

## REINWARDTIA

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### NEW AND CRITICAL MALAYSIAN PLANTS VI\*

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#### SUMMARY

1. *Alseodaphne* Nees and *Nothaphoebe* Bl. are reinstated as distinct genera.
2. Newly described are *Alseodaphne corneri* Kosterm., *A. montana* Kosterm.; *Nothaphoebe paehyphylla* Kosterm. and *N. pahangensis* Kosterm.
3. *Iteadaphne philippinensis* Elmer is relegated to *Alseodaphne*.
4. Newly described in *Beilschmiedia* are: *B. filicifolia* Kosterm., *B. glau-eiphylla* Kosterm., *B. pilosa* Kosterm.
5. *Endiandra eusideroxylocarpa* Kosterm., a new species from Borneo.
6. *Dehaasia hirsute*, Kosterm., a new species from Borneo.
7. A new *Millettia* (*M. vasta* Kosterm.) is described from Borneo with notes on its distributional area.
8. *Lansium dornesticum*, var. *aquewm* Jack (a common market fruit in Sumatra, Java and S. Borneo) is raised to specific rank.
9. *Teijsmanniodendron pendulum* Kosterm., a new species from Central-East Borneo.

### LAURACEAE

#### ALSEODAPHNE Nees

Formerly I included *Alseodaphne* and *Nothaphoebe* as sections in *Persea*; after having been able to study the American representatives of *Persea*, I believe that they may be upheld as proper genera, the former differing by its usually swollen and enlarged fruit pedicel, the latter by the sunken ovary **and** the not fleshy pedicel. Although these characters are perhaps of minor importance, they have been useful also to maintain the generic status of *Dehaasia*. Apart from the above mentioned characters all species of *Alseodaphne* and *Nothaphoebe* of the Malaysian area have a leaf reticulation, different from that of *Persea*.

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\*) The first and second part of this series appeared in Reinwardtia 2: 357—366. 1953 and 3: 1—25. 1954 respectively; the third and fourth part appeared as separate issues of the Planning Division of the Forestry Service of Indonesia in Febr. and Oct. 1955 respectively; the fourth part appeared also in Reinwardtia 4: 1—40. 1956; the fifth part appeared in Gardens Bull., Singapore 17: 1—10. 1958.

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The genus *Machilus*, however, belongs definitely in *Persea* and cannot even be maintained as a section of the latter genus.

***Alseodaphne corneri*\*** Kosterm., *spec. nov.* — Fig. 1a et 1b.

*Arbor in omnibus partibus glabra (floribus intus exceptis), ramulis percrassis, rugosis, griseis; foliis rigide coriaceis, magnis, obovato-ellipticis, basi sensim cuneatis, apice cuspidatis, supra viridis, nitidis, nervo mediano prominente, nervis lateralibus subimpressis, subtus glaucis, nervo mediano valde prominente, venis lateralibus prominentibus, marginem versus arcuatis, venis secundariis distantibus, prominulosis; petiolo longo.*

*Paniculae sub innovatione foliorum confertae, vix ramosae, bracteatae; floribus pro genera maioribus. Fructus ellipsoideus, in pedicello valde incrassato, rugoso impositus; tepala persistentia.*

Tree, glabrous in all its parts (some hairs along the margins of the foliar bud scales and the inside of the flower excepted); branchlets very stout, grey, corky, with protruding, large petiole scars; terminal bud with lanceolate, acute, narrow, up to 1 cm long scales. Leaves subverticillate at apex of branchlets, rigidly coriaceous, obovate-elliptical, 28—52 by 12—16 cm, base tapering into the stout, ca 3—4 cm long, concolorous petioles, apex cuspidate; upper surface glossy, green, midrib prominent, nerves subimpressed; lower surface glaucous, midrib strongly prominent, nerves ca 22 pairs, prominent, arcuate towards margin; secondary nerves lax, prominulous.

Panicles clustered below the apical bud, axillary, narrow, up to 8 cm long, fleshy, hardly branched; bracts up to 6 mm long, persistent; pedicels 3 mm long. Flowers 5—6 mm long; tepals equal, elongate, acutish; 5 mm, inside pilose; stamens 2—3 mm long; anthers oval, about 1 mm long; outer ones with introrse cells; inner ones with extrorse basal and lateral apical cells; glands large; staminodes large, very acute, triangular, 1.5 mm long, stipitate. Ovary glabrous, merging into a 2 mm long style, broadened at apex (stigma).

Fruit ellipsoid, up to 3 by 2 cm, seated on a very thick, rough, rusty-warted, obconical pedicel, 2—3 cm long, at apex 1—1.5 cm in diam.; tepals persistent, 3—4 mm long.

TYPUS. — *Corner S.F.N. 284U* (SING).

DISTRIBUTION. — Malay Peninsula.

\*) Named in honour of E. J. H. Corner, P. R. S., Reader in Plant Taxonomy, Botany School, Cambridge, England, a well-known student of the Flora of the Malay Peninsula.

A species related to *A. paludosa* Gamble, but the leaves much larger and cuspidate.

Malay Peninsula. Johore, 13½ mile, Mawai-Jemaluang Rd., low, May, fr., Corner S.F.N. 28444 (SING); *ibid.* Febr., fl., Corner S.F.N. 28991 (SING).

***Alseodaphne montana*** Kosterm., spec. nov. — Fig. 2a et 2b.

*Arbor in omnibus partibus (florum partibus interioribus exceptis) glabra; ramulis griseis, suberosis; foliis ramulorum apicem congestis, rigide coriaceis, ellipticis usque ad obovato-ellipticis vel suboblanceolatis, basi cuneatis, decurrentibus, apice subacutis vel rotundatis, supra nitidis laevibus, nervo mediano sulcato, subtus glaucescentibus, dense minute subareolate-reticulatis, petiolo concolore, longo; paniculis axillaribus paucifloris; floribus pro genera maioribus; tepalis equalibus, intus pilosis; filamentis pilosis, longis, glandulis et staminodiis longe stipitatis; ovario glabro in stylo longo transeuns; stigmatate inconspicuo; fructu globoso, incrassato.*

Tree 35 m high, 1 m in diam., glabrous in all its parts (except the inside of the flowers). Branches grey with a corky layer; apical buds ovate, acute, 7 mm. Leaves alternate, congested near apex of branchlets, rigidly coriaceous, