandular-punctate. Petals about 1 cm in diameter, very conspicuously glandular-punctate. Stamens numerous, about 2 mm long, white. Immature fruits distinctly urceolate.


A remarkably distinct species well characterized by its conspicuously glandular-punctate, elongated, lanceolate leaves, and
its lateral, rather lax, few-flowered cymes, the flowers being comparatively rather large in size.

**EUGENIA BESUKIENSIS** (Hassk.) Merr. in Journ. Str. Branch Roy. As. Soc. 77 (1917) 226.


The specimens exactly match our comprehensive series of specimens from Borneo and Bangka. New to the Philippines.

**ARALIACEAE**

**SCHIEFFLERA BUKIDNONENSIS** sp. nov. § *Heptapleurum*.

Frutex scandens, glaber, ramulis circiter 5 mm diametro; foliis 8-foliolatis, foliolis subcoriaceis, lanceolatis, integris, 6 ad 9 cm longis, olivaceis, nitidis, caudato-acuminatis, basi cuneatis, nervis utrinque 5 vel 6, tenuibus; inflorescentiis circiter 30 cm longis, ramis primariis numerosis, patulis, 9 ad 18 cm longis, floribus umbellatis, umbellis 6- ad 8-floris, in ramis primariis racemose dispositis; floribus 5-meris, pedicellatis; fructibus subellipsoideis, 4 ad 5 mm longis, 5-locellatis, leviter sulcatis.

A glabrous scandent shrub, the branches blackish brown when dry, about 5 mm in diameter, with few lenticels. Leaves 8-foliolate, their petioles about 10 cm long; rather slender; leaflets lanceolate, entire, subcoriaceous, olivaceous, shining, 6 to 9 cm long, 1.5 to 2.5 cm wide, subequally narrowed to the caudate-acuminate apex and to the cuneate base; lateral nerves 5 or 6 on each side of the midrib, slender; petiolules 1.5 to 2 cm long. Inflorescences terminal, about 30 cm long, the primary branches alternate along the greatly elongated rachis, spreading, the lower ones up to 18 cm long, the upper ones gradually shorter, the uppermost 7 to 9 cm long; umbels 6- to 8-flowered, racemously arranged on the primary branches, their peduncles 5 to 7 mm long, the pedicels 3 to 5 mm in length. Fruits sub-ellipsoid, 5-celled, 4 to 5 mm long, brown when dry, slightly sulcate, the filaments rather long-persistent, 2 to 3 mm long.

A species not closely allied to any previously known Philippine form, well characterized by its lanceolate, caudate-acuminated, long-petiolulate, comparatively small, entire leaves and by its ample inflorescences, the spreading primary branches being racemously arranged along the elongated axis.

**Schefflera Halconensis** sp. nov. § Heptapleurum.

A glabrous shrub, the branches terete, about 5 mm in diameter, lenticellate. Leaves 5-foliolate, their petioles 4 to 7 cm long, rather stout; leaflets oblong-elliptic, coriaceous, rigid, the upper surface dark olivaceous when dry, the lower surface much paler, slightly shining, 8 to 15 cm long, 4 to 6 cm wide, the apex slightly acuminate, base acute, margins entire; lateral nerves very slender, 13 to 15 on each side of the midrib, often scarcely visible, the reticulations obsolete; petiolules 3 to 8 mm long. Inflorescences shortly peduncled, usually bearing three primary elongated branches about 20 cm in length, these floriferous only in the upper one-half, the umbels racemously arranged, 5- to 7-flowered, the peduncles about 1 cm long, the pedicels 3 to 5 mm long. Fruits orange-red, broadly ovoid, 6-celled, about 5 mm long, slightly sulcate.

Mindoro, Mount Halcon, Merrill 5696, November, 1906. In damp primary forests at an altitude of about 900 meters.

A species well characterized by its brittle, obscurely nerved leaflets and its shortly peduncled inflorescences bearing usually three elongated primary branches which bear a few racemously disposed umbels in the upper part. The material was collected from an erect shrub about 1 m high; in age the plant doubtless becomes more or less scandent.

**Schefflera Cinnamomea** sp. nov. § Cephaloschefflera.

Arbor erecta (vel scandens?), inflorescentiis junioribus dense furfuraceis; foliis circiter 12-foliolatis, longissime petiolatis, petiolo glabro, circiter 70 cm longo, foliolis oblongis ad oblongo-
ellipticis, crasse coriaceis, 25 ad 30 cm longis, integris, breviter acuminatis, basi rotundatis, supra olivaceis, nitidis, subtus cinnamomeis, junioribus parce stellato-pubescentibus, vetustioribus glabris, nervis utrinque circiter 12, valde perspicuis, reticulis distinctis, petiolulis 6 ad 10 cm longis; inflorescentiis (vel ramis primariis) crassis, circiter 80 cm longis, furfuraceis, capitulus globovis, 1.5 ad 1.8 cm diametro, racemose dispositis; fructibus junioribus 5 mm longis, dense adpresse-hirsutis, 5-6-sulcatis, calycis limbo truncato, glabro, 3 mm diametro.

A tree or a coarse scandent vine, the younger parts of the inflorescences densely furfuraceous. Branches not seen. Petioles stout, dark reddish brown when dry, about 70 cm long and 1 cm in diameter, glabrous; leaflets about 13, oblong to oblong-elliptic, thickly coriaceous, 25 to 30 cm long, 10 to 12 cm wide, entire, the upper surface glabrous, shining, brownish olivaceous, the lower surface cinnamomeus and usually with scattered short stellate hairs, ultimately glabrous or nearly so, the apex shortly acuminate, base rounded; lateral nerves 10 to 12 on each side of the midrib, very prominent on the lower surface, the reticulations distinct; petiolules minutely furfuraceous, 6 to 10 cm long. Inflorescences (or primary branches of the inflorescences) stout, racemose, about 80 cm long, the upper parts densely furfuraceous, the indumentum pale brownish, the lower parts sparingly furfuraceous, ultimately nearly glabrous, each inflorescence or branch bearing about 30 racemosely arranged globose heads 1.5 to 1.8 cm in diameter, their peduncles furfuraceous, about 1 cm long or the uppermost ones shorter, each peduncle subtended by a deciduous bract, the persistent bracts on the lower part of the rachis oblong-ovate, thickly coriaceous, 2.5 to 3 cm long. Fruits densely crowded, about 5 mm long, 3 mm in diameter, 5- or 6-celled, more or less sulcate, narrow, pale, the tube densely appressed-hirsute, the projecting calyx rim truncate, glabrous; each fruit subtended by a single bract and two bracteoles, the former ovate, 5 mm long, the latter lanceolate, acuminate, glabrous, about 4 mm in length.


This species resembles Schefflera apoensis Elm., but is readily distinguished from it and from other more or less allied forms by its very densely hirsute calyx tube, the projecting calyx rim being glabrous but surrounded by a fringe of hairs projecting from the calyx tube.
ARTHROPHYLLUM CENABREI sp. nov.

Arbor glabra, circiter 10 m alta, ramulis ultimis circiter 5 mm diametro; foliis superioribus usque ad 10 cm longis, 3- ad 5-foliolatis, vel ultimis 1-foliolatis, foliolis plerumque ellipticis, 4.5 ad 6 cm longis, brevissime obtuse acuminatis, brunneo-olivaceis, nitidis, chartaceis vel subcoriaceis, nervis utrinque 3 vel 4, tenuibus; pedunculis circiter 4 cm longis, pedicellis 8 mm longis, fructibus ovoideis, 7 mm diametro.

A glabrous tree about 10 m high, the ultimate branches about 5 mm in diameter. Upper leaves pinnate, up to 10 cm long, the leaflets mostly 5, sometimes 3, or the uppermost leaves reduced to simple leaflets, the rachis and petiole about 4 cm long, the leaflets mostly elliptic, 4.5 to 6 cm long, 2.5 to 3.5 cm wide, chartaceous to subcoriaceous, very shortly and obtusely acuminated, base acute, brownish olivaceous and slightly shining when dry; lateral nerves slender, 3 or 4 on each side of the midrib; petiolules 5 to 10 mm long. Peduncles about 4 cm long, unumbellately arranged at the tips of the branchlets, usually, however, with solitary inflorescences in the axils of the uppermost leaves, thus forming a somewhat leafy inflorescence. Fruits 5 to 8 in each umbel, ovoid, about 7 mm in diameter, their pedicels 8 to 10 mm in length.

CEBU, Maraag, For. Bur. 28343 Cenabre & de la Cruz, March 12, 1921. On slopes at an altitude of about 600 meters. Local name bingleu.

A species well characterized by its small leaflets which are gradually reduced in number, at least on the uppermost branchlets. In general this species seems to be most closely allied to Arthrophyllum pulgarense Elm. but is at once distinguishable by its very few leaflets.

ALANGIACEAE

ALANGIUM PILOSUM sp. nov. § Marlea.

Arbor circiter 18 m alta, subtus foliis et ramulis inflorescentiisque dense molliter fulvo-pubescentibus; foliis inaequilateralibus, chartaceis, oblongo-ovatis vel oblongo-lanceolatis, valde subtenuiter acuminatis, usque ad 13 cm longis, penninerviis; cymis axillaribus, solitariis, circiter 5 cm longis; fructibus circiter 8 mm longis, ovoideis vel ovoideo-ellipticis, parce pubescentibus.

A tree about 18 m high. Branches terete, densely fulvous-pubescent as are the branchlets, inflorescences, and under sur-
faces of the leaves. Leaves entire, chartaceous, oblong-ovate to oblong-lanceolate, 8 to 13 cm long, 3 to 4.5 cm wide, inequilateral, the base rounded on one side, acute on the other, the apex slenderly acuminate, the acumen often somewhat falcate, the upper surface brown, somewhat pubescent on the midrib and nerves, ultimately nearly glabrous, the lower rather densely and softly pubescent with short fulvous hairs; nerves 6 or 7 on each side of the midrib, curved-ascending; petioles densely and softly fulvous-pubescent, 5 to 8 mm long. Inflorescences of axillary, peduncled, solitary, softly fulvous-pubescent cymes 4 mm wide or less, the peduncles about 2 cm long. Fruits about 8 mm long, ovoid or ovoid-ellipsoid, slightly pubescent, brown when dry, crowned by the more densely pubescent calyx rim.


**Var. SUBGLABRUM var. nov.**

A type differt foliis glabris vel subglabris.

Flowers white. Ovary pubescent, 1 mm long, the limb produced about 1 mm above the ovary, truncate or very obscurely toothed. Petals 6 or 8, pubescent, about 5 mm long, 1 mm wide, often connate in pairs, the flower then appearing as 3- or 4-merous. Stamens 6 or 8, 4 mm long. Style 4 mm long, the arms 2, 1 mm long, glabrous, linear.

**Negros, For. Bur. 23399 Contreras, July 14, 1914.** In rocky places on slopes, altitude about 300 meters.

This species is most closely allied to *Alangium vitiense* Harms as Wangerin has arranged the species. It is distinguished by its small flowers. Local names are *malabulau* (Tag.) and *pangagrauen* (Ilk.).

**ERICACEAE**

**DIMORPHANTHERA F. Mueller**

**DIMORPHANTHERA MINDANAENSIS sp. nov.**

Species D. apoanae Schltr. affinis differt floribus glabris.

A shrub, entirely glabrous except the bracts inclosing the inflorescences, the branches and branchlets rather stout, reddish brown when dry or sometimes nearly black. Leaves thickly coriaceous, ovate to elliptic, brownish when dry, 4 to 8 cm long, 2.5 to 4.5 cm wide, somewhat shining, the apex shortly acumin-
ate, the base acute to rounded and usually 5-nerved, sometimes with an additional pair of slender marginal nerves, the inner nerves leaving the midrib 4 to 8 mm above the base, the reticulations rather lax; petioles 4 to 8 mm long, rather stout. Flowers fascicled in the uppermost axils, the young buds entirely inclosed by numerous, imbricate, brown, sparingly pubescent, concave bracts forming a cylindric head about 1 cm in diameter, some of the bracts subpersistent, others deciduous. Pedicels up to 10 mm long. Calyx glabrous, about 3.5 mm long, shallowly 5-lobed, the lobes broadly ovate, short and abruptly acuminate. Corolla red, 8 to 10 mm long, glabrous, somewhat widened upward, the lobes ovate, about 3 mm long. Stamens 10, glabrous, dimorphous, the larger ones with filaments and anthers about 4 mm long, the shorter ones with filaments 3 mm long and anthers about 2 mm long. Styles 12 mm long, glabrous. Fruits unknown.


Both specimens were originally identified as Vaccinium apoanum Merr. = Dimorphanthera apoana Schltr. but, like that species, are true representatives of the genus Dimorphanthera, differing from the latter especially in the glabrous flowers. It is the second species of the genus to be found in the Philippines, Dimorphanthera being now known otherwise only from New Guinea and Amboina, with twenty-seven species in New Guinea and one in Amboina.

EPACRIDACEAE

STYPHELIA Smith

STYPHELIA PHILIPPINENSIS sp. nov.

Frutex vel suffrutex 0.5 ad 3 m altus, ramis ramulisque numerosis, valde rugosis, ramulis puberulis; foliis numerosis, confertis, rigidis, acute acuminatis, anguste lanceolatis, 7 ad 13 mm longis, 1 ad 2 mm latis, brevissime petiolatis, supra olivaceis, subtus glaucis; floribus terminalibus, bracteis bractiolaris late ovatis, subacutis, 2 mm longis; sepalis 5, ovatis, 3 mm longis, corollae lobis intus villosis; fructibus in siccitate rugosis, 3 ad 4 mm diametro, putamine 4-loculare.
A much-branched, rather rigid undershrub or shrub, 0.5 to 3 m high, the branches and branchlets rugose from the numerous conspicuous pulvini of fallen leaves. The ultimate branchlets somewhat puberulent. Leaves very numerous, crowded, imbricate, rigid, narrowly lanceolate, sharply acuminate, 7 to 13 mm long, 1 to 2 mm wide, the upper surface smooth, olivaceous, shining, the lower surface glaucous, longitudinally striate, the petiole about 0.5 mm long. Flowers terminal, few to many, crowded, the spikelike inflorescence up to 1 cm long and 5 mm in diameter. Flowers white, the bracts broadly ovate, acute or somewhat obtuse, concave, the margins slightly pubescent, about 2 mm long, the bracteoles similar. Sepals 5, ovate, about 3 mm long, acute, their margins slightly ciliate. Corolla tube rather slender, glabrous, about 2 mm long, the lobes 5, narrowly lanceolate, acuminate, as long as the tube, spreading, villous on the inside. Ovary subglobose, glabrous, the style about 1 mm long. Fruit globose, somewhat fleshy, white, pink or red when fresh, when dry rugose, 3 to 4 mm in diameter, the putamen hard, 4-celled, the cells 1-seeded.

LUZON, Benguet Subprovince, between Suyoc and Pauai, Merrill 4762, November 7, 1905, on exposed ridges, altitude about 2,200 meters, For. Bur. 1443 Darling, January, 1909. NEGROS, Canlaon Volcano, Merrill Philip. Pl. 243 (type), April, 1910, a shrub up to 3 m high in the mossy thickets on exposed ridges but here not common, abundant in open places on the old crater ascending to an altitude of about 2,000 meters, often flowering when less than 0.5 m high. MINDANAO, Davao Subprovince, Mount Apo, Copeland 1040, 1419, April and October, 1904, De Vore & Hoover 313, 379, May, 1903, Elmer 11389.

The specimens have been referred to the Bornean Styphelia suaveolens (Hook. f.) J. J. Sm., the identification having been based largely on published descriptions. The species is manifestly allied to the Bornean form but abundant material from Mount Kinabalu, the type locality of the latter species, shows that the Philippine form differs in a number of details, notably in its much longer, differently shaped, sharply acuminate leaves and shorter petioles, and I am now of the opinion that it should be considered specifically distinct. Doctor Copeland notes that on Mount Apo this, with Vaccinium villarii Vid.=V. myrtoides Miq., is the dominant shrub on the upper 200 meters of the mountain, ascending to the summit at an altitude of 2,820 meters.
MYRSINACEAE

Mez has recently proposed numerous new species of Myrsinaceae, but most of those based on Philippine material had previously been amply described. Of the twenty-four species described from Philippine material I unhesitatingly reduce the following eighteen. In a number of cases Mez's type specimen is of the same collection as the types of previously described forms. Additional study may show that *Ardisia macropus* Mez is not sufficiently distinct from *A. saligna* Mez, and that *Jubilaria radlkoferi* Mez is not distinct from *Embelia porteana* Mez. The following reductions must be made:

*Maesa grossedentata* Mez in Fedde Repert. 16 (1920) 309 = *M. laxa* Mez.  
*Maesa piscatorum* Mez l. c. = *M. gaudichaudii* A. DC.  
*Ardisia cincta* Mez op. cit. 312 = *A. marginata* Blume.  
*Ardisia negroënsis* Mez l. c. = *A. squamulosa* Presl.  
*Ardisia glauca* Mez op. cit. 412 = *A. geissanthoides* Mez l. c.!  
*Ardisia membranifolia* Mez op. cit. 415 = *Ardisia warburgiana* Mez.  
*Discocalyx crenulatus* Mez op. cit. 418 = *D. montana* Elm.  

MAESA Megalobotrya sp. nov.

Frutex scandens, inflorescentiis obscure puberulis exceptis glaber, ramis circiter 5 mm diametro, brunneis, lenticellatis; foliis ovatis, chartaceis, 14 ad 16 cm longis, acuminatis, basi late rotundatis, margine grosse crenatis; inflorescentiis terminalibus, paniculatis, circiter 50 cm longis, multifloris; floribus 5-meris, calycis lobis ovatis, integris, circiter 0.8 mm longis, haud lineatis, glabris, corolla 1.5 mm longa, lobis late orbiculari-ovatis, usque ad ½ connatis, rotundatis, haud lineatis; bracteolis ovatis, acutis vel acuminatis, 1 mm longis.

A scandent shrub, glabrous except the obscurely puberulent inflorescences. Branches about 5 mm in diameter, terete, dark brown, lenticellate. Leaves ovate, chartaceous, pale olivaceous when dry, somewhat shining, the lower surface brownish, 14 to 16 cm long, 8 to 9 cm wide, acuminate, the acumen minutely apiculate, base broadly rounded, margins coarsely crenate; lateral nerves 7 or 8 on each side of the midrib, rather prominent, the reticulations not distinct; petioles about 2 cm long. Panicles terminal, about 50 cm long, the lower branches 20 to 30 cm long, the lowermost ones subtended by reduced leaves, these from 4 to 8 cm in length. Flowers very numerous, racemously disposed on the ultimate branchlets, their pedicels about 1 mm long, in fruit up to 2 mm in length, the bracts ovate, 1.5 mm long, slenderly and conspicuously acuminate, slightly puberulent, the bracteoles broadly ovate, acute or acuminate, 1 mm long. Calyx lobes 5, ovate, acute, 0.8 mm long, not at all lineate, entire, glabrous, their margins not ciliate. Corolla about 1.5 mm long, the lobes broadly orbicular-ovate, rounded, extending about one-half to the base of the corolla, not lineate. Stamens inserted near the base of the corolla, the filaments less than 1 mm long. Immature fruits subellipsoid, about 2.5 mm long, not glandular.

Palawan, Taytay, Merrill 9176, April, 1913. In thickets at an altitude of about 10 meters.

A species well characterized by its unusually large terminal panicles. It is apparently closest to Maesa paniculata A. DC. and among the Philippine forms belongs in the group with Maesa cumingii A. DC., although remote from the latter species.

MAESA Undulata sp. nov.

Frutex scandens, inflorescentiis obscure puberulis exceptis glaber, ramis brunneis, lenticellatis; foliis ovatis, brunneis, distincte reticulatis, chartaceis, nitidis, 9 ad 13 cm longis, acuminatis, basi
rotundatis, margine leviter undulatis, cartilagineis; paniculis
axillaribus, 10 ad 20 cm longis; floribus 5-meris, calycis glabris,
lobis late ovatis, obtusis vel minute apiculatis, haud ciliatis, haud
lineatis, corollae lobis late elliptico-ovatis, rotundatis, 1.4 mm
longis, usque ad \( \frac{1}{2} \) connatis, obscure lineatis; bracteolis ovatis,
acuminatis, 0.8 mm longis.

A scandent shrub, glabrous except the inflorescences, which are
obscurely puberulent. Branches brown, 4 to 5 mm in diameter,
presso, the ultimate branchlets about 2 mm in diameter,
terete. Leaves ovate, chartaceous, 9 to 13 cm long, 5 to 7 cm
wide, the upper surface brownish olivaceous, shining, the lower
surface brown, the apex acuminate and slightly apiculate, the
base broadly rounded, margins shallowly undulate, the edge of
the leaf distinctly cartilaginous; lateral nerves 8 or 9 on each
side of the midrib, rather prominent on the lower surface, the
reticulations distinct, the ultimate ones plainly visible to the
naked eye. Panicles axillary, ample, rather many-flowered, 10
to 20 cm long, the primary branches slender, usually spreading,
up to 10 cm in length, the flowers racemously disposed on the
ultimate branches, white or nearly so. Flowers 5-merous, the
bracts oblong-ovate, acute or acuminate, about 1 mm long, the
bracteoles ovate, acuminate, 0.8 mm long, the pedicels 1 to 1.5
mm in length. Calyx glabrous, about 1.5 mm in diameter,
eglandular, the lobes broadly ovate, often minutely apiculate, not
lineate and not at all ciliate, entire. Corolla lobes broadly elliptic-
ovate, rounded, about 1.4 mm long, extending to or below the
middle of the corolla, obscurely lineate. Stamens inserted near
the base of the corolla lobes, their filaments slender, 0.6 mm
long.

LUZON, Tayabas Province, near Tagbilao, Bur. Sci. 26872
Edaño, March, 1917. In thickets or forests, apparently from
low altitudes.

This species is probably most closely allied to Maesa coriacea
Mez and among the Philippine species comes nearest to Maesa
megaphylla Merr. from which it is distinguished, among other
characters, by its undulate and distinctly reticulate leaves.

ARDISIA Swartz

ARDISIA CALAVITENSIS sp. nov. § Tinus.

Frutex glaberrimus, 1 m altus; foliis oblongis ad oblongo-
ovatis, integris, 9 ad 12 cm longis, subcoriaceis, olivaceis, nitidis,
obtusis vel breviter obtuseque acuminatis, basi cuneatis, utrinque
distincte reticulatis, vix punctatis, nervis primariis utrinque 12
ad 15, tenuibus; petiolo 1.5 ad 2 cm longo; inflorescentiis racemoso-umbellatis, 3 ad 5 cm longis; sepalis usque ad ¼ connatis, orbicularis, rotundatis, 4 mm diametro, glabris, eglandulosis, margine haud ciliatis; petalis ovatis, obtusis, 9 mm longis, eglandulosis; connectivo haud glandulosis.

An entirely glabrous shrub, about 1 m high, the branches and branchlets brownish or grayish. Leaves oblong to oblong-ovate, entire, 9 to 12 cm long, 3 to 5 cm wide, subcoriaceous, olivaceous, shining, the apex obtuse to shortly and obtusely acuminate, the base cuneate, both surfaces distinctly reticulate, scarcely punctate-glandular; primary lateral nerves 12 to 15 on each side of the midrib, slender but distinct on both surfaces; petioles 1.5 to 2 cm long. Inflorescences lateral, simply umbellate-racemose, 3 to 5 cm long, the flowers somewhat crowded near the apex of the peduncle, their pedicels stout, 10 to 12 mm long. Sepals united for about one-third, orbicular, rounded, about 4 mm in diameter, glabrous, their margins not at all ciliate, eglandular. Petals pink, ovate, obtuse, about 9 mm long, 6 mm wide, eglandular. Anthers oblong-lanceolate, acuminate, 6 to 7 mm long, the connective not at all glandular.

MINDORO, Paluan and Mount Calavite, Bur. Sci. 39435 (type) 39632 Ramos, April, 1921. In primary forests up to an altitude of 600 meters.

A species in the alliance with *Ardisia pirifolia* Mez, from which it is at once distinguished by its longer petioles, its eglandular petals, and the distinct and rather distant primary nerves, the reticulations being distinct on both surfaces.

**DISCOCALYX** Mez

**DISCOCALYX BRACHYBOTRYS** sp. nov.

Frutex glaber, ramulis circiter 4 mm diametro; foliis sessilibus vel subsessilibus, oblongo-ellipticis ad late oblanceolatis, 9 ad 16 cm longis, integris, chartaceis, pallide olivaceis, utrinque subaequaliter angustatis, acuminatis, basi obtusis, subtus perspicue glanduloso-punctatis, nervis utrinque circiter 15, distinctis; inflorescentiis racemosis vel depauperato-paniculatis, 1 ad 1.5 cm longis, in ramis circiter 1 cm longis extra-axillaribus dispositis, ramis cicatricibus perspicuis instructis; floribus 5-meris, calycis petalisque perspicue atro-glandulosis, calycis lobis acutis vel obtusis; petalis elliptico-obovatis, 3 mm longis.

A glabrous shrub about 1 m high, the ultimate branches terete, reddish brown, about 4 mm in diameter. Leaves sessile or subsessile, oblong-elliptic to broadly oblanceolate, 9 to 16 cm long,
2.5 to 6 cm wide, entire, chartaceous, pale olivaceous when dry, subequally narrowed to the somewhat acuminate apex and abruptly obtuse base; the lower surface conspicuously glandular-punctate, especially near the margins, the glands often nearly black; lateral nerves about 15 on each side of the midrib, slender, distinct as are the reticulations. Inflorescences very short, racemose or depauperate-paniculate, 1 to 1.5 cm long, one to several, from the tip of the short, specialized, extra-axillary, lateral branches, these specialized branches 1 cm long or less, about 2 mm in diameter, marked with numerous, conspicuous scars of fallen peduncles, the apical bracts lanceolate, acuminate, 3 to 4 mm long. Flowers 5-merous, their pedicels up to 2 mm long. Calyx and corolla very conspicuously black-glandular, the calyx lobes triangular-ovate, acute or obtuse, 0.8 mm long. Petals elliptic-obovate, obtuse, 3 mm long. Filaments and anthers each about 1 mm long. Ovary equaling the style in length, glandular.


A species allied to Discocalyx sessilifolia Merr. but with thinner, rather slenderly acuminate, prominently glandular-punctate leaves, and with very much shorter inflorescences.

DISCOCALYX PHANEROPHLEBIA sp. nov.

Frutex erectus, simplex, caulis sursum 1.5 ad 2 cm diametro; foliis oblanceolatis ad oblongo-oblanceolatis, 45 ad 60 cm longis, coriaceis, olivaceis, acutis, deorsum angustatis, margine deorsum integris, sursum dentatis vel crenato-dentatis, costa subitus valde incrassata, nervis utrinque circiter 20, supra impressis, subitus valde perspicuis; infructescentiis paniculatis, 2.5 ad 6 cm longis, in ramis specialibus lateralibus incrassatis 5 ad 10 cm longis dispositis; fructibus globosis, 8 mm diametro, calycis persistentibus 5-meris, 3 mm diametro, lobis late ovatis, obtusis, glandulosopunctatis.

An erect, apparently unbranched, glabrous shrub 1 to 2 m high, the leaves crowded near the apex of the trunk, the stem here 1.5 to 2 cm in diameter. Leaves oblanceolate to oblong-oblanceolate, 45 to 60 cm long, coriaceous, the upper surface olivaceous when dry, the lower surface much paler and not, or very inconspicuously, punctate, the apex acute, gradually narrowed below to the long-decurrent base, the margins in the lower one-fourth to one-third entire, above rather closely dentate or crenate-dentate, the teeth small; midrib very prominent on
the lower surface, in the lower part of the leaf 5 to 6 mm in diameter, the midrib and nerves impressed on the upper surface, the nerves 20 or more on each side of the midrib, very prominent on the lower surface as are the primary reticulations; petioles stout, 3 to 5 cm long, 5 to 7 mm in diameter, the lamina sometimes very narrowly durent almost to the base. Inflorescences panicked, crowded at the apex of specialized lateral branches, these specialized branches from the axils of leaves or of fallen leaves, stout, 5 to 10 cm long, more or less thickened upward, the apical part supplied with numerous conspicuous scars of fallen panicles, the bracts lanceolate, acuminate, up to 1 cm long, deciduous. Panicles in fruit 2.5 to 6 cm long; pedicel in fruit stout, about 3 mm long. Flowers 5-merous, the persistent calyx 3 mm in diameter, the lobes broadly ovate, obtuse, glandular-punctate, glabrous, 0.6 mm long. Fruit globose, black when dry, about 8 mm in diameter.

MINDANAO, Bukidnon Subprovince, Manilupa River and Mount Candoon, Bur. Sci. 38690 (type), 38792 Ramos & Edaño, June and July, 1920. In forests along streams, altitude 1,200 to 1,400 meters.

A species belonging in the same group with, and closely allied to, Discocalyx insignis Merr., differing especially in its narrower leaves.

**EMBELIA** Burman f.

**EMBELIA ELLIPTICA** sp. nov. § Euembelia.

Frutex scandens, inflorescentiis puberulis exceptis glaber, ramulis 3 mm diametro; foliis ellipticis, integris, coriaceis, olivaceis, nitidis, 7 ad 11 cm longis, brevissime et latissime obtuse acuminatis, basi rotundatis, nervis utrinque circiter 15, patulis, distinctis, reticulis utrinque valde perspicuis; paniculis terminalebus, circiter 25 cm longis, multifloris; floribus 5-meris, calycis puberulis, 2 mm diametro glandulis paucis conspicuis instructis, lobis trianguliani-ovatis, acutis, margine leviter ciliatis, petalis intus papilloso-puberulis, ellipticis, 2 ad 2.2 mm longis, glandulis paucis instructis, connectivo in ¼ superiore parte glanduloso.

A scandent shrub, glabrous except the inflorescences, the branches and branchlets lenticellate, reddish brown, the former up to 1 cm in diameter, the latter 3 to 4 mm in diameter. Leaves elliptic, coriaceous, olivaceous, shining, 7 to 11 cm long, 5 to 6 cm wide, the apex very shortly and obtusely acuminate, the base rounded, margins entire, the lower surface paler than the upper and with rather conspicuous black glands; lateral nerves
about 15 on each side of the midrib, spreading, these and the ultimate reticulations projecting and very distinct on both surfaces; petioles about 1 cm long. Panicles terminal, about 25 cm long, the flowers racemosely arranged on the ultimate branchlets, the younger parts of the inflorescences more or less puberulent, the ultimate branchlets up to 5 cm in length. Flowers white, 5-merous, their pedicels about 0.5 mm long, the bracts ovate, nearly as long as the pedicels. Calyx puberulent, 2 mm in diameter, shallowly 5-lobed, with few brown, conspicuous glands, the lobes triangular-ovate, acute, 0.5 mm long and as broad as long, the margins slightly ciliate. Petals oblong-elliptic, 2 to 2.2 mm long, nearly glabrous outside, inside rather densely papillate-puberulent, the glands few, brown, conspicuous. Filaments 2 mm long, glabrous, the connectives glandular in the upper one-half.


This species belongs in the group with Embelia javanica A. DC. and among the Philippine forms is apparently most closely allied to Embelia urdanetensis Elm., from which it is distinguished by its larger, differently shaped leaves, which are rounded and not acute at the base.

EMBELIA LUZONIENSIS sp. nov. § Pattara.

Frutex scandens, inflorescentiis exceptis glaber; ramis 2 mm diametro; foliis oblongo-ovatis ad elliptico-ovatis, 5.5 ad 8 cm longis, chartaceis, utrinque angustatis, apice obtusis, in siccitate brunneis, subitus pallidioribus et plus minusve punctatis, nervis utrinque circiter 8, perspicuis; inflorescentiis plerumque axillaribus, racemosi, solitariis vel binis, circiter 2 cm longis, brunneo-glanduloso-pubescentibus; floribus manifeste pedicellatis, 5-meris, sepalis oblongis, 1 mm longis, glandulosis, pubescentibus; petalis ellipticis, symmetricis, rotundatis, 2 mm longis, glabris, glandulis paucis perspicuis instructis; filamentis glabris, 3 mm longis.

A scendent shrub, glabrous except the inflorescences, branches slender, terete, brown, about 2 mm in diameter, obscurely lenticellate. Leaves oblong-ovate to elliptic-ovate, 5.5 to 8 cm long, 3 to 4 cm wide, subequally narrowed to the obtuse or obscurely and obtusely acuminate apex and to the acute base, dark brown when dry, scarcely shining, the lower surface paler than the upper and distinctly glandular-punctate especially near
the margins, the glands very obscure on the upper surface; lateral nerves about 8 on each side of the midrib, curved-anastomosing, obscure on the upper surface, rather prominent on the lower surface, the reticulations not conspicuous; petioles 5 to 7 mm long. Racemes mostly axillary on the ultimate branchlets, solitary or in pairs, 1 to 2 cm long, rather many-flowered, the axis and pedicels glandular-pubescent with brown hairs. Flowers white, 5-merous, their pedicels slender, about 4 mm long, the bracts linear, 1 mm long. Sepals 5, nearly free, oblong, about 1 mm long, acute, glandular, pubescent. Petals elliptic, symmetrical, rounded, glabrous, about 2 mm long, with few conspicuous black glands. Filaments glabrous, 3 mm long.


This species is apparently as closely allied to Embelia tsjeriam-cottan A. DC. as to any other, but differs in numerous details.

**Embelia ovatifolia** sp. nov. § Pattara.

Frutex scandens, inflorescentiis exceptis glaber, ramulis 1.5 mm diametro; foliis ovatis, chartaceis, 6 ad 8 cm longis, olivaceis, nitidis, acuminatis, basi late rotundatis, utrinque glandulis perspicuis instructis, nervis utrine circiter 10, perspicuis; racemis axillaribus, solitariis, binis vel trinis, circiter 2 cm longis, pubescentibus; floribus perspicue pedicellatis, 5-meris, calycis lobis ovatis, acutis vel obtusis, 0.6 mm longis, margine obscure ciliatis, glandulis paucis magnis perspicuis instructis; fructibus globosis, 4 ad 5 mm diametro.

A scandent shrub, glabrous except the glandular-pubescent racemes, the branches mostly grayish, about 5 mm in diameter, obscurely lenticellate, the branchlets slender, 1.5 mm in diameter, brownish. Leaves ovate, chartaceous, olivaceous, shining, 6 to 8 cm long, 4 to 5 cm wide, entire, the apex obtusely acuminate, the base broadly rounded, both surfaces conspicuously glandular, the glands black; lateral nerves about 10 on each side of the midrib, slender, distinct; petioles 8 to 10 mm long. Racemes axillary, solitary or in pairs or in threes, about 2 cm long, the pedicels 3 or 4 mm long, pubescent, the bracts lanceolate-acuminate from a broad base, puberulent, about 1 mm long, persistent. Calyx 2 mm in diameter, the lobes ovate, acute or obtuse, 0.6 mm long, with a few large and conspicuous, reddish glands in the upper one-half, the margin obscurely ciliate. Fruits globose, 4 to 5 mm in diameter.

A species manifestly belonging in the same group as *Embelia luzoniensis* Merr. and closely allied to that species. Among other characters it is easily distinguished by its very prominently glandular leaves, the black glands being conspicuous on both surfaces.

**RAPANEA** Aublet

**RAPANEA ANGUSTIFOLIA** sp. nov.

Frutex glaber; foliis numerosis, subcoriaceis, anguste oblongis ad lanceolatis, 4.5 ad 6 cm longis, 7 ad 10 mm latis, apice obtusis, basi acutis, in siccitate olivaceis, nitidis, subitus plus minusve glandulosocom punctatis, nervis in conspicuis; fructibus globosis, 3 mm diametro, in ⅓ superiore parte perspicue atro-glandulosis; floribus 4-meris, calycis lobis late ovatis, obtusis, perspicue glandulosis, margine ciliatis.

A glabrous shrub about 3 m high, the branches terete, dark reddish brown. Leaves numerous, somewhat crowded, subcoriaceous, narrowly oblong to lanceolate, 4.5 to 6 cm long, 7 to 10 mm wide, the apex obtuse, base acute, the upper surface olivaceous, shining, the lower surface paler and more or less glandular-punctate, the glands nearly black, especially conspicuous along the margins; lateral nerves about 10 on each side of the midrib, slender, inconspicuous; petioles 3 to 4 mm long. Fruits globose, about 3 mm in diameter, conspicuously glandular in the upper one-third, the glands black. Pedicels 2 mm long. Flowers 4-merous, the persistent calyx rather conspicuously glandular, the lobes broadly ovate, obtuse, the margins more or less ciliate.

LUZON, Ilocos Norte Province, Mount Magatapan, *Bur. Sci. 33243 Ramos*, August 8, 1918, on slopes apparently at an altitude of about 1,000 meters. The same species is represented by a sterile specimen from Mount Piao collected by Merritt & Darling in November, 1908.

A species belonging in the group with *Rapanea philippinensis* Mez, but distinguished by its smaller, narrower leaves and by its conspicuously glandular-punctate fruits.

**RAPANEA OBLONGIBACCA** sp. nov.

Frutex glaber; foliis chartaceis ad subcoriaceis, oblongis ad oblongo-lanceolatis, in siccitate brunneis, nitidis, 3 ad 6 cm longis, 0.8 ad 1.8 cm latis, utrinque angustatis, apice acutis vel obtusis,
basi cuneatis, subtus plus minusve glandulosis, nervis inconspicuis; fructibus axillaribus, plerumque solitariis, oblongo-ovoideis, 5 ad 7 mm longis, apice glanduloso-punctatis; floribus 5-meris, calycis persistentibus, 3 mm diametro, lobis ovatis, acutis, perspicue glandulosis, margine ciliatis.

A glabrous shrub or small tree about 3 m high, the branches and branchlets nearly black when dry, terete, the scars not prominent. Leaves chartaceous to subcoriaceous, oblong to oblong-lanceolate, usually dark brown when dry, shining, the lower surface much paler than the upper, 3 to 6 cm long, 0.8 to 1.8 cm wide, narrowed upward to the acute or obtuse apex and below to the cuneate base, more or less glandular-punctate, the glands conspicuous and closely arranged along the margins; lateral nerves very inconspicuous, 8 to 10 on each side of the midrib; petioles 2 to 3 mm long. Fruits axillary, mostly solitary, oblong-ovoid, 5 to 7 mm long, brown when dry, glandular-punctate with black glands at the apex, their pedicels 2.5 mm long. Flowers 5-merous, the persistent calyx 3 mm in diameter, the lobes ovate, acute, 1 to 1.2 mm long, conspicuously glandular, the margins ciliate.

Luzon, Ilocos Norte Province, Bur. Sci. 33256 (type), 33311 Ramos, August, 1918. On forested slopes, altitude about 1,000 meters.

A species strongly characterized among the Philippine forms by its oblong-ovoid rather than globose fruits.

SAPOTACEAE

MADHUCa GMELIN

MADHUCa PHILIPPINENSIS sp. nov.

Species M. betis valde affinis, differt foliis subtus glabris vel subglabris.

A tree reaching a height of about 25 m. Branches terete, more or less rugose, glabrous, the young branchlets usually densely ferruginous-pubescent. Leaves crowded at the apices of the branchlets, oblong-oblanceolate, chartaceous, 14 to 22 cm long, 4 to 8 cm wide, the upper surface glabrous, strongly shining, greenish olivaceous to brown-olivaceous when dry, the lower surface glabrous or slightly pubescent on the midrib, paler than the upper, the apex shortly acuminate, more or less narrowed below to the acute or somewhat obtuse base; lateral nerves about 18 on each side of the midrib, somewhat impressed on the upper surface, prominent on the lower surface; petioles rather
densely pubescent, 2.5 to 3.5 cm long; stipules linear, pubescent, caducous, 9 to 13 mm long. Flowers crowded on the ultimate branchlets with or just below the leaves, the pedicels and calyces densely and softly ferruginous-pubescent, the former 1.5 to 2 cm long. Calyx lobes 4, 2-seriate, oblong-elliptic, obtuse, about 12 mm long, 6 mm wide. Ovary glabrous, 10-celled. Petals and stamens not seen. Fruits oblong-ellipsoid, brown, obtuse, about 4 cm long.

Luzon, Camarines Province, Nabua, For. Bur. 28399 Labitag, April 30, 1921. In primary dipterocarp forest at an altitude of about 200 meters, with the local name banites. The same species is represented by Merrill 2601 from Tayabas Province, Luzon, as well as by imperfect sterile specimens including seedlings collected by Ware, Hagger, and Garcia in Camarines and Tayabas Provinces. A sterile specimen from Cotabato District, Mindanao, collected by Hutchinson, undoubtedly represents the same species. Additional native names are manilig (Mag.); betis and betis lalake (Tag.).

This species is manifestly closely allied to Madhuca betis' (Blanco) Merr. and several of the specimens cited above were originally referred to that species. Madhuca betis, however, has the leaves very densely and softly pubescent on the lower surface, while in the present species they are glabrous or nearly so on both surfaces.

OLEACEAE
LINOCIERA Swartz
LINOCIERA LONGIFOLIA sp. nov.

Arbor parva, glabra; foliis lanceolatis ad oblongo-lanceolatis, 22 ad 30 cm longis, 5 ad 7 cm latis, coriaceis, utrinque angustatis, basi plus minusve decurrento-acuminatis, apice obtusis, nervis utrinque 13 ad 15, tenuibus, anastomosantibus, reticulis sub-obsoletis; inflorescentis axillaris, solitariis, paniculatis, 4 cm longis, floribus subumbellatim dispositis, pedicellatis; calyces cupulatis, 1.5 mm diametro, breviter 4-lobatis, lobis triangulare-ovatis, acutis vel obtusis.

A glabrous tree about 10 m high, the branchlets distinctly compressed at the nodes. Leaves lanceolate to oblong-lanceolate, 22 to 30 cm long, 5 to 7 cm wide, coriaceous, rather pale when dry, opposite, entire, narrowed below to the somewhat decurrent-acuminate base and above to the obtuse apex, more or less verruculose; nerves 13 to 15 on each side of the midrib, slender, slightly projecting on the lower surface, anastomosing, the retic-
ulations very lax, often obsolete; petioles stout, 8 to 10 mm long. Inflorescences axillary, solitary, paniculate, about 4 cm long, the branches spreading, the lower ones 1 to 1.4 cm long, the flowers for the most part subumbellately arranged near the apices of the branches; bracts lanceolate, acuminate, slightly pubescent, 4 to 5 mm long; pedicels about 3 mm long. Calyx cup-shaped, about 1.5 mm in diameter, 4-lobed, the lobes triangular-ovate, acute or obtuse, less than 0.4 mm long. Corolla not seen. Ovary ovoid, glabrous; style 0.5 mm long.


A species having more the general appearance of *Olea* than of *Linociera*, well characterized by its elongated leaves. When perfect flowers are available it may prove to belong to the former genus. Its alliance is manifestly with *Linociera philippinensis* Merr., from which it is at once distinguished by its vegetative characters.

LOGANIACEAE

**GENIOSTOMA** Forster

**GENIOSTOMA ACUMINATISSIMA** sp. nov.

Frutex glaber, ramis teretibus; foliis chartaceis, oblongo-ellipticis ad lanceolatis, nitidis, 8 ad 12 cm longis, utrinque angustatis, apice tenuiter caudato-acuminatis, basi cuneatis, nervis utrinque 8 ad 10; cymis tenuiter pedunculatis, axillaris, solitariis, paucifloris, 2 ad 3 cm longis; floribus circiter 1 cm longis, intus villosus.

A glabrous shrub or small tree, the branches slender, terete, the branchlets black when dry. Leaves chartaceous, dark-colored when dry, shining, oblong-elliptic to lanceolate, 8 to 12 cm long, 2.5 to 4.5 cm wide, subequally narrowed to the cuneate base and to the slenderly caudate-acuminate apex; primary lateral nerves 8 to 10 on each side of the midrib, distinct, curved, anastomosing, the reticulations distinct, slender; petioles 3 to 5 mm long; stipules lanceolate, acuminate, 1.5 to 2 mm long. Cymes solitary, few-flowered, 2 to 3 cm long, the peduncles slender, up to 2 cm long, the pedicels 2 mm long. Flowers white, black when dry. Calyx about 2.2 mm long, somewhat urceolate, the teeth triangular, short. Corolla glabrous outside, villous inside, about 1 cm long, the tube 6 mm long, the lobes 4, oblong, obtuse, 4 mm long, villous inside. Style 8 mm long. Fruits about 8 mm long, black when dry, rugose, strongly ventricose, obtuse, base decurrent-acuminate.

A species strongly characterized by its lax, elongated, slenderly peduncled cymes and its caudate-acuminate leaves.

**STRYCHNOS Linnaeus**

**STRYCHNOS CENABREI** sp. nov. § *Penicillatae*.

Frutex scandens, ramulis et inflorescentiis et subtus foliis ad costa nervisque plus minusve ferrugineo-pubescentibus; foliis triplinerviis, chartaceis, olivaceis, nitidissimis, ellipticis ad oblongo-ellipticis, usque ad 12 cm longis, utrinque subaequaliter angustatis, apice acute acuminitis, basi acutis vel decurrentibus; cymis circiter 2 cm longis; floribus 6- vel 5-meris, circiter 3.5 mm longis, corollae lobi linea pilorum erectorum ad basin instructi, antherae filamenta in tubo corollae inserta; ovarium glabrum; antherae basi leviter barbatae; fructibus globosus, 1.5 cm diametro; seminibus solitariis.

A scendent woody vine, glabrous except the more or less ferruginous-pubescent branchlets, inflorescences, and younger leaves on the nerves beneath. Branches terete, dark-colored, glabrous, the younger branchlets about 1.5 mm in diameter, appressed ferruginous-pubescent with short, scattered hairs, ultimately glabrous or nearly so. Leaves elliptic to oblong-elliptic, chartaceous, 7 to 12 cm long, 3.5 to 5 cm wide, subequally narrowed to the acute or decurrent, 3-plinerved base and to the sharply acuminate apex, the upper surface olivaceous, strongly shining, the lower surface shining and when young more or less ferruginous-pubescent on the midrib and primary nerves, the basal nerves leaving the midrib 5 to 10 mm above the base of the leaf and extending nearly or quite to the apex, the reticulations distinct on both surfaces; petioles 5 to 7 mm long, ferruginous-pubescent, ultimately glabrous. Cymes axillary, ferruginous-pubescent, short-peduncled, in anthesis about 2 cm long, in fruit up to 3 cm in length, the peduncles 5 to 7 mm long. Flowers 5- or, more usually, 6-merous, about 3.5 mm long, their pedicels 2 mm long, the bracteoles narrowly ovate, acute, 1 mm long. Calyx about 2 mm in diameter, the tube short, the lobes broadly ovate to orbicular-ovate, 1 to 1.2 mm long, somewhat pubescent, the margins minutely ciliate. Corolla tube about 2 mm long; the lobes nearly as long as the tube, oblong-ovate, acute or obtuse, minutely puberulent externally, bearded at the base inside with numerous stiff hairs about 1 mm in length. Ovary ovoid, glabrous, 1 mm long; style slen-
A species strongly characterized by its usually 6-merous flowers, short cymes, 3-plinerved, strongly shining leaves, and its small 1-seeded fruits. It is probably nearest to S. impressinervis A. W. Hill.

**APOCYNACEAE**

**TABERNAEMONTANA** Linnaeus

**TABERNAEMONTANA MINDORENSIS** sp. nov.

A glabrous shrub about 2 m high, the branches and branchlets slender, terete, pale grayish. Leaves of each pair equal or more or less unequal, oblong-lanceolate, membranaceous, olivaceous, somewhat shining, 5 to 8 cm long, 1 to 2 cm wide, narrowed upward to the slenderly caudate-acuminate apex and below to the cuneate base, the lower surface paler than the upper; lateral nerves about 9 on each side of the midrib, slender, distinct, the reticulations lax, obscure; petioles 2 to 4 mm long. Cymes axillary, lax, few-flowered, 1.5 to 2 cm long. Mature flowers not seen, their pedicels about 5 to 8 mm long. Calyx lobes ovate, acute, 0.5 mm long, each with a small gland or appendage near the base inside. Corolla tube (in bud) slender, about 5 mm long, somewhat inflated in the upper part, the lobes (in bud) 2.5 mm long, inequilateral. Anthers 1.5 mm long. Follicles 2 to 2.5 cm long, red, glabrous, inequilaterally oblong-ovoid, somewhat gibbous, smooth, with 3 or 4 longitudinal ridges, these often ob-
scure, the pericarp thin, rather fragile. Seeds about 9, brown, irregular, 6 to 7 mm long.

MINDORO, Paluan, Bur. Sci. 39577 (type), 39576 Ramos, April 1, 1921. On forested slopes at an altitude of about 500 meters.

A species belonging in the group with Tabernaemontana caudata Merr., but it has larger, differently shaped leaves and different inflorescences. From T. mindanaensis Merr. it is distinguished by its smaller caudate-acuminate leaves and its entirely different fruits.

**KOPSIA Blume**

**KOPSIA GRANDIFLORA** sp. nov.

Frutex circiter 3 m altus, ramulis puberulis et inflorescentiis exceptis glaber; foliis chartaceis vel subcoriaceis, ellipticis ad oblongo-ellipticis, 10 ad 15 cm longis, nitidis, apice obtuse acuminatis, basi late acutis, nervis utrinque circiter 15 cum reticulis utrinque distinctis; inflorescentiis pedunculatis, depauperato-cymosis vel dichotome ramosis, paucifloris, pedunculo 3 ad 6 cm longo; bracteis orbiculari-ovatis, rotundatis, pubescentibus, 2.5 mm longis; calycis lobis elliptico-ovatis, rotundatis, 3 mm longis, pubescentibus; corollae tubo 3.7 cm longo, apice leviter incrassato, intus in partibus superioribus viloso, lobis obovatis ad elliptico-obovatis, 2.5 cm longis, 10 ad 14 mm latis, rotundatis.

A shrub about 3 m high, the younger branchlets, bracts, and calyces sparingly puberulent or pubescent. Branches glabrous, somewhat rugose when dry. Leaves chartaceous to subcoriaceous, elliptic to oblong-elliptic, 10 to 15 cm long, 4 to 6 cm wide, grayish olivaceous, shining, narrowed above to the obtusely acuminate apex and below to the broadly acute base; lateral nerves about 15 on each side of the midrib, rather prominent on both surfaces as are the primary and rather close secondary reticulations; petioles about 5 mm long. Inflorescences terminal, peduncled, the peduncles 3 to 6 cm long, the flowers in depauperate cymes or the peduncles dichotomously branched at their apices, the flowers spicately arranged on the short branches. Bracts orbicular-ovate, somewhat pubescent, about 2.5 mm long, imbricate near the apices of the branchlets, somewhat scattered below, rounded and somewhat keeled. Calyx lobes elliptic-ovate, rounded, 3 mm long, somewhat pubescent, their margins ciliate. Corolla tube cylindric, glabrous externally, somewhat villous inside in the upper part, slightly enlarged at the apex, about 3.7 cm long, the lobes white, obovate to elliptic-obovate, rounded, 2.5 cm long, 10 to 14 mm wide.
Philippine Journal of Science


A species manifestly belonging in the group with Kopsia fruticosa DC. and K. albiflora Boerl., differing essentially from both of these in its larger flowers.

VERBENACEAE

CLERODENDRON Linnaeus

CLERODENDRON LUZONIENSE sp. nov.

Frutex erectus, glaber, ramis tenuibus; foliis membranaceis, integris, ellipticis ad oblongo-ellipticis, 13 ad 18 cm longis, olivaceis, nitidis, tenuiter acuminatis, basi cuneatis, nervis utrinque 6 vel 7, subtus perspicuis; paniculis terminalibus, glabris vel puberulis, laxis, paucifloris, ramis patulis, paucis, plerumque 3-floris, bracteis bracteolisque linearis, 4 ad 6 mm longis. Calycis 5-lobatis, lobis lanceolatis, acuminatis, 3 mm longis. Corollae tubo 5 ad 6 cm longo, lobis oblongo-ellipticis, obtusis, circiter 1 cm longis.

A glabrous, erect shrub, the branches slender, pale. Leaves membranaceous, entire, elliptic to oblong-elliptic, 13 to 18 cm long, 6 to 7 cm wide, somewhat olivaceous and shining on both surfaces when dry or the lower surface somewhat paler than the upper, not at all glandular, the apex rather slenderly acuminate, base cuneate; lateral nerves 6 or 7 on each side of the midrib, slender, rather prominent on the lower surface, the reticulations very lax; petioles 2 to 5 cm long. Panicles terminal, peduncled, glabrous or very slightly puberulent, lax, few-flowered, the peduncle and rachis up to 12 cm long, the branches few, spreading, each usually 3-flowered; bracts linear, acuminate, 4 to 6 mm long, the bracteoles similar, smaller, the pedicels 1 to 1.6 cm long. Calyx green, 5 to 7 mm long, the base cuneate, the lobes 5, lanceolate, acuminate, about 3 mm long. Corolla white, the tube slender, 5 to 6 cm long, straight, the lobes spreading, oblong-elliptic, obtuse, about 1 cm long.

Luzon, Camarines Province, Paracale, Bur. Sci. 33784 (type), 33779 Ramos & Edaño, December 22, 1918. In damp forests along small streams at low altitudes.

The alliance of this species is manifestly with C. klemmei Elm., from which it is distinguished by its differently shaped, relatively much broader leaves, longer flowers, lax, few-flowered inflorescences, and narrower calyx teeth.
CALLECARPA Magnifolia sp. nov.

Frutex vel arbor parva, ramulis et subtus foliis dense fulvos-tomentosis; foliis eglandulosis, oppositis, subcoriaceis, late elliptico-ovatis, 22 ad 27 cm longis, usque ad 20 cm latis, integris vel sursum obscurissime denticulatis, late acuminatis, basi rotundatis, supra glabris, olivaceis, nitidis, nervis utrinque ciciter 10, valde perspicuis; cymis axillaribus, sub fructo usque ad 6 cm longis et 9 mm latis; calycibus membranaceis, 3 mm longis, breviter 4-lobatis; fructibus globosis, glabris, 3 mm diametro, disco valde accrescente, subgloboso, usque ad 1 cm diametro, densissime fulvo-tomentoso.

A shrub or small tree, the branchlets and the lower surface of the leaves densely fulvous-tomentose with rather soft, plumose and stellate hairs, the indumentum on the leaves ultimately deciduous; branches terete or somewhat compressed at the nodes, pale grayish, glabrous, about 6 mm in diameter, the branchlets reddish brown. Leaves opposite, subcoriaceous, broadly elliptic-ovate, 22 to 27 cm long, 17 to 20 cm wide, entire or very obscurely and remotely denticulate near the apex, the base broadly rounded or sometimes subacute, the apex shortly and broadly acuminate, the upper surface olivaceous, smooth, glabrous, shining, the lower surface paler, not at all glandular; lateral nerves about 10 on each side of the midrib, very prominent, the primary reticulations subparallel, distinct; petioles about 5 cm long; densely tomentose. Cymes from the axils of fallen leaves, in fruit about 6 cm long and up to 9 cm wide. Calyx membranaceous, cup-shaped, about 3 mm long, shortly 4-lobed. Fruit globose, glabrous, about 3 mm in diameter, nearly surrounded by the densely fulvous-tomentose, greatly enlarged disk, which is subglobose and up to 10 mm in diameter. Bracteoles linear, pubescent, 3 to 5 mm long.

Luzon, Kalinga Subprovince, Mount Masingit, Bur. Sci. 37563 Ramos & Edano, February 17, 1920. In forests, altitude about 1,200 meters, with the local name agnai.

This species is remarkable for its greatly enlarged, densely fulvous-tomentose disk which surrounds and nearly incloses the fruit, a character that is unknown to me for any other described species of the genus. It is further remarkable for its unusually large leaves which are eglandular and densely tomentose on the lower surface.
VITEX Linnaeus

VITEX UNIFOLIOLATA sp. nov.

Frutex vel arbor parva, inflorescentiis parce pubescentibus exceptis glabra, ramulis quadrangulatis, 3 mm diametro; foliis unifoliolatis, coriaceis, nitidis, integris, oblongis, 20 ad 27 cm longis, subtus dense puncticulatis, acuminatis, basi rotundatis, supra plus minusve bullatis, nervis utrinque 9 ad 12, valde per-spicuis; inflorescentiis solitariis, tenuibus, terminalibus, circiter 40 cm longis, ramis primariis 1 vel 2, valde elongatis, cymis paucis, distantibus, paucifloris, 3 ad 4 cm longis; calycibus cupulatis, aequaliter 5-lobatis, lobis ovatis, obtusis, 0.5 mm longis; corolla 11 mm longa, bilabiata; fructibus junioribus glabris, calycis valde accrescentibus.

A shrub or small tree, glabrous except the inflorescences, the branches pale grayish, somewhat 4-angled, the ultimate ones about 3 mm in diameter. Leaves simple, the petioles, about 1 cm long; the leaflets coriaceous, pale olivaceous when dry, oblong, 20 to 27 cm long, 7 to 10 cm wide, entire, shining, the upper surface more or less bullate, the lower surface slightly paler than the upper and densely puncticulate, base rounded, apex rather slenderly acuminate; lateral nerves 9 to 12 on each side of the midrib, prominent on both surfaces, curved-anastomosing, the reticulations lax, very prominent. Inflorescences solitary, terminal, slender, about 40 cm long, the peduncle about 6 cm long, 4-angled, rather slender, about 2.5 mm in diameter, the primary branches 1 or 2 only, greatly elongated, slightly pubescent, the individual cymes widely scattered, few-flowered, 3 to 4 cm long. Flowers blue. Calyx cup-shaped, about 3 mm long, equally 5-lobed, the lobes ovate, obtuse, 0.5 mm long, appressed-pubescent with short hairs. Corolla 11 mm long, the tube 5 mm long, slightly pubescent outside; lower lip 3-lobed, the middle lobe large, orbicular, glabrous, entire, about 5 mm in diameter, the two lateral ones elliptic, rounded, 3 mm long; upper lip 2 mm long, cleft into two broadly ovate, obtuse lobes; filaments 3 to 4 mm long, somewhat exserted, villous below. Young fruit glabrous or nearly so, inclosed by the accrescent calyx.

MINDANAO, Zamboanga District, Malangas, Bur. Sci. 37048 Ramos & Edaño, October 27, 1919. In forests along streams at low altitudes, locally known as babako.

The alliance of this species is manifestly with Vitex clarkeana King and Gamble of the Malay Peninsula and Borneo, from which it differs in its very slender inflorescences; in details of its
corolla, the middle lobe of the lower lip being orbicular, entire, and glabrous; and in its glabrous, not tawny-pubescent fruits.

In H. Lam's recent treatment of the Verbenaceae of the Malayan Archipelago certain reductions of proposed new species must be made: *Vitex curranii* H. Lam is identical with *Vitex aherniana* Merr.; *Vitex merrillii* H. Lam is identical with *V. longifolia* Merr., which in turn is a *Teijsmanniodendron* perhaps not distinct from *T. bogoriense* Koord.; and *Vitex glandulosa* H. Lam is identical with *V. parviflora* Juss., of which *V. littoralis* Decne. is a synonym.

**SCROPHULARIACEAE**

**LIMNOPHILA** R. Brown

**LIMNOPHILA OBOVATA** sp. nov.

Herba subaquatica procumbens vel ascendentis, leviter ramosa, caulibus usque ad 20 cm longis, glabris vel minutissime furfuraceis; foliis oppositis, obovatis vel oblongo-obovatis, acutis, breviter petiolatis, usque ad 2.5 cm longis, basi angustatis, margine serratis; floribus solitariis, axillaris, sessilibus, calycis glabris, profunde 5-fidis, laciniis linearis-lanceolatis; corolla alba, 12 ad 13 mm longa.

A subaquatic, aromatic, procumbent or ascending plant, the stems simple or sparingly branched, 20 cm in length or less, glabrous or very minutely furfuraceous. Leaves opposite, oblong-obovate, sometimes subrhomboild, 1.5 to 2.5 cm long, 6 to 12 mm wide, acute, margins serrate, base gradually narrowed to the short petiole, the lower surface glandular-punctate. Flowers axillary, solitary, sessile, the bracts linear, 5 mm long. Calyx glabrous, the segments 5, free nearly to the base, linear-lanceolate, acuminate, about 7 mm long, 1 mm wide. Corolla white, 12 to 13 mm long. Capsule oblong-ovoid, about 3.5 mm long. Seeds very numerous, black.

**PALAWAN,** Ulugan Bay, Merrill 7227 (type), September, 1910. **BRITISH NORTH BORNEO,** Batu Lima, near Sandakan, Ramos 1385, October, 1920. Along small streams in shaded places, often in shallow water, at low altitudes.

**GESNERIACEAE**

**DICHROTICHUM** Reinwardt

**DICHROTICHUM CORIACEUM** sp. nov.

Frutex scandens, glaber vel subglaber, ramulis circiter 5 mm diametro; foliis coriaceis, in paribus valde inaequimagnis dif-
formibusque, majoribus oblongis, 7 ad 11 cm longis, longe petiolatis, basi longe decurrentibus, minoribus breviter petiolatis, ovatis, obtusis, circiter 1 cm longis; infructescentiis umbellatis vel depauperato-cymosis, longe pedunculatis, calycis cupulatis, circiter 4 mm longis, lobis oblongis, truncato-obtusis, circiter 1.5 mm longis; folliculis 18 cm longis, 2 mm diametro.

A scandent, nearly glabrous shrub, the branchlets apparently somewhat fleshy, pale brownish when dry, somewhat angular, about 5 mm in diameter, sparingly appressed-pubescent. Leaves coriaceous, obscurely crenate or undulate-crenate, sometimes nearly entire, in very unequal pairs, the upper surface dull olivaceous, the lower surface pale brownish; larger leaves of each pair oblong, 7 to 11 cm long, 2.5 to 4.5 cm wide, long-petioled, acute to very shortly and obtusely acuminate, the base long-decurrent; lateral nerves about 6 on each side of the midrib, prominent, curved-ascending, the reticulations obsolete or nearly so; petioles 2 to 5 cm long; smaller leaves of each pair ovate to oblong-ovate, obtuse, entire, about 1 cm long, very shortly petioled. Infructescences long-peduncled, the peduncles about 25 cm long, the flowers umbrately arranged or depauperate-cymose at the apex, the subtending bracts oblong-elliptic to spatulate, 3 to 8 mm long. Calyx cup-shaped, about 4 mm long, slightly pubescent, the base narrowed, the lobes 5, oblong, truncate-obtuse, about 1.5 mm long; pedicels slightly pubescent, about 1.5 cm long. Follicles narrowly cylindric, about 18 cm long, 2 mm in diameter, glabrous; seeds very numerous, brown, about 1 mm long with a single hair at each end 2 to 2.5 mm in length.

MINDANAO, Bukidnon Subprovince, Mount Candoon, Bur. Sci. 38924 Ramos & Edano, July 3, 1920, in the mossy forest at an altitude of about 1,600 meters.

A species allied to Dichrotrichum glabrum Copel., from which it is distinguished by its coriaceous and nearly entire leaves.

TRICHOSPORUM Jack

TRICHOSPORUM MINDANAENSE sp. nov. § Holocalyx.

Frutex scandens, leviter pilosus; foliis coriaceis, oblongis, 2.5 ad 3.5 cm longis, obtusis, basi plerumque rotundatis, junioribus leviter pilosis, vellustioribus glabris, nervis obsoleteis; floribus 4 cm longis, leviter curvatis, pedunculis brevibus, 2-floris; calycis cylindraceis, 12 mm longis, leviter pilosis, lobis ovatis, obtusis, 2 mm longis; corollae tubo 2.5 cm longo, leviter piloso, lobis
ovatis, obtusis, 1 cm longis; antheris leviter exsertis; ovario glabro; folliculis 13 ad 17 cm longis, 4 mm diametro.

A scandent, apparently fleshy vine, the younger branches, inflorescences, and the leaves very sparingly pubescent or pilose. Branches usually reddish brown, glabrous, about 3 mm in diameter. Leaves coriaceous, oblong, 2.5 to 3.5 cm long, 1 to 1.5 cm wide, rather pale when dry, somewhat narrowed upward to the obtuse apex, the base usually rounded, the margins cartilaginous and somewhat recurved when dry, the midrib obscure or sometimes obsolete on the upper surface, rather prominent on the lower surface, the lateral nerves obsolete or nearly so, when young very sparingly pilose, ultimately glabrous; petioles 3 to 4 mm long, at first sparingly pilose, ultimately glabrous. Flowers red, about 4 cm long, somewhat curved, the peduncles about 5 mm long, each 2-flowered and terminal and in the uppermost axils, the pedicels 1 cm in length, somewhat pilose. Calyx 12 mm long, slightly widened upward, the lobes very broadly ovate, obtuse, about 2 mm long. Corolla tube 8 to 10 mm wide when flattened, distinctly curved, about 2.5 cm long, sparingly pubescent externally with scattered jointed hairs, the mouth oblique, the lobes ovate, obtuse, up to 1 cm long. Stamens slightly exserted, the anthers 3 mm in length. Ovary and disk glabrous, the style about 3 mm long, villous. Follicles cylindric, glabrous, 13 to 17 cm long, about 4 mm in diameter, slightly curved. Seeds verruculose, 1.5 mm long, apical hair up to 6 mm long.

MINDANAO, Bukidnon Subprovince, Mount Candoon, Bur. Sci. 38869 (type) 38922 Ramos & Edano, June and July, 1920. In the mossy forest, altitude 1,100 to 1,800 meters.

A species somewhat intermediate in characters between Trichosporum malindangense Merr. and T. copelandii Merr. (Aeschynanthus camiquinensis Kränz., A. serpens Kränzl.), its calyces being twice as long as T. copelandii and T. urdanetense Elm., but much shorter and with much shorter corollas than is the case with T. malindangense.

**CYRTANDRA** Forster

**CYRTANDRA RUFOTRICHA** sp. nov. § Decurrentes.

Suffruticosa, erecta, usque ad 35 cm alta, simplex vel e basi parce ramosa, inflorescentis subtus folisique perspicue rufo-ciliatis, ciliae elongatae, articulatae; foliis oppositis parum inaequalibus, oblaceolatis, chartaceis, 6 ad 12 cm longis, acutis,
deorsum angustatis, basi cuneatis, breviter petiolatis, margine crenato-dentatis, nervis utrinque 6 vel 7, perspicuis; inflorescentiis axillaribus, sessilibus vel breviter pedunculatis, plerumque 3-floris, floribus sessilibus, dense rufo-ciliatis, bracteis binis oblongo-ellipticis ad ovatis ciliatis 10 ad 12 mm longis deciduis instructis; calycis dense ciliatis, 9 ad 11 mm longis, lobis lanceolatis, caudato-acuminatis, tubo subaequantibus; ovario glabro; fructibus oblongo-cylindraceis, usque ad 11 mm longis, glabris.

An erect, suffrutescent, usually unbranched plant, or sparingly branched from the base, up to 35 cm high, the stems 2 to 3 mm in diameter, straw-colored, glabrous except at and below the nodes where they are conspicuously ciliate with castaneous, elongated, jointed hairs. Leaves opposite, those of each pair subsimilar in shape, but one usually about one-half as large as the other, chartaceous, oblanceolate to oblong-oblanceolate, 6 to 12 cm long, 2 to 3.5 cm wide, acute, narrowed below, base cuneate, margins crenate-dentate and usually conspicuously ciliate, the upper surface olivaceous, the lower pale, both surfaces conspicuously ciliate with dark-brown, spreading, elongated, jointed, rather stiff hairs, these widely scattered on the upper surface, mostly on the midrib, nerves, and reticulations beneath; lateral nerves 6 or 7 on each side of the midrib, prominent as are the lax reticulations; petioles ciliate, 5 to 12 mm long. Inflorescences axillary, the flowers few, umbellate or fascicled, the peduncles up to 4 mm long, ciliate, or wanting, the two bracts subtending the flowers oblong-elliptic to ovate, ciliate on both surfaces, 10 to 12 mm long, 5 to 10 mm wide, sessile, deciduous. Flowers sessile, usually three in each inflorescence. Calyx densely ciliate, the tube 5 to 6 mm long, the lobes lanceolate, caudate-acuminate, 4 to 5 mm long. Corolla densely ciliate. Disk glabrous, crenulate, 1 mm high. Ovary and style glabrous. Fruit oblong-cylindric, glabrous, 8 to 12 mm long, 5 mm in diameter.

MINDANAO, Zamboanga District, Mount Tubuan, Bur. Sci. 36655 (type), 36689 Ramos & Edaño, October, 1919. In forests along streams at low altitudes.

A species strongly characterized by its indumentum, the rather stiff, jointed hairs up to 3.5 mm in length being brown to castaneous in color, occurring on the stems near and below the nodes, both surfaces of the leaves, and on the petioles, bracts, calyces, and corollas. It does not appear to be closely allied to any previously described form.
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**CYRTANDRA ACLADA** sp. nov. § Decurrentes.

Frutex erectus, simplex, usque ad 1 m altus; foliis oppositis, aequalibus, chartaceis vel subcoriaceis, oblongis, usque ad 20 cm longis, petiolatis, supra olivaceis, glabras, subtus pallidis, ad costa nervisque leviter pubescentibus, basi acutis, apice breviter acuminatis, marginis sursum obscure crenulato-denticulatis, nervis utrinque 7 vel 8, persipicuis; inflorescentiis caulinis, basifloris, brevissime pedunculatis, floribus paucis, subumbellatim dispositis vel fasciculatis, 4.5 cm longis, extus villosis.

An erect unbranched shrub up to 1 m high, the younger parts obscurely pubescent. Stems glabrous, pale brownish or grayish, up to 7 mm in diameter, the lower part leafless. Leaves opposite, those of each pair equal or subequal, chartaceous to subcoriaceous, 15 to 20 cm long, 5 to 7 cm wide, the apex distinctly acuminate, base equilateral, cuneate, the margins in the upper part obscurely crenulate-denticulate, the upper surface dark-olivaceous, glabrous, the lower surface pale and obscurely pubescent on the midrib and nerves; lateral nerves 7 or 8 on each side of the midrib, rather prominent, the reticulations slender, lax; petioles 2.5 to 4 cm long, glabrous or nearly so. Inflorescences caulin, at the very base of the stem, sometimes from the roots, shortly peduncled, subumbellate, rather few-flowered or the umbels sometimes reduced to sessile fascicles. Flowers few, 4.5 cm long, their pedicels up to 1 cm long, the bracts few, 10 to 12 mm long, membranaceous, deciduous, linear-lanceolate. Calyx about 24 mm long, more or less pubescent, slender, cylindrical, the lobes lanceolate, caudate-acuminate, 6 to 8 mm long. Corolla white, sparingly pilose externally with long weak hairs, the lower 2 cm narrow, then widened. Filaments 6 mm long, glabrous; anthers 2 mm long. Disk cylindric, glabrous, 2.5 mm long, somewhat crenate. Ovary lanceolate, glabrous, about 1 cm long; style pubescent in the upper two-thirds, about 14 mm long; stigma oblique. Fruits cylindric, glabrous, 2 to 2.5 cm long, 5 mm in diameter.


A species belonging in the group with Cyrtandra radiciflora C. B. Clarke, but with different inflorescences, larger flowers, much longer calyces, glabrous ovaries, etc. Among the Philippine species it is apparently most closely allied to Cyrtandra tecomiflora Kränzfl., but has very different vegetative characters.
Corolla tubo deorsum angustato; ovario dense ferrugineo-piloso. An erect shrub 1 to 3 m high, the branchlets, younger leaves, and inflorescences rather conspicuously ciliate with elongated, weak, jointed hairs, the older branches glabrous or nearly so. Leaves opposite, those of each pair very unequal in shape and size, the larger ones oblong-ob lanceolate to oblong-obovate, 15 to 22 cm long, 5 to 7 cm wide, rather prominently acuminate, narrowed below to the cuneate and usually distinctly inequilateral base, the margins rather coarsely toothed; lateral nerves about 8 on each side of the midrib, prominent on the lower surface, the reticulations distinct, lax; petioles 1.5 to 2 cm long; smaller leaves of each pair sessile or subsessile, ovate, 2 to 5 cm long, 1.5 to 3 cm wide, deeply cordate, scarcely acuminate, rather coarsely toothed. Both types of leaves are chartaceous, olivaceous on the upper surface, paler beneath and supplied on both surfaces with few to many, weak, spreading, jointed hairs. Inflorescences axillary, the flowers white, about 4 cm long, fascicled or in very greatly reduced, usually 2- or 3-flowered, short-peduncled umbels, the peduncles when present about 5 mm long and supplied with a whorl of 2 or 3 ovate to elliptic-ovate, somewhat pilose bracts 5 to 8 mm in length, the pedicels pilose, up to 1 cm in length or somewhat longer in fruit. Calyx 15 to 20 mm long, supplied with numerous, weak, jointed hairs, the tube broad, 5 to 8 mm long, the lobes lanceolate, caudate-acuminate, 10 to 12 mm long. Corolla tube rather narrowed below, widened above, sparingly pilose externally. Filaments 12 mm long, glabrous, the anthers ellipsoid, 3 mm long, connate throughout; staminodes slender, glabrous, 5 to 6 mm long. Disk cylindric or cup-shaped, glabrous, 2 mm long, shallowly lobed or crenate. Ovary oblong, densely subferruginous-pilose; styles about 11 mm long, pilose, somewhat thickened in the upper 4 mm and supplied with capitulate-glandular hairs; stigma about 3 mm wide, 2 mm long, elliptic.
in outline. Fruits oblong-ovoid, about 1 cm long, densely ferruginous-pilose.

LUZON, Benguet Province, Mount Tonglon, For. Bur. 920 Barnes (type), May, 1904, Merrill 7801, May, 1911. In very damp shaded ravines in the mossy forest, altitude about 2,000 meters. A form of the same species is represented by Bur. Sci. 37541, 37800 Ramos & Edaño from Bontoc and Kalinga Subprovinces, Luzon, February and March, 1920, these specimens differing from the type in being more densely pilose and in some of the larger leaves being obtuse or even obliquely cordate at the base.

This species has been confused with Cyrtandra lobii C. B. Clarke, from which it differs radically in its very dissimilar leaves, the smaller one of the pair being sessile, ovate, deeply cordate and entirely different in shape and size from the larger one of each pair.

**CYRTANDRA ZAMBOANGENSIS** sp. nov. § *Dissimiles.*

Species C. auriculatae affinis, differt foliis omnibus petiolatis, crenatis, haud lobatis, paribus leviter inaequalibus, floribus multo minoribus, ovarium glabrum.

A slender, prostrate, conspicuously ciliate herb, the main stems up to 30 cm in length, rooting at their nodes, and with short ascending branches, the stems, branches, and branchlets densely ciliate with rather weak, jointed hairs. Leaves opposite, those of each pair unequal, all petioled, the larger one of each pair usually about twice as large as the smaller one but similar in shape, the larger ones elliptic, up to 4 cm long and 2.2 cm wide, the smaller ones up to 2 cm long and 1.5 cm wide, all membranaceous to chartaceous, olivaceous, obtuse or rounded, acute to rounded at the base, somewhat crenate, both surfaces supplied with numerous, long, weak, jointed hairs, these hairs 3 to 5 mm in length, pale; lateral nerves 4 or 5 on each side of the midrib, not prominent; petioles densely villous, 5 to 15 mm long. Flowers white, about 14 mm long, terminal or in the upper axils, the peduncles 1 to 2 mm long, pilose, 2-flowered, 2-bracteate, the bracts oblong, 3 mm long, somewhat pilose, the pedicels 1 to 1.5 mm in length. Calyx 6 mm long, pilose, the lobes 5, lanceolate, caudate-acuminate, as long as the tube. Corolla tube sparingly pilose in the lower half, the tube slender in the lower 5 to 6 mm, then widened, the lobes ovate, 3 to 3.5 mm long. Filaments 2.5 mm long, glabrous, the anthers 1 mm in length. Disk cup-shaped, glabrous, 1 mm high, crenulate. Ovary oblong-ovoid,
glabrous; style 7 mm long, somewhat pilose in the upper third. Fruits ovoid, 4 to 5 mm long.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, Bur. Sci. 37249 (type), 36685 Ramos & Edaño, October and November, 1919. On forested slopes at low altitudes.

A species with the habit and much the general appearance of Cyrtandra auriculata C. B. Clarke, differing radically in its much smaller flowers and in its crenate not lobed leaves which are all petioled and similar in shape, the smaller one of each pair being usually about one-half as large as the larger one.

**CYRTANDRA PARVA** sp. nov. § Dissimiles.

Planta parva, suffruticosa, caulis prostratis, radicantibus, 1.5 mm diametro, ramis brevibus, erectis; foliis oppositis, petiolatis, inferioribus in paribus valde inaequalibus, superioribus subaequalibus, majoribus oblongo-obovatis ad oblongo-ellipticis, 5 ad 8 cm longis, apice plerumque acutis, basi cuneatis, margine serratis, subtus pallidis, ad costa et nervis et reticulis perspicue ciliatis, nervis utrinque 6 vel 7; foliis minoribus 1 ad 1.5 cm longis, 5 ad 8 mm latis; floribus paucis, depauperato-umbellatis, 2.5 cm longis, umbellis plerumque 3-floris, pedunculis pedicellisque brevibus, hirsutis; bracteis lanceolatis, 6 ad 7 mm longis; calycis 1.5 cm longis, ciliato-hirsutis, lobis lanceolatis, caudato-acuminatis, tubo aequantibus, corolla extus leviter pilosa, 2.5 cm longa; ovario glabro.

A slender, prostrate, suffrutescent plant with short ascending branches, the stems copiously rooting, the older ones glabrous, about 1.5 mm in diameter, the younger parts and the leaves on the midrib, nerves and reticulations beneath conspicuously ciliate with slender, elongated, brown hairs. Leaves opposite, those of the lower pairs very dissimilar in shape and size, those of the uppermost pairs often subequal, all olivaceous, glabrous on the upper surface, paler beneath, membranaceous or chartaceous, the larger ones oblong-obovate to oblong-elliptic, 5 to 8 cm long, 2 to 3 cm wide, the apex usually acute, base usually cuneate, the margins rather sharply serrate, often conspicuously ciliate; lateral nerves 6 or 7 on each side of the midrib, prominent on the lower surface as are the primary reticulations; petioles about 2 cm long; smaller leaves of each pair, at least in the lower part of the stem, similar in shape and texture to the larger ones, 1 to 1.5 cm long, 5 to 8 mm wide. Inflorescences terminal or in the upper axils, their peduncles about 5 mm long, hirsute, each peduncle usually bearing 3 subumbellately arranged flowers,
the pedicels hirsute, about 4 mm long. Bracts lanceolate, acuminate, membranaceous, 6 to 7 mm long. Flowers about 2.5 cm long. Calyx 1.5 cm long, rather conspicuously ciliate-hirsute, the spreading hairs 1.5 to 2.5 mm long, the tube 7 to 8 mm long, the lobes narrowly lanceolate, slenderly caudate-acuminate, ciliate-hirsute, equaling the tube in length. Corolla tube about 1.8 cm long, narrow in the lower portion, gradually widened upward, somewhat pilose. Filaments glabrous, 3 to 4 mm long; anthers connate, 1.5 mm long. Disk 0 or very obscure. Ovary glabrous, lanceolate, the style appressed-hirsute, 6 to 7 mm long.


A species well characterized by its small size, the prostrate slender stems copiously rooting, the leafy branches short, erect, as well as by its rather conspicuous, brown, ciliate indumentum and its dissimilar leaves, those of the lower pairs very different in size, those of the uppermost pairs being equal or subequal.

**CYRTANDRA SUBGLABRA** sp. nov.

Frutex erectus, usque ad 1 m altus, simplex, floribus exceptis glaber, caulis 5 mm diametro; foliis oppositis, in paribus subaequalibus, membranaceis, oblongis ad oblongo-ovatis, longe petiolatis, 14 ad 28 cm longis, acuminatis, basi cuneatis, margine integris; inflorescentiis axillaris, 2- vel 3-floris, sessilibus vel brevissime pedunculatis, bracteis binis foliaceis persistentibus 18 mm longis, ellipticis vel elliptico-ovatis instructis; floribus sessilibus, 4.5 ad 5 cm longis, calycis 12 mm longis, lobis oblongo-ovatis, 3 mm longis, glabris; corolla pilosa, tubo deorsum angustato; ovario glabro, stylis leviter pilosis.

An erect, unbranched shrub up to 1 m high, entirely glabrous except the conspicuously pilose corollas, the stems pale when dry, about 5 mm in diameter. Leaves opposite, those of each pair equal or subequal in size and shape, membranaceous, subolivaceous, oblong to oblong-ovate, 14 to 28 cm long, 5 to 8 cm wide, narrowed above to the rather conspicuously acuminate apex and below to the cuneate and often slightly inequilateral base, the margins entire; lateral nerves 7 to 9 on each side of the midrib, prominent on the lower surface, the reticulations rather lax, slender; petioles 3 to 8 cm long. Inflorescences axillary, solitary, 2- or 3-flowered, the peduncles 2 to 3 mm long, each peduncle supplied with two, persistent, subfoliaceous bracts, the bracts elliptic to elliptic-ovate, sessile, about 18 mm long, 21 mm wide, compli-
cate, somewhat acuminate, persistent and somewhat accrescent in fruit, attaining a length of 2.5 cm, longitudinally 7-nerved, somewhat reticulate. Flowers sessile, white, 4.5 to 5 cm long, calyx about 12 mm long, at first 2-lobed, ultimately equally 5-lobed, the lobes oblong-ovate, acute or acuminate, 3 mm long. Corolla tube conspicuously pilose externally with long, weak hairs, the lower 18 mm narrow, cylindric, then widened. Filaments 12 mm long, glabrous, the anthers 2 mm in length, connate. Staminodes filiform, glabrous, 5 to 6 mm long. Disk cylindric, glabrous, nearly 3 mm long, slightly crenulate. Ovary glabrous, the styles slightly pilose, the stigma oblique, 1 mm long, 3 mm wide. Fruit oblong, subcylindric, glabrous, 1.5 to 2 cm long.

Mindanao, Zamboanga District, Malangas, Bur. Sci. 36937 (type), 36742 Ramos & Edano, October and November, 1919. Along streams in damp forests at low altitudes.

A species strongly characterized by its unbranched habit; by its opposite, subequal, long-petioled, entire leaves; and especially by its peculiar inflorescences which are axillary, short-peduncled, supplied with two conspicuous, persistent bracts subtending the usually three sessile flowers. The species is entirely glabrous except the conspicuously pilose corollas. It does not appear to be closely allied to any previously described species of the genus and is aberrant in the various sections of the genus as defined by C. B. Clarke, although apparently coming nearest to the section Coccineae.

ACANTHACEAE

HYPOESTES R. Brown

HYPOESTES MINDORENSIS sp. nov.

Planta erecta, suffruticosa, ramosa, circiter 1 m alta, ramulis puberulis; foliis ovatis, membranaceis, 6 ad 9 cm longis, utrinque plus minusve puberulis, sursum angustatis, apice tenuiter acute acuminali, basi late subtruncato-rotundatis, nervis utrinque circiter 8; inflorescentiis puberulis, floribus subdistichis dispositis, bracteis 15 mm longis, lanceolatis, caudato-acuminatis, sursum distincte ciliatis, deorsum (4 mm) connatis, bracteis inferioribus circiter 10 mm longis, acuminalis; bracteolis 1 mm longis; calycis lobis membranaceis, 2 mm longis, lanceolatis; corollae tubo 7 mm longo, lobis 11 ad 13 mm longis, angustioribus 1 mm latis, latioribus oblongo-ovatis, 5 mm latis.

An erect, branched, suffrutescent or distinctly woody plant about 1 m high, the branches glabrous, the branchlets more or
less puberulent. Leaves ovate, membranaceous, 6 to 9 cm long, 3.5 to 5 cm wide, both surfaces more or less puberulent, at least along the midrib and lateral nerves, the upper surface dark olivaceous, the lower pale, gradually narrowed upward to the slenderly and sharply acuminate apex, the base broadly rounded, often truncate; lateral nerves about 8 on each side of the midrib, prominent on the lower surface, the reticulations distinct; petioles 1.5 to 3 cm long. Inflorescences axillary and subterminal, the lower ones often with peduncles up to 4 cm in length, the upper ones short-peduncled, the flowers distichously arranged on the branchlets, the peduncles, rachis, branches, and bracts puberulent. Flowers about 2 cm long, pale purplish, the connate bracts about 15 mm long, lanceolate, slenderly caudate-acuminate, distinctly ciliate in the upper one-half with spreading, weak, crisped hairs, united for the lower 4 to 5 mm, the inner two or three bracts lanceolate, acuminate, somewhat pubescent, 9 to 10 mm long, about 2 mm wide, narrowed at both ends, the bracteoles lanceolate, acuminate, 1 mm long. Calyx about 6 mm long, somewhat pubescent, the lobes 5, membranaceous, lanceolate, acuminate, 2 mm long. Corolla tube about 7 mm long, glabrous below, somewhat pubescent above, the narrower lobe 11 to 12 mm long, about 1 mm wide, the broader one 12 to 13 mm long, 5 mm wide, oblong-ovovate, slightly narrowed below, the apical lobules 1.5 to 2 mm long, the middle one somewhat broader than the two lateral ones. Filaments slightly pubescent; anthers oblong, about 2.5 mm long.

MINDORO, Paluan, Bur. Sci. 39702 Ramos, April, 1921. In dry forests at low altitudes.

This species somewhat resembles Hypoestes cinerea C. B. Clarke, but differs totally in its caudate-acuminate leaves and involucral bracts. In its floral and inflorescence characters it is manifestly allied to H. subcapitata C. B. Clarke and H. laxiflora Nees, but differs radically from both of these in its vegetative characters.

**HYPOESTES AXILLARIS** sp. nov.

Suffruticosa, erecta, ramosa, usque ad 50 cm alta, leviter pubescentibus; foliis in paribus subaequalibus vel inaequalibus, ovatis ad oblongo-ovatis, majoribus 6 ad 12 cm longis, minoribus 3 ad 6 cm longis, acute acuminatis, basi acutis, membranaceis, olivaceis, nervis utrinque 6 vel 7; inflorescentiis axillaribus terminalibusque, involucris paucis, solitariis vel fasciculatis, sessilibus vel pedunculatis; bracteis 4, lanceolatis, acuminatis,
11 mm longis, cinereo-pubescentibus; floribus circiter 18 mm longis.

An erect, suffrutescent, branched plant, up to 50 cm high, more or less cinereous-pubescent. Leaves in equal or distinctly unequal pairs, ovate to oblong-ovate, acutely acuminate, base acute, membranaceous, olivaceous, the larger ones 6 to 12 cm long and 4 to 6 cm wide, the smaller ones 3 to 6 cm long and 2 to 3 cm wide, the upper surface rather minutely cinereous-pubescent with scattered hairs, the indumentum more conspicuous on the midrib, the lower surface somewhat pubescent, paler; lateral nerves 6 or 7 on each side of the midrib, slender, distinct; petioles cinereous-pubescent, 1 to 4 cm long. Flowers pink, chiefly axillary, the involucres few, solitary or fascicled, never more than 5 in a fascicle, sessile or shortly peduncled; bracts 4, lanceolate, slenderly acuminate, about 11 mm long, sparingly cinereous-pubescent, the outer two united for the lower 3 mm. Calyx 5 to 6 mm long, pubescent, membranaceous, the lobes lanceolate, acuminate, 2 mm in length. Corolla 1.8 cm long, sparingly hirsute externally in the upper two-thirds, the tube 9 mm long, glabrous below, the lower lip 9 mm long, 3-lobed, the lobes broadly ovate, rounded, 2 mm in length. Filaments 7 mm long, slightly ciliate; anthers 1.5 mm long.


Among the Philippine species perhaps as close to Hypoestes subcapitata C. B. Clarke as any, but remote from it in its vegetative, inflorescence, and bract characters, the bracts being merely pubescent, not at all ciliate. A striking character of the present species is its chiefly axillary inflorescences, the involucres being fascicled, not arranged on an elongated rachis, and often solitary or in pairs, or never exceeding five in a single inflorescence.

Hypoestes tenuis sp. nov.

Herba parva, ramosa, circiter 20 cm alta, erecta vel deorsum decumbens, caulis vix 1 mm diametro; foliis in paribus aequali-bus, ovatis ad oblongo-ovatis, membranaceis, 1 ad 3 cm longis, obtusis vel obtuse acuminatis, nervis utrinque 3 vel 4; inflores-centiis axillaribus terminalibusque, involucris paucis, plerumque spicatim dispositis, spicis usque ad 5 cm longis; bracteis 4, lanceolatis, acuminatis, 8 ad 9 mm longis, minute cinereo-pubescentibus; floribus 1.5 cm longis.
A slender, branched, erect herb, up to 20 cm high, the stems 1 mm or less in diameter, terete, often decumbent below, the branches, petioles, and inflorescences minutely cinereous-pubescent. Leaves in equal pairs, ovate to oblong-ovate, membranaceous, 1 to 3 cm long, 7 to 14 mm wide, obtuse or sometimes broadly and obtusely acuminate, the base acute, the upper surface olivaceous, sparingly pubescent with short, scattered hairs, the lower surface paler, minutely pubescent at least on the midrib and nerves; lateral nerves usually 3 or 4 on each side of the midrib, slender; petioles 2 to 6 mm long, minutely pubescent. Involucres for the most part spicately arranged, the spikes terminating the branchlets, a few solitary ones in the upper axils, the spikes up to 5 cm long, presenting at most 5 or 6 involucres. Bracts 4, lanceolate, acuminate, 8 to 9 mm long, minutely cinereous-pubescent, the outer two united for the lower 2 to 3 mm. Calyx 2 to 3 mm long, membranaceous, the lobes narrowly lanceolate, acuminate, somewhat ciliate, nearly as long as the tube. Corolla 1.5 cm long, sparingly hirsute in the upper part, the tube 7 mm long, glabrous; upper lip 8 mm long, 2 mm wide, narrowly oblong, 2-nerved, obtuse; lower lip as long as the upper one, 5 mm wide, somewhat narrowed below, 3-lobed, the lobes about 2 mm long, ovate, rounded. Filaments 5 mm long; anthers about 1 mm long.

LUZON, Cagayan Province, between Mision and San Vicente, For. Bür. 16693 Bacani, March, 1909, near the seashore.

A species strongly characterized by its small size, its slender stems, small leaves, and spicately arranged flowers.

HYPOESTES CONFERTIFLORA sp. nov.

Erecta, usque ad 60 cm alta, inflorescentiis perspicue ciliatiis exceptis glabra; foliis in paribus subaequalibus, chartaceis, oblongis, 6 ad 17 cm longis, acuminatis, basi decurrentibus, nervis utrinque circiter 9; inflorescentiis terminalibus, subcapitatis, confertis, 2 cm diametro, multifloris; involucris numerosis, bracteis 4, lanceolatis, acuminatis, exterioribus 12 ad 13 mm longis, dense longeque albido-ciliatis, interioribus leviter ciliatis; calycis 8 mm longis, pubescentibus, lobis lineari-lanceolatis, tubo aequan- tibus.

An erect, somewhat branched, herbaceous or suffrutescent plant, up to 60 cm high, entirely glabrous except the very prominently ciliate inflorescences. Stems terete, smooth, straw-colored, about 4 mm in diameter, the internodes 6 to 16 cm long. Leaves in equal or subequal pairs, chartaceous, oblong, 6 to 17
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cm long, 3 to 5 cm wide, pale brownish when dry, subequally narrowed to the somewhat acuminate apex and the decurrent base; lateral nerves about 9 on each side of the midrib, rather prominent on the lower surface, the reticulation obscure; petioles 1 to 2.5 cm long. Flowers crowded in a dense, subglobose, sessile or very shortly peduncled, terminal inflorescence about 2 cm in diameter. Involutral bracts 4 subtending each flower, the outer two lanceolate, acuminate, 12 to 13 mm long, very densely ciliate in the upper two-thirds with white, 2 mm long, spreading hairs, the lower third glabrous or only slightly pubescent, the inner two bracts similar to the outer ones but shorter and ciliate only on the median portion of the back. Calyx pubescent, 8 mm long, the lobes linear-lanceolate, acuminate, equaling the tube.

LUZON, Zambales Province, Santa Maria, Bur. Sci. 4756 Ramos, December, 1907. In open places at low altitudes.

A species very strongly characterized by its dense, subcapitate inflorescences, and more especially by its densely and very conspicuously ciliate involucral bracts. Its alliance is with Hypoestes subcapitata C. B. Clarke, from which it is readily distinguished by its larger, more numerousy nerves, leaves, its inflorescence and involucre characters, and by being glabrous throughout except for the inflorescences.

HEMIGRAPHIS Nees

HEMIGRAPHIS LANCEOLATA sp. nov.

Herba erecta, ramosa, 50 ad 70 cm alta, partibus junioribus perspicue hirsutis; foliis lanceolatis, chartaceis, in siccitate fragilis, 6 ad 14 cm longis, caudato-acuminatis, basi acutis, margine undulato-crenatis, glabris, nervis utrinque 4 ad 8; spicis terminalibus axillaribusque, usque ad 7 cm longis, bracteis foliaceis, numerosis, lanceolatis, 1.5 ad 2 cm longis, utrinque hirsutis, acuminati, basi acutis; calycis segmentis lineari-lanceolatis, caudato-acuminatis, hirsutis, 10 mm longis; corolla alba, 1.6 cm longa, sursum pubescens, lobis 4 mm longis; filamentis longioribus villosis, brevioribus glabris; capsulis hirsutis, 6 ad 7 mm longis.

An erect, branched herb, 50 to 70 cm high, the younger parts rather conspicuously hirsute with stiff, white hairs, the stems and branches dark-colored when dry, glabrous or very slightly pubescent, usually sulcate. Leaves lanceolate, chartaceous, brittle when dry, 6 to 14 cm long, 1 to 3 cm wide, olivaceous,
narrowed upward to the slenderly caudate-acuminate apex and below to the acute base, the upper surface glabrous, smooth, with numerous irregularly arranged cystoliths, the lower surface uniformly dark purple when fresh, when dry nearly the same color as the upper surface, glabrous or when young sparingly hirsute, the margins irregularly undulate-crenate; lateral nerves 4 to 8 on each side of the midrib, distant, anastomosing; petioles 1 to 2 cm long. spikes terminal and in the uppermost axils forming a somewhat leafy inflorescence, the individual inflorescences 7 cm long or less; bracts foliaceous, lanceolate, 1.5 to 2 cm long, about 5 mm wide, hirsute on both surfaces with scattered, stiff, spreading, white hairs, narrowed below to the acute base and above to the acuminate or acute apex, the internodes of the inflorescences up to 1 cm in length. Calyx segments linear-lanceolate, caudate-acuminate, about 10 mm long, 1 mm wide, hirsute. Corolla white, about 1.6 cm long, the tube slender, cylindric and glabrous in the lower 5 mm, then broadened and sparingly pubescent externally, the lobes elliptic, rounded, about 4 mm long, the tube somewhat villous inside in the upper part. Longer filaments 3 mm in length, villous, the shorter ones glabrous; anthers 1.2 mm long. Ovary villous in the upper half; style glabrous. Capsules oblong, hirsute, 6 to 7 mm long, about 1.8 mm wide.


A species strongly characterized by its narrow, lanceolate, caudate-acuminate leaves which are green on the upper surface and uniformly dark purple on the lower surface when fresh, as well as by its numerous, foliaceous, lanceolate, hirsute bracts. The specimens were originally referred to Hemigraphis hirsuta T. Anders.

HEMIGRAPHIS PACHYPHYLLA sp. nov.

Herba erecta, ramosa, leviter hirsuta, usque ad 60 cm alta; foliis in paribus aequalibus vel subaequalibus, coriaceis, olivaceis, in siccitate fragilis, ellipticis ad oblongis, 6 ad 11 cm longis, basi acutis, apice acutis vel leviter acuminatis, supra glabris, subtus scaberulis, nervis utrinque 5 vel 6; inflorescentiis terminalibus, spicatis, spicis plerumque 3, pedunculatis, usque ad 5 cm longis; bracteis numerosis, foliaceis, oblongis ad lanceolatis, utrinque angustatis, 12 ad 14 mm longis, hirsutis; calycis lobis
hirsutis, lineari-lanceolatis, circiter 7 mm longis; corolla alba, 1.8 cm longa, extus leviter pubescens; filamentis longioribus perspicue villosis; capsulis 11 mm longis, oblongis, cinereo-pubescentibus.

An erect, branched, somewhat hirsute herb, up to 60 cm high, the older stems glabrous, terete or somewhat 4-angled, the younger branches sparingly hirsute with short, usually pressed hairs. Leaves in equal or subequal pairs, coriaceous, olivaceous, brittle when dry, elliptic to oblong, 6 to 11 cm long, 2 to 4 cm wide, subequally narrowed to the acute base and the acute or somewhat acuminate apex, the upper surface glabrous, smooth, and with numerous, irregularly arranged cystoliths, the lower surface scabrid and more or less pubescent on the midrib and nerves, the margins irregularly crenate; lateral nerves 5 or 6 on each side of the midrib, rather prominent, anastomosing, the primary reticulations lax; petioles more or less pubescent, 1 to 2 cm long. Inflorescences terminal, usually consisting of 3 peduncled spikes from the tip of each branch, the peduncles up to 1.5 cm long, the spikes up to 5 cm in length. Bracts coriaceous, oblong to lanceolate, narrowed upward to the obtuse apex and below to the acute base, 12 to 14 mm long, 4 to 5 mm wide, sparingly hirsute with stiff, short hairs on both surfaces. Calyx about 7 mm long, somewhat hirsute, the lobes linear-lanceolate, slender, acuminate, nearly free, the tips of the lobes supplied with 1 to 3 very slender hairs up to 2 mm in length. Corolla white, about 1.8 cm long, the tube glabrous in the lower, slender 6 mm, then gradually widened and sparingly pubescent, the lobes broadly ovate, 3 to 4 mm long. Longer filaments 2 mm in length, densely villous on one side, the shorter ones very sparingly villous; anthers 2 mm long. Ovary oblong, 2 to 5 mm long, densely pubescent; style somewhat villous. Capsules about 11 mm long, cinereous-pubescent, oblong, somewhat acuminate; seeds ovoid, 1.3 mm long, minutely pubescent.

LUZON, Camarines Province, Paracale, Bur. Sci. 33974 (type), 33647 Ramos & Edaño, December, 1918. In thickets and in recent clearings at low altitudes. Bur. Sci. 33477 Ramos & Edaño from the same locality differs in its relatively somewhat broader, longer-petioled leaves, but probably represents the same species.

A species in the general alliance with Hemigraphis cumingiana F.-Vill., from which it is distinguished among other characters by its much thicker leaves which are scabrid on the lower surface.
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PERISTROPHE Nees

PERISTROPHE CORDATIBRACTEA sp. nov.

Herba annua, 30 ad 40 cm alta, ramosa, ramulis junioribus leviter pubescentibus; foliis lanceolatis, chartaceis, utrinque cystolithis numerosis instructis, 3 ad 7 cm longis, sursum angustatis, apice obtuse acuminatis, basi acutis ad subobtusis, nervis utrinque 4 vel 5; cymis paucifloris, bracteis inferioribus oblongis ad lanceolatis, 2 ad 3 mm longis, superioribus foliaceis, ovatis ad oblongo-ovatis, acutis, basi late rotundatis et distincte cordatis, 12 ad 15 mm longis, 6 ad 10 mm latis; floribus circiter 2.2 cm longis, sepalis anguste lanceolatis, 4 mm longis, corolla sursum leviter ciliata; capsulis 10 mm longis, leviter hirsutis, seminibus 8.

A slender annual herb 30 to 40 cm high, the lower portions of the stems often decumbent, the branches, leaves, and bracts with numerous cystoliths, the branches at most 1.5 mm in diameter, the very young branchlets sparingly appressed-pubescent. Leaves lanceolate, chartaceous, 3 to 7 cm long, 7 to 15 mm wide, dark olivaceous when dry, entire or very obscurely undulate, narrowed upward to the blunt-acuminate apex, the base acute to subobtuse; lateral nerves 4 or 5 on each side of the midrib, slender, obscure; petioles 3 to 10 mm long. Cymes terminal, few-flowered, the bracts subtending the pedicels narrow, oblong to lanceolate, at most 2 to 3 mm long, the two foliaceous bracts subtending the flowers ovate to oblong-ovate, acute, the base broadly rounded and distinctly cordate, 12 to 15 mm long, 6 to 10 mm wide, sessile, the bracteoles narrowly lanceolate, acuminate, 4 to 6 mm long. Sepals narrowly lanceolate, acuminate, slightly pubescent, 4 mm long. Corolla pale purplish, about 2.2 cm long, the tube slender, 12 mm long and slightly ciliate above, the broader lobes 9 to 10 mm long, 6 to 7 mm wide, obovate, the narrower one oblong, obtuse, about 4 mm wide. Anthers linear-oblong, 3.5 to 4 mm long, the upper cell slightly overlapping the upper portion of the lower one. Capsules about 10 mm long, sparingly hirsute, the basal narrowed portion 5 mm long, the seed-bearing part oblong, somewhat acuminate, about 2 mm in diameter. Seeds 8, about 2 mm in diameter.

MINDORO, Mount Calavite, Bur. Sci. 39392 Ramos, April, 1921. Along streams in primary forests at an altitude of about 700 meters.

A species well characterized by its narrow lanceolate leaves and its distinctly cordate floral bracts.
STROBILANTHES PACHYS C. B. Clarke in herb. Kew. sp. nov.

Suffruticosa, ramosa, inflorescentis exceptis glabra; foliis in paribus inaequalibus, coriaceis, glabris, integris, oblongis ad oblongo-ovatis, acuminatis, basi decurrentibus, nervis utrinque 5 ad 8, majoribus 7 ad 13 cm longis, minoribus 3 ad 8 cm longis; spicis terminalibus, 3 ad 10 cm longis, circiter 1 cm diametro, densis, bracteis coriaceis, lanceolatis, 1.5 cm longis, leviter ferrugineo-pubescentibus; floribus circiter 3.5 cm longis, calycis lobis 5, liberis, anguste lanceolatis, 11 mm longis; corolla glabra; ovario oblongo, glabro, apice ferrugineo-pubescente; capsulis oblongis, 2 cm longis.

An erect, branched, suffrutescent plant, glabrous or nearly so except the inflorescences, the ultimate branches terete, brownish, about 3 mm in diameter, the very young branchlets nearly black, angled or sulcate, slightly pubescent. Leaves in unequal pairs, olivaceous, oblong to oblong-ovate, entire, both surfaces very densely covered with irregularly arranged cystoliths, glabrous, narrowed upward to the distinctly acuminate apex and below to the decurrent base, the larger ones of each pair 7 to 13 cm long, 3 to 4.5 cm wide, the smaller ones 3 to 8 cm long, 2 to 3.3 cm wide; lateral nerves of the larger leaves about 8 on each side of the midrib, of the smaller ones about 5, rather prominent, the reticulations obscure. Inflorescences terminal and terminating short lateral branches, spicate, 3 to 10 cm long, the bracts persistent, coriaceous, lanceolate, about 1.5 cm long, 4 to 5 mm wide, sparingly ferruginous-pubescent, nearly black when dry, narrowed upward to the bluntly acuminate apex. Calyx lobes free, narrowly lanceolate, subcoriaceous, 11 mm long, 2 mm wide, slightly pubescent. Corolla lavender, glabrous, 3.5 cm long, the tube narrow and cylindric in the lower 12 mm, then enlarged. Stamens 4. Ovary oblong, pubescent at the apex; style slender, sparingly villous. Capsules oblong, 2 cm long, about 3 mm in diameter, glabrous except at the very tips which are sparingly ferruginous-hirsute; seeds orbicular-ovate, about 3 mm long, appressed-pubescent with pale-brownish hairs.

LUZON, Nueva Vizcaya Province, near Imugan, Bur. Sci. 14378 McGregor, April, 1912. The specimen closely matches Vidal 3012 in the Kew Herbarium bearing Clarke's unpublished manuscript name which I have adopted for the species; Vidal's specimen was from the Caraballo Sur Mountains and was probably collected on the trail between Caranglan and Dupax, hence, coming from the same general region as McGregor's specimen.
The species is very strongly characterized among the Philippine forms by its rather thickly coriaceous, entire, glabrous leaves and its elongated, spikelike inflorescences which are at most 1 cm in diameter, the persistent coriaceous, lanceolate bracts being sparingly ferruginous-pubescent.

**HALLIERACANTHA** Stapf

This genus, so far as known, is confined to Borneo and the Philippines, having twenty-one species in Borneo, three in Palawan, one in Mindanao and Basilan, and one in Mindoro and Luzon. My previous conception of *Polytrema* was largely based on *Polytrema aequifolium* C. B. Clarke of Palawan. Recently, in studying our Philippine and Bornean material, I concluded that this species could not be generically separated from *Hallieracantha*. A communication from Dr. O. Stapf, in answer to my queries, clears up the matter. He states that *Hallieracantha* was published in July, 1907, and *Polytrema* in November or December, 1907, and further that *Polytrema aequifolium* C. B. Clarke is a *Hallieracantha*, not a *Polytrema*, the latter genus being typified by *P. vulgare* C. B. Clarke. The Philippine forms formerly placed in *Polytrema* are here transferred to *Hallieracantha*.

**HALLIERACANTHA AEOQUIFOLIA** (C. B. Clarke) comb. nov.


**PALAWAN, Bur. Sci. 357 Bermejos.**

**HALLIERACANTHA ADDISONIENSIS** (Elm.) comb. nov.


**PALAWAN, Elmer 12715, Merrill 7235.**

**HALLIERACANTHA ELMERI** nom. nov.


**PALAWAN, Elmer 12785.**

**HALLIERACANTHA BREVIPETIOLATA** sp. nov.

Herba erecta, ramosa, 30 ad 40 cm alta, partibus junioribus leviter pubescentibus; foliis in paribus subaequalibus, oblongis, membranaceis, utrinque cystolithis numerosis instructis, 5 ad 9 cm longis, breviter petiolatis, obtusis ad subacutis, basi ple-rumque obtusis, nervis utrinque circiter 6, perspicuis; petiolo 2 ad 6 mm longo; cymis breviter pedunculatis, paucifloris,
bracteis ovato-lanceolatis, 2 ad 2.5 mm longis, calycis segmentis anguste lanceolatis, acuminatis, 6 ad 7 mm longis; corolla alba, 12 mm longa, extus leviter pubescens, tubo sursum ampliato; capsulis oblanceolatis, 1.5 cm longis.

An erect branched herb 30 to 40 cm high, the younger parts sparingly pubescent, the branches terete, glabrous or nearly so, usually dark greenish when dry, the branchlets distinctly pubescent, often compressed or obscurely angular. Leaves of each pair equal or but slightly unequal, oblong, membranaceous, olivaceous, shining, 5 to 9 cm long, 2 to 3.5 cm wide, with numerous cystoliths, glabrous on both surfaces, the margins entire or very obscurely undulate, the apex obtuse to subacute, base usually obtuse, sometimes acute; lateral nerves about 6 on each side of the midrib, prominent; petioles 2 to 6 mm long, somewhat pubescent. Cymes axillary, short-peduncled, rather few-flowered, the peduncles sparingly pubescent, up to 8 mm long. Bracts ovate-lanceolate, acuminate, 2 to 2.5 mm long, the pedicels 1 to 2 mm long. Calyx segments 5, narrowly lanceolate, acuminate, somewhat pubescent, 6 to 7 mm long. Corolla white, about 12 mm long, the lower 4 mm of the tube cylindric, about 1 mm in diameter, then somewhat inflated and slightly pubescent, the whole tube about 9 mm long; the larger lobe 4.5 mm long, about 3 mm wide, cleft, the lobules oblong-ovate, 2 mm long, the smaller lobe 3-lobulate, the lobules oblong-elliptic, obtuse, 3 mm long, the middle one slightly broader than the two lateral ones. Filaments glabrous; anthers about 1.5 mm long, one cell attached slightly above the other. Capsules oblanceolate, glabrous or slightly pubescent, about 1.5 cm long, 2.5 mm in diameter, the sterile basal part 6 to 7 mm long.

MINDORO, Paluan, Bur. Sci. 39761 Ramos, April, 1921. In dry forests at low altitudes. A single specimen collected on Mount Maquiling, Laguna Province, Luzon, by forestry students in November, 1913, represents the same species.

A species apparently most closely allied to Hallieracantha aequifolia (C. B. Clarke) Merr., differing in numerous characters and readily distinguished by its much shorter petioles.

RUBIACEAE

TARENNA Gaertner

TARENNA PANGASINENSIS sp. nov.

Arbor parva circiter 4 m alta, plus minusve cinereo-pubescentibus; foliis subcoriaceis, oblongis, 7 ad 10 cm longis, supra
olivaceis, glabris, nitidis, subtus pallidis et subdense cinereo-pubescentibus, indumento nitido, apice acutis ad obscure obtuseque acuminatis, basi acutis, nervis utrinque circiter 10, subtus distinctis, junioribus plerumque in axillis glandulosis barbatisque; cymis 3 ad 4 cm longis, usque ad 4 cm diametro, cinereo-pubescentibus; floribus numerosis, subconfertis, corollae tubo 4 mm longo, glabro, fauce villoso, lobis 5, oblongo-ellipticis, 5 mm longis, calycis cinereo-pubescentibus.

A small tree about 4 m high, the branches glabrous, reddish brown to grayish, terete, the branches minutely pubescent. Leaves subcoriaceous, oblong, 7 to 10 cm long, 2 to 3.5 cm wide, subequally narrowed to the acute or very slightly acuminate apex and to the acute base, the upper surface glabrous, olivaceous, shining, the lower surface pale and uniformly cinereous-pubescent with short, appressed, shining hairs, the younger leaves usually conspicuously glandular and barbate in the axils of the veins; lateral nerves about 10 on each side of the midrib, rather slender, distinct, the reticulations lax, obscure; petioles 8 to 10 mm long, pubescent or ultimately glabrous; stipules more or less pubescent, sheathing, about 8 mm long. Inflorescences terminal, shortly peduncled, 3 to 4 cm long and 2.5 to 4 cm wide, cinereo-pubescent. Flowers white, numerous, fragrant, crowded, 5-merous, their pedicels about 2 mm long, the bracts and bracteoles minute, ovate, acuminate, 0.5 mm long. Calyx cinereo-pubescent, cup-shaped, about 2 mm long, the lobes orbicular-ovate, rounded, 0.5 mm long, their margins somewhat ciliate. Corolla tube 4 mm long, glabrous outside, the throat villous inside, the lobes oblong-elliptic, rounded, 5 mm long, spreading or reflexed. Stamens exserted, the anthers linear-oblong, 4 mm long. Style and stigma about 12 mm long, narrowly club-shaped. Ovules few.

LUZON, Pangasinan Province, Aguilar, For. Bur. 28419 Zamuco, April 21, 1921. Near streams at low altitudes.

This species has much the facies of Tarenna asiatica O. Kuntze, from which, however, it differs in numerous details and more especially in the indumentum on the lower surface of the leaves. It does not appear to be closely allied to any previously described Philippine form.

COWIEA Wernham

COWIEA PHILIPPINENSIS sp. nov.

Frutex erectus, 1 ad 3 m altus, inflorescentiis leviter ferrugineo-hirsutis exceptis glaber; foliiis chartaceis ad subcoriaceis,
oblongo-ellipticis, 12 ad 18 cm longis, utrinqve subequaliter angustatis, breviter acuminatis, basi acutis ad subrotundatis, nervis utrinqve 10 ad 12, perspicuis; stipulis 1 cm longis, in \( \frac{1}{3} \) inferiore parte connatis, vaginatis; spicis plerumque extra-axillaribus, tenuibus, 11 ad 20 cm longis; floribus fasciculatis, tenuibus, 11 ad 20 cm longis; floribus fasciculatis, paucifloris, bracteis ovatis, acuminatis, 3 mm longis cum bracteolis lanceolatis calycibusque plus minusve ferrugineo-hirsutis, calycis profunde 5-lobatis, lobis 1.5 mm longis; corollae tubo 2 mm longo, intus haud barbato.

An erect shrub 1 to 3 m high, glabrous except the somewhat ferruginous-hirsute inflorescences. Branches terete, rather smooth, the ultimate branchlets more or less sulcate, about 2 mm in diameter. Leaves firmly chartaceous or subcoriaceous, oblong-elliptic, 12 to 18 cm long, 5 to 7 cm wide, subequally narrowed to the acute or somewhat rounded base and to the shortly acuminate apex, the upper surface olivaceous, rather dull, the lower surface paler; lateral nerves 10 to 12 on each side of the midrib, slightly raised on the upper surface, rather prominent on the lower surface, obscurely arched-anastomosing, the reticulations lax; petioles 3 to 5 mm long; stipules about 1 cm long, sheathing, united for about one-half their length, the free portions ovate, acuminate. Inflorescences chiefly extra-axillary, solitary, on the ultimate branches, usually inserted about 1 cm above the nodes, slender, 11 to 20 cm long, more or less ferruginous-hirsute, spikelike, the flowers fascicled at the nodes, sessile, the bracts subtending the fascicles ovate, acuminate, somewhat ferruginous-hirsute, about 3 mm long, the bracteoles lanceolate, acuminate, about 2 mm long. Flowers small, 5-merous, sessile or subsessile, few in a fascicle, the calyx about 2 mm long, somewhat pubescent, deeply cleft, the lobes lanceolate, about 1.5 mm long, ferruginous-hirsute. Corolla glabrous on both surfaces, the tube 2 mm long, the lobes oblong-ovate, obtuse, somewhat twisted-imbricate, 1 mm long. Anthers linear-lanceolate, 2.5 mm long, the connectives produced about 0.3 mm. Style narrowly club-shaped, grooved, glabrous, 2 mm long.

Mindanao, Zamboanga District, Malangas and Mount Tubuan, Bur. Sci. 36819, 36683 Ramos & Edano, October and November, 1919. In damp forests along streams at low altitudes.

The genus Cowiea, previously a monotypic one, was described from material collected by Miss Gibbs in British North Borneo,
and the Bornean species is represented in our collections by several recently collected specimens. The present species differs from *Cowiea borneensis* Wernh. in its deeply cleft calyces; its ferruginous indumentum; its corolla being glabrous, not bearded inside; and in its stipules being united into a distinct tube in the lower one-half. It is furthermore an erect shrub. In this connection, *Cowiea borneensis* Wernh. is described as scandent, but the labels on all of our recently collected Bornean material indicate an erect shrub.

**IXORA Linnaeus**

**IXORA MYRIANTHA** sp. nov.

Frutex vel arbor parva, usque ad 8 m alta, glaberrima; foliis membranaceis ad chartaceis, 9 ad 17 cm longis, oblongis ad oblongo-ellipticis, acuminatis, basi plerumque acutis, nervis utrinque circiter 10, subtus perspicuis, foliis superioribus plerumque brevissime petiolatis, basi late rotundatis; inflorescentiis pedunculatis, multifloris, 4 ad 8 cm latis, floribus albis, confertis, bracteis bracteolisque lanceolatis, 1 mm longis; calycis 1.2 mm longis, lobis acutis, brevibus; corollae tubo 12 mm longo, lobis late lanceolatis ad oblongo-lanceolatis, acuminatis, 5 mm longis.

An entirely glabrous shrub or small tree reaching a height of 8 m, the branches and branchlets rather slender, usually brownish, terete. Leaves membranaceous to chartaceous, oblong to oblong-elliptic, 9 to 17 cm long, 3.5 to 6 cm wide, usually brownish when dry, somewhat shining, narrowed upward to the blunt-acuminate apex and below to the acute base; lateral nerves about 10 on each side of the midrib, rather distant, arched-anastomosing, prominent on the lower surface, the reticulations lax, distinct; petioles 10 to 12 mm long; stipules lanceolate-acuminate from an ovate base, 5 to 6 mm long. The upper pair of leaves subtending the inflorescences are in general similar to the normal leaves but are subsessile or shortly petiolated and with broadly rounded bases. Inflorescences terminal, peduncled, many-flowered, 4 to 8 cm wide, the peduncles 4 to 5 cm in length, the bracts subtending the branches narrowly lanceolate, acuminate, 4 to 7 mm long. Flowers rather crowded, white, their pedicels about 2 mm long, the bracts and bracteoles lanceolate, acuminate, 1 mm in length. Calyx glabrous, cup-shaped, 1.2 mm long, 4-toothed, the teeth triangular, acute or acuminate, about one-third as long as the tube. Corolla
white, the tube 12 mm long, rather slender, nearly black when dry, the lobes lanceolate to oblong-lanceolate, acuminated, 5 mm long, 2 mm wide. Anthers linear-lanceolate, up to 3.5 mm in length.


A species apparently most closely allied to Ixora cumingiana Vid., differing especially in its crowded shorter flowers.

PLEIOCARPIDIA K. Schumann

PLEIOCARPIDIA LANAESIS sp. nov.

Arbor parva, usque ad 12 m alta, partibus junioribus et subtus foliis ad costa nervisque plus minusve pubescentibus; foliis oblongis, coriaceis, 15 ad 30 cm longis, 5 ad 11 cm latis, acuminatis, basi acutis ad late rotundatis, nervis utrinque 15 ad 18, subtus valde perspicuis; inflorescentiiis paniculatis, 4 ad 8 cm longis, pedunculatis, floribus polygamis, plerumque 7-meris, \( 3 \) calycis 3 mm diametro, cinereo-pubescentibus, corollae tubo 2 mm longo, lobis lanceolatis, 3 mm longis, intus villosis; disco puberulo; fructibus globosis, 6 ad 7 mm diametro, subglabris.

A small tree attaining 12 m in height, the younger parts, inflorescences and the leaves on the midrib and nerves beneath more or less pubescent. Branches terete, rather stout, smooth, glabrous, brownish or grayish, the ultimate branchlets 2.5 to 4 mm in diameter, often compressed or sulcate. Leaves oblong, coriaceous, 15 to 30 cm long, 5 to 11 cm wide, usually pale when dry, the upper surface glabrous, the apex shortly acuminated, base acute to rounded; lateral nerves 15 to 18 on each side of the midrib, somewhat curved, very prominent on the lower surface, the reticulations distinct; petioles 1.5 to 2 cm long, more or less pubescent; stipules oblong or ovate, 6 to 8 mm long, obtuse or acute. Inflorescences axillary, peduncled, cymose, more or less pubescent, 4 to 8 cm long, 3 to 6 cm wide, somewhat pyramidal, many-flowered, the peduncles usually about 1 cm long. Flowers apparently polygamous, usually 7-merous, the calyx of the staminate ones about 3 mm in diameter, shallowly cup-shaped, truncate or obscurely toothed. Corolla about 5 mm long, the tube 2 mm in length, the lobes usually 7, lanceolate, 3 mm long, densely villous at the throat inside. Filaments 3 mm long, the anthers 1 mm in length. Disk prominent, cushion-shaped, puberulent, not lobed, about 1.5 mm in diameter. Calyces of the perfect flowers somewhat urceolate; style about
1.3 mm long, the stigma 1 mm in diameter. Fruits globose, 6 to 7 mm in diameter, nearly glabrous, crowned by the shallow calyx limb and the prominent, puberulent disk.

**MINDANAO, Lanao District, Mrs. Clemens 882** (type), January, 1907; Zamboanga District, Merrill 8064, 8098, December, 1911, Bur. Sci. 37226 Ramos & Edaño, November, 1918: Bukidnon Subprovince, 38988 Ramos & Edaño, June, 1920. In forests and along streams at low and medium altitudes, ascending to 800 meters.

This species is manifestly allied to *Pleiocarpidia enneandra* (Wight) K. Schum. of the Malay Peninsula, Sumatra, and Borneo, differing among other characters in its leaves being more or less pubescent beneath, and in its usually 7-merous flowers. It is somewhat intermediate between *Pleiocarpidia* and *Urophyllum*, the two genera being very closely allied; perhaps *Pleiocarpidia* should be merged in *Urophyllum*. The specimens cited above were all distributed as *Urophyllum*. *Aulacodiscus* Hook. f. non Ehrenb. must be replaced by *Pleiocarpidia* if this group is to be retained as generically distinct from *Urophyllum*.

**GARDENIA Linnaeus**

**GARDENIA MEGALOCARPA** sp. nov.

Arbor parva, ramulis et subtus foliis molliter pubescentibus; foliis chartaceis vel submembranaceis, obovatis ad oblongo-obovatis, 15 ad 22 cm longis, acuminatis, basi cuneatis, supra olivaceis, nitidis, glabris, nervis utrinque 18 ad 22, perspicua; fructibus ellipsoidibus, magnis, glabris, leviter 5-carinatis, circiter 7 cm longis, calycis lobis persistentibus, pubescentibus, profunde carinatis, carinis productis, anguste oblongis, falcatis, 1.5 cm longis, 4 mm latis. Species G. carinatae Wall. affinis.

A small tree, the branchlets and the lower surface of the leaves softly pubescent, the ultimate branchlets 4 to 5 mm in diameter, grayish. Leaves chartaceous or subcoriaceous, obovate to oblong-obovate, 15 to 22 cm long, 6 to 10 cm wide, the apex distinctly acuminate, the base cuneate, the upper surface glabrous, olivaceous, shining, the lower surface somewhat paler, the indumentum largely confined to the midrib, nerves, and reticulations; lateral nerves 18 to 22 on each side of the midrib, prominent on the lower surface, spreading or somewhat ascending, the primary reticulations subparallel, slender; petioles pubescent, 1 to 1.3 cm long; stipules 1 to 1.5 cm long, somewhat sheathing, pubescent. Fruits solitary, in the uppermost axils, shortly peduncled, ellipsoid, glabrous, orange-red when
fresh, brownish when dry, about 7 cm long, 4.5 cm in diameter, longitudinally 5-ridged, the ridges conspicuous near the apex of the fruit, obscure or nearly obsolete in the lower part of the fruit, the persistent calyx lobes pubescent, deeply carinate, the keels produced, narrowly oblong, falcate, 1.5 cm long, 4 mm wide, obtuse.

MINDORO, Paluan, Bur. Sci. 38919 Ramos, April 22, 1921.

In forests at low altitudes.

A species manifestly allied to Gardenia carinata Wall., but readily distinguished by its much larger fruits.

UROPHYLLUM Wallich

UROPHYLLUM MINDORENSE sp. nov.

Frutex subglaber, partibus junioribus inflorescentiisque parcissime pubescentibus; foliis oblongis ad oblongo-ellipticis, 7 ad 11 cm longis, membranaceis, olivaceis, utrinque glabris, acuminatis, basi late acutis, nervis utrinque 8 ad 10, perspicuis, stipulis anguste lanceolatis, deciduis, 3 mm longis; floribus fasciculatis, pedicellatis, bracteis lineari-lanceolatis, 2 ad 3 mm longis; calycis cupulatis, 4 mm longis, 4-lobatis; corolla 8 mm longa, 5-lobata, extus glabra, intus barbata, lobis oblongo-ovatis, acutis, 3.5 ad 4 mm longis.

A nearly glabrous shrub, the very young parts and the inflorescences obscurely pubescent, the branches slender, pale or greenish, glabrous. Leaves oblong to oblong-elliptic, membranaceous, 7 to 11 cm long, 3 to 5 cm wide, olivaceous, shining, entirely glabrous on both surfaces, the very young ones slightly pubescent, apex rather slenderly acuminate, the base broadly acute; lateral nerves 8 to 10 on each side of the midrib, spreading, rather prominent on the lower surface, anastomosing, the primary reticulations rather lax, distinct; petioles glabrous, 1 to 1.8 cm long; stipules narrowly lanceolate, acuminate, about 8 mm long. Flowers white, in axillary fascicles, pedicelled, the pedicels very slightly pubescent, 2 to 5 mm long, the subtending bracts linear-lanceolate, acuminate, 2 to 3 mm long. Calyx cup-shaped, about 4 mm long, 4-lobed, the lobes about 2 mm wide, 1 mm long, shortly acuminate. Corolla 8 mm long, glabrous outside, the tube 4 to 4.5 mm long, somewhat expanded above the calyx rim, the throat densely villous inside, the lobes 5, oblong-ovate, acute, 3.5 to 4 mm long, bearded at the base inside. Anthers 1.5 mm long including the rather conspicuous produced connective.
MINDORO, Mount Calavite, Bur. Sci. 39279 (type), 39398 Ramos, April, 1921. On forested slopes, altitude 600 to 700 meters.

A species belonging in the group with *Urophyllum acuminatum* Merr., but with broader, more numerously nerved, differently shaped, not caudate-acuminate leaves, and nearly glabrous throughout.

ARGOSTEMMA Wallich

**ARGOSTEMMA ARACHNOSUM** sp. nov.

Herba simplex, suberecta, usque ad 20 cm alta, subtus foliis ad costa nervisque dense arachnoso-villosis; foliis numerosis, oblongis ad oblongo-ellipticis, 4.5 ad 8 cm longis, in paribus subaequalibus, obtusis ad brevissime acuminatis, nervis utrinque circiter 8, subtus perspicuis; inflorescentiis longe pedunculatis, cymosis, 1.5 ad 3 cm longis, arachnoso-villosis, pedunculo usque ad 9 cm longo, glabro; floribus 5-meris, pedicellis villosis, 10 ad 12 mm longis.

A simple, suberect herb, up to 20 cm high, the stems usually decumbent below, about 3 mm in diameter, the younger parts more or less villous or hirsute. Leaves numerous, in scattered pairs, those of each pair equal or subequal, oblong to oblong-elliptic, obtuse or very shortly acuminate, membranaceous or chartaceous, 4.5 to 8 cm long, 1.8 to 2.5 cm wide, the base acute to rounded, the upper surface usually black when dry, sparingly villous along the midrib or entirely glabrous, the lower surface very conspicuously and densely villous with dirty-brown, crisped, cobwebby hairs on the midrib, nerves, and reticulations; lateral nerves about 8 on each side of the midrib, prominent on the lower surface; petioles 1 to 2 cm long, villous; stipules oblong, about 8 mm long, 4 mm wide, acuminate. Inflorescences terminal, cymose, the cymes rather densely flowered and umbelliform, villous, 1.5 to 3 cm long; peduncles elongated, glabrous, 5 to 9 cm long, often with a whorl of membranaceous, oblong-ovate, 4 to 5 mm long bracts at about the middle, the bracts subtending the branches oblong to oblong-lanceolate, 2.5 to 5 mm long, the bracteoles broadly ovate, obtuse, 2 mm long. Flowers 5-merous, their pedicels villous, 10 to 12 mm long. Calyx about 2.2 mm in diameter, densely villous, the lobes broadly ovate, spreading, glabrous inside, 1 mm long. Fruit about 4 mm long and wide, somewhat cup-shaped, the calyx limb well produced above the fruit.

A species strongly characterized by its midribs, nerves, and reticulations on the lower surface of the leaves being densely cobwebby-villous and, hence, very conspicuous, as well as by its long-peduncled inflorescences. It belongs in the general group with *Argostemma urticifolium* King and *A. teysmannianum* Miq.

**LASIANTHUS** Jack

**LASIANTHUS MINDANAENSIS** sp. nov.

Frutex 2 m altus, ramis ramulisque subdense adpresse hirsutis; foliis chartaceis vel subcoriaceis, lanceolatis, caudato-acuminatis, 11 ad 18 cm longis, 2.5 ad 4 cm latis, basi acutis, supra olivaceis, glabris, subtus ad costa et nervis reticulisque adpresse-villosis, nervis utrinque 7, curvato-ascendingentibus, perspicuis; floribus axillaribus, paucis, sessilibus, 5-meris, bracteis bracteolisque lanceolatis, acuminatis, villosis, bracteis 8 mm longis, persistentibus; calycis tubo glabro, lobis 2 mm longis, villosis; fructibus subovoideis, 5 mm longis.

A shrub about 2 m high, the branches and branchlets terete, rather densely appressed-hirsute with brown hairs, the ultimate branchlets about 2 mm in diameter. Leaves chartaceous to subcoriaceous, lanceolate, 11 to 18 cm long, 2.5 to 4 cm wide, the apex slenderly caudate-acuminate, the base acute, the upper surface olivaceous, glabrous, shining, the lower surface appressed-villous on the midrib, nerves, and reticulations, the indumentum on the midrib brownish, on the nerves and reticulations yellowish green; lateral nerves 7 on each side of the midrib, curved-ascending, prominent, the reticulations rather distinct on the lower surface; petioles 10 to 12 mm long, densely appressed-villous with brown hairs; stipules ovate, acuminate, 3 to 4 mm long, persistent, densely appressed-villous outside. Flowers few, in axillary sessile fascicles, the subtending bracts narrowly lanceolate, acuminate, appressed-villous, persistent, about 8 mm long, the bracteoles similar but only half as long. Fruits subovoid, glabrous, 5 mm long, crowned by the villous persistent calyx teeth.

A species somewhat resembling *Lasianthus morus* Elm., but differing distinctly in its indumentum and in its calyx lobes. It differs from *Lasianthus acuminatissimus* Merr. in its indumentum, wider leaves, very different stipules, and conspicuous, persistent bracts and bracteoles.

**LASIANTHUS ACUMINATISSimus** sp. nov.

Frutex circiter 1 m altus, ramis ramulisque minute et obscure adpresse hirsutis; foliis chartaceis, anguste lanceolatis, 9 ad 20 cm longis, 1.5 ad 3 cm latis, sursum sensim angustatis, ten-uitere caudato-acuminatis, basi acutis, supra olivaceis, glabris, subitus ad costa et nervis reticulisque breviter pubescentibus, nervis utrinque circiter 7, curvato-adscendentibus, perspicuis; floribus paucis, fasciculatis, sessilibus, 5-meris, ebracteolatis, calycis breviter 5-dentatis, corollae tubo cylindrico, 5 mm longo, intus viloso, lobis oblongis, 3 mm longis, intus villosis.

An erect shrub about 1 m high, the branches and branchlets terete, brownish or olivaceous when dry, minutely and obscurely appressed-hirsute with short hairs, the ultimate branchlets 1.5 to 2 mm in diameter. Leaves chartaceous, narrowly lanceolate, 9 to 20 cm long, 1.5 to 3 cm wide, gradually narrowed upward to the slenderly caudate-acuminate apex, the base acute, the upper surface olivaceous, glabrous, somewhat shining, the lower surface shortly pubescent on the midrib, nerves, and reticulations, the indumentum yellowish green; lateral nerves about 7 on each side of the midrib, curved-ascending, distinct on both surfaces as are the reticulations; petioles more or less pubescent, 5 to 7 mm long; stipules linear to linear-lanceolate, pubescent, nearly as long as the petioles, deciduous. Flowers few, white, in axillary sessile fascicles, 5-merous. Calyx 3 mm long, slightly pubescent, the teeth triangular, acute, 0.5 mm long, their margins slightly ciliate. Corolla tube cylindric, somewhat pubescent externally, about 5 mm long, glabrous inside in the lower half, villous in the upper half, the lobes oblong, 3 mm long, villous inside. Anthers oblong, 2.2 mm long. Disk cushion-shaped, 1 mm long, glabrous. Style 6 mm in length.


A species belonging in the general group with *Lasianthus morus* Elm., well characterized, however, by its elongated, narrowly lanceolate, caudate-acuminate leaves.
HEDYOTIS CAMARINENSIS sp. nov.

Suffruticosa, subscandens, stipulis inflorescentiisque plus minusve hirsutis exceptis glabra; caulis teretibus, laevis, 4 mm diametro, ramulis plus minusve compressis vel sulcatis; foliis chartaceis ad subcoriaceis, lanceolatis, usque ad 10 cm longis et 3 cm latis, breviter petiolatis, acutis vel obscure acuminatis, basi acutis, nervis utrinque 5, adscendentibus, perspicuis, reticulis obsoletis; stipulis latis, pectinatis, laciniae circiter 7, hirsutae, longioribus 6 ad 9 mm longae; inflorescentiis axillaris, cymis laxis, 1 cm longis, paucifloris, leviter hirsutis, calycis lobis oblongo-lanceolatis, acuminatis, 1.5 ad 2 mm longis.

A suffrutescent, scandent plant at least 1 m high, glabrous except the stipules and inflorescences. Stems terete, smooth, dark-colored, about 4 mm in diameter, the younger branchlets usually compressed or sulcate. Leaves chartaceous to subcoriaceous, lanceolate, 7 to 10 cm long, 2 to 3 cm wide, greenish olivaceous, smooth, glabrous, slightly shining, the lower surface paler than the upper, the apex acute or slightly acuminate, the base acute; lateral nerves 5 on each side of the midrib, ascending, scarcely anastomosing, prominent, the reticulations obsolete; petioles stout, 3 to 4 mm long; stipules broad, the body about 3 mm long, 6 to 9 mm wide, glabrous, subtruncate, pectinate, the lobes about 7, linear, stiff, more or less hirsute, the inner ones 6 to 9 mm long, the outer ones gradually shorter, a few intermediate ones often present, 1 mm or less in length. Cymes axillary, lax, few-flowered, about 1 cm long, sparingly hirsute, the pedicels 2 to 3 mm long, slender. Calyx tube about 1 mm long, glabrous or nearly so, the lobes 4, oblong-lanceolate, somewhat acuminate, slightly hirsute, 1.5 to 2 mm long. Capsules globose, 1.5 mm in diameter, crowned by the persistent calyx lobes.


The specimens were originally identified as Hedyotis rigida Miq., but represent a species rather remote from the one described by Miquel. It is strongly characterized by its short petioles, glabrous, lanceolate, acute, prominently and obliquely nerved leaves, the reticulations being obsolete, as well as by its stipule and inflorescence characters.
HEDYOTIS BAMBUSETORUM sp. nov.

Suffruticosa, ramosa, usque ad 1 m alta, inflorescentiis leviter hirsutis exceptis glabra, caulis teretibus, laevis, 4 mm diametro, ramulis teretibus vel leviter compressis vel sulcatis; foliis oblongo-ovatis ad ovato-lanceolatis, usque ad 17 cm longis, chartaceis, in siccitate olivaceis, nitidis, fragilis, tenuiter acute acuminati, basi acutis ad subrotundatis, nervis utrinque 6 vel 7, curvato-adscendentibus, utrinque elevatis; stipulis laitis, pectinatis, laciniae circiter 13, 7 ad 8 mm longae, glabrae, glanduliferae; inflorescentiis axillaribus, sessilibus, globosis, 1 ad 1.5 cm diametro; floribus numerosis, confertis, 5 mm longis, calycis lobis 4, lanceolatis, obscure hirsutis, 2 mm longis.

A suffrutescent, erect, branched plant up to 1 m high, glabrous except the very slightly hirsute inflorescences, the stems smooth, terete, subolivaceous, 4 mm in diameter, the branchlets terete or slightly compressed or sulcate. Leaves oblong-ovate to ovate-lanceolate, chartaceous, 9 to 17 cm long, 3 to 5 cm wide, when dry olivaceous, shining, fragile, smooth, the apex slenderly and acutely acuminate, the base acute to somewhat rounded or even decurrent; lateral nerves 6 or 7 on each side of the midrib, curved-ascending, projecting on both surfaces, slender but distinct, obscurely anastomosing, the reticulations lax, not prominent; petioles of the larger leaves 1 to 1.5 cm long; stipules broadly triangular, glabrous, about 8 mm wide, the body about 5 mm long, pectinate, the segments about 13, linear, the median ones longer, 7 to 8 mm long, the outer ones shorter, 3 to 4 mm long, all gland-tipped. Inflorescences axillary, globose, sessile, dense, 1 to 1.5 cm in diameter. Flowers white, numerous, crowded, the bracteoles lanceolate, acuminate, 4 to 6 mm long, slightly hirsute, the pedicels 1 mm long or less. Flowers about 5 mm long, 4-merous. Calyx tube glabrous, 1.5 mm long, the lobes lanceolate, about 2 mm long, glabrous or slightly hirsute. Corolla tube slender, glabrous, 3 mm long, the throat and lobes slightly bearded inside, the lobes oblong-lanceolate, 1.5 mm long. Style glabrous, 5 mm long.

PALAWAN, Taytay, Merrill 9214, April, 1913. Along trails in bamboo thickets at low altitudes.

A species apparently most closely allied to the Bornean *Hedyotis platyphylla* Merr., but differing in its branches, its terete stems, more numerous segments of its stipules, shorter petioles, and in its nerves not being impressed on the upper surface.
OPHIORRHIZA Linnaeus

OPHIORRHIZA DOLICHOPHYLLA sp. nov.

Planta suffruticosa, erecta, simplex, usque ad 50 cm alta, inflorescentis leviter pubescentibus exceptis glabra; foliis membranaceis, utrinque olivaceis, nitidis, lineari-lanceolatis, 20 ad 25 cm longis, 7 ad 10 mm latis, sursum sensim angustatis, tenue leucato-acuminatis, basi decurrentibus, nervis obscuris; cymis sessilibus, leviter ferrugineo-pubescentibus, 3 cm longis; fructibus 7 mm latis, 3 ad 4 mm longis, subtruncatis.

An erect, unbranched, suffrutescent plant, 40 to 50 cm long, glabrous except the sparingly pubescent inflorescences, the stems about 3 mm in diameter. Leaves linear-lanceolate, membranaceous, olivaceous and shining on both surfaces, 20 to 25 cm long, 7 to 10 mm wide, entire, narrowed upward to the very slenderly caudate-acuminate apex and below to the decurrent base, the midrib rather prominent on both surfaces, the lateral nerves distant, obscure; petioles 1 cm long or less; stipules 5 to 7 mm long, divided into from 3 to 5 linear segments. Cymes terminal, sessile, sparingly ferrugineous-pubescent, in fruit up to 3 cm long, the fruits subtruncate, compressed, about 7 mm wide, 3 to 4 mm long, glabrous or nearly so.

MINDANAO, Zamboanga District, Mount Tubuan, Bur. Sci. 36565 Ramos & Edano, October, 1919. On bowlders along small streams at low altitudes.

A remarkable species, strongly characterized by its greatly elongated, linear-lanceolate, narrow, slenderly caudate-acuminate leaves.

CUCURBITACEAE

ALSOMITRA M. Roemer

ALSOMITRA SIMPLICIFOLIA sp. nov.

Frutex scandens, glaber; foliis ellipticis, integris, 10 ad 18 cm longis, apice breviter obtuse acuminatis apiculatisque, basi cordatis; inflorescentiis solitariis, 20 ad 30 cm longis, depauperato-paniculatis, ramis paucis, inferioribus usque ad 2 cm longis; fructibus sessilibus, truncatis, 3.5 cm longis, circiter 1.5 cm latis, basi acutis, in siccitate brunneis.

A scandent, somewhat woody, glabrous vine, the branches lenticellate, up to 5 mm in diameter. Leaves simple, firmly chartaceous, elliptic, entire, 10 to 18 cm long, 4.5 to 10 cm wide, the apex bluntly acuminate and minutely apiculate, the base 3-nerved, cordate, the sinus up to 1.5 cm wide, rather
shallow, the lobes rounded to subacute; lateral nerves above the basal pair 2 or 3 on each side of the midrib, slender, distinct, the reticulations lax; petioles 2 to 4 cm long; tendrils 5 to 21 cm long. Inflorescences slender, solitary, from the axils of fallen leaves, 20 to 30 cm long, the flowers racemously arranged in the upper part, in the lower part usually few and scattered, primary branches up to 2 cm in length. Buds rather thickly club-shaped, about 7 mm long. Fruits brown when dry, sessile or subsessile, truncate, smooth, 3.5 cm long, about 1.5 cm wide, base acute.

MINDANAO, Zamboanga District, Malangas, Bur. Sci. 37397 Ramos & Edano, November 3, 1919. In forests along streams at low altitudes, locally known as lalapid.

This species is manifestly most closely allied to Alsomitra timorana (Spanog.) Roem., from which it differs, among other characters, in its entire and very shortly acuminate leaves.

**GYnostemma** Blume

**GYnostemma Laxum** (Wall.) Cogn. in DC. Monog. Phan. 3 (1881) 914. Zanonia laxa Wall. Cat. (1831) no. 3727, nomen, Pl. Rar. As. 2 (1831) 29.


India to Sumatra, Java, and Borneo.

**CAPrifoliaceae**

**LonicerA** Linnaeus

**LonicerA mindanaensis** sp. nov. § Nintooa, Breviflorae.

A scandent shrub, glabrous except the sparingly pubescent younger parts and the inflorescences and flowers. Branches terete, smooth, reddish brown, glabrous, the branchlets slightly appressed-pubescent. Leaves chartaceous to subcoriaceous, oblong-ovate to oblong, 3.5 to 6 cm long, 1.5 to 3 cm wide, olivaceous and shining on both surfaces, glabrous, base broadly rounded, apex acute; lateral nerves slender, about 8 on each
side of the midrib; petioles 2 to 3 mm long, slightly pubescent. Flowers white and yellow, in 2-flowered cymes which are terminal and in the uppermost axils forming a few-flowered leafy inflorescence, the peduncles of the cymes somewhat pubescent, up to 8 mm long. Bracts triangular-ovate, acuminate, ciliate, about 2 mm long; bracteoles orbicular-reniform, broadly rounded, about 1 mm in diameter. Calyx 2 to 2.5 mm long, the tube glabrous, the teeth ovate, acute, 0.8 mm long, slightly pubescent. Corolla tube about 1 cm long, terete, somewhat enlarged upward, appressed-pubescent outside with short, brownish, retrorse, appressed hairs, villous inside, the lower lip about 12 mm long and 2 mm wide, the upper lip up to 7 mm wide, divided into 4 short, ovate, obtuse lobes which do not exceed 4 mm in length, the two lateral ones somewhat falcate. Filaments villous, except in the upper part, the hairs spreading; anthers 3.5 to 4 mm long. Style about 2.5 cm long, the upper 8 to 10 mm glabrous, the lower part villous with spreading hairs; stigma about 1.5 mm in diameter.


The third species of the genus to be found in the Philippines, most closely allied to Lonicera rehderi Merr., from which it differs in its glabrous leaves. From both Lonicera rehderi Merr. and L. philippinensis Merr. it differs in its larger flowers.

CAMPANULACEAE

PENTAPHRAGMA Wallich

PENTAPHRAGMA MINDANAENSE sp. nov.

Frutex erectis circiter 50 cm altus, partibus junioribus plus minusve crispato-pubescentibus; foliis inaequilateralibus, ellipticis ad oblongo-ellipticis, 15 ad 20 cm longis, integris, in siccitate membranaceis, subacutis vel breviter obtuseque acuminatis, basi subacutis, nervis utrinque 2 ad 4, adscendentibus; racemis usque ad 5 cm longis, haud scorpoides; floribus circiter 8 mm longis, bracteis membranaceis, 6 ad 8 mm longis; calycis lobis oblongo-ovatis, obtusis, membranaceis, petalis aequantibus; petalis incrassatis, oblongo-ovatis, acuminatis, glabris, 3 mm longis.

A small erect undershrub, about 50 cm high, the younger parts more or less pubescent with crisped hairs, the stem brown, rather smooth, terete, about 6 mm in diameter, distinctly woody. Leaves somewhat inequilateral, elliptic to oblong-elliptic, 15 to 20 cm long, 7 to 9 cm wide, entire, membranaceous when dry,
pale brownish, the apex subacut...e shortly and obtusely acuminate, the base subacute, often slightly inequilateral; lateral nerves 2 or 3 on each side of the midrib, or sometimes 4 on the broader side of the leaf, prominent, ascending; petioles about 3 cm long, pubescent. Racemes in the upper axils, up to 5 cm long, the flowers white, scarcely scorpioid in arrangement, about 8 mm long, the bracts spatulate to oblong-oblancoelate or often narrowly obovate, membranaceous, somewhat pubescent, 6 to 8 mm long. Pedicels 3 mm long or less. Calyx somewhat pubescent, the base cuneate, the lobes oblong-ovate, obtuse, membranaceous, about equaling the petals. Petals much thickened, oblong-ovate, acuminate, glabrous, about 3 mm long.

MINDANAO, Zamboanga District, Malangas and Mount Tubuan, Bur. Sci. 36834 (type), 36580 Ramos & Edaño, October, 1919. Along small streams in forests at low altitudes.

Among the few Philippine species of this genus the present one is most closely allied to Pentaphragma pulgarense Elm. of Palawan.

**COMPOSITAE**

**VERNONIA** Schreber

**VERNONIA BONTOCENSIS** sp. nov.

Frutex scandens, ramis leviter pubescentibus, parce lenticellatis, ramulis dense sordide pubescentibus; foliis membranaceis ad chartaceis, oblongis ad oblongo-ellipticis, 5 ad 9 cm longis, atro-olivaceis, integris, acutis vel acuminatis, basi acutis, subtus eglandulosis, nervis utrinque circiter 6, reticulis ultimis cystolithiformis; inflorescentiis axillaribus terminalibusque, capitulis paucis (2 ad 5), racemose dispositis; capitulis 14 mm longis, cylindraceis, circiter 8-floris, bracteis interioribus 7 mm longis, margine et apice pubescentibus; acheniis 4 mm longis, perspicue glandulosis.

A scandent, woody vine, the branches grayish brown, terete, longitudinally strigate, slightly pubescent, very sparingly lenticellate, the ultimate branchlets 1.5 to 2 mm in diameter, densely pubescent with short, dirty brown hairs. Leaves membranaceous to chartaceous, oblong to oblong-elliptic, 5 to 9 cm long, 2 to 3.5 cm wide, dark olivaceous, slightly shining, subequally narrowed to the acute or shortly acuminate apex and the cuneate base, the margins entire, the upper surface entirely glabrous, the lower surface sparingly pubescent on the midrib and nerves, eglandular, the ultimate reticulations on the lower surface distinctly cystolith-like; lateral nerves about 6 on each side of the
midrib, rather prominent, anastomosing, the primary reticulations lax, distinct; petioles pubescent, 8 to 10 mm long. Inflorescences terminal and in the leaf axils on the ultimate branchlets, the individual ones short, 2 to 4 cm in length, each composed of from 2 or 3 to 5 racemously arranged heads, the peduncles pubescent, up to 1 cm in length. Heads about 14 mm long, approximately 8-flowered, subcylindric, the outer bracts ovate, 2 mm long, distinctly pubescent, the inner ones gradually longer, the innermost about 7 mm long, 3 mm wide, acute, their margins and tips more or less pubescent; achenes 4 mm long, with numerous, shining, yellowish glands, the pappus copious, about 6 mm long, straw-colored or pale brownish.

Luzon, Bontoc Subprovince, Mount Pukis, Bur. Sci. 37752 Ramos & Edaño, March, 1920, on open slopes, altitude about 1,300 meters.

A species most closely allied to Vernonia lenticellata Elm., but with somewhat larger leaves and larger heads, the peduncles also longer in the present species. It differs further in the cystolith-like ultimate reticulations; its very sparingly lenticellate branches; and in the involucral bracts being pubescent chiefly on the margins and at their apices.

**VERNONIA MINDANAENSIS** sp. nov.

Frutex scandens, partibus junioribus sordide pubescentibus; foliis chartaceis ad subcoriaceis, oblongis ad oblongo-ovatis, integris, 6 ad 8 cm longis, acuminatis, basi acutis, subitus eglan dulosis, pubescentibus, nervis utrinque circiter 5; inflorescentiis paniculatis, usque ad 18 cm longis; capitulis, numerosis, 1.5 ad 1.7 cm longis, circiter 20-floris; bracteis dense cinereo-pubescentibus, interioribus 10 mm longis; achenis glabris, sulcatis, 4 mm longis. Species V. philippinensis affinis differt achenis glabrerrimis.

A woody vine reaching a height of 10 m, the branches dark reddish brown, striate, terete, somewhat pubescent, the ultimate branchlets 2 to 3 mm in diameter, rather densely pubescent with short, dirty brown hairs. Leaves chartaceous to subcoriaceous, oblong to oblong-ovate, entire, 6 to 8 cm long, 2.5 to 3.5 cm wide, the apex shortly acuminate, base cuneate, the upper surface dark olivaceous, shining, nearly glabrous except for the sparingly pubescent midrib and nerves, the lower surface paler, eglandular, with scattered pubescence on all parts but more especially on the midribs, nerves, and reticulations; lateral nerves about 5 on each side of the midrib, curved-anastomosing, distinct,
as are the primary reticulations; petioles pubescent, 5 to 10 mm long. Heads arranged in somewhat leafy panicles terminating the branchlets, the panicles rather densely pubescent, up to 18 cm long, the peduncles up to 1 cm in length. Heads 1.5 to 1.7 cm long, about 20-flowered, the outer bracts oblong to oblong-ovate, 2 mm long, the inner ones lanceolate, acuminate, about 10 mm long, 2.3 mm wide, all rather densely cinereous-pubescent. Achenes 4 mm long, longitudinally sulcate, entirely glabrous; pappus copious, somewhat tawny, about 10 mm long.

MINDANAO, Bukidnon Subprovince, Mount Candoon, Bur. Sci. 38886 (type) Ramos & Edano, June, 1920: Lanao District, Camp Keithley, Mrs. Clemens 1086, May, 1907. In damp forests at an altitude of about 1,000 meters. Locally known in Bukidnon as *gauod*.

A species belonging in the group with *Vernonia philippinensis* Rolfe, apparently most closely allied to that species, differing especially in its entirely glabrous achenes.

**LACTUCA** Linnaeus

**LACTUCA INTEGRA** sp. nov.

*Herba* erecta, glabra, ramosa, usque ad 40 cm alta; *foliis* chartaceis, lanceolatis ad oblongo-lanceolatis, acutis vel leviter acuminatis, usque ad 7 cm longis, radicalibus numerosis, petiolatis, confleratis, caulinaris quam radicalibus multo minoribus, sessilibus, nervis reticulatisque obscuris; capitulis corymbose-paniculatis, pedicellatis, 6 ad 7 mm longis, bracteis exsterioribus parvis, interioribus plerumque 8, circiter 6 mm longis, glabris, anguste oblongis, obtusis; acheneis oblongis, 3 ad 3.5 mm longis, longitudinaliter costatis, glabris, sursum leviter angustatis.

An erect, glabrous, branched herb about 40 cm high, olivaceous or brownish olivaceous when dry. Radical leaves very numerous, crowded, chartaceous, lanceolate, subequally narrowed at both ends, 5 to 7 cm long, 1 to 1.5 cm wide, entire, shining, acute, base decurrent; petioles up to 2 cm long; lateral nerves slender, obscure, anastomosing. Stem leaves much smaller than the radical ones, lanceolate to ovate-lanceolate, sessile, entire, acute, base obtuse to rounded or somewhat cordate, somewhat clasping the stems, 1.5 to 4 cm long, the upper much smaller than the lower ones. Branches few, scattered, up to 18 cm long. Heads corymbose-paniculate, 6 to 7 mm long, pedicellate, the outer bracts small, few, 2 mm long or less, the inner narrowly oblong, obtuse, 5 to 6 mm long, about 1 mm wide, glabrous. Flowers few, about 10 in each head. Corolla
about 4 mm long, the tube 1 mm. Achenes 3 to 3.5 mm long, somewhat compressed, glabrous, longitudinally about 9-ribbed, slightly narrowed upward. Pappus nearly white, 2.5 mm long, rather copious. Torus glabrous.

LUZON, Tayabas Province, Dingalan, Bur. Sci. 26586 Ramos & Edano, August 24, 1916, on rocks along the seashore.

A characteristic species, among the Philippine forms most closely allied to Lactuca dentata C. B. Rob., but entirely different from that species. It is readily recognizable by its heteromorphous entire leaves. The specimens were originally identified as Lactuca stolonifera (A. Gray) Maxim., but a comparison made by Mr. S. F. Blake with Gray’s type shows it to be very different from that species.
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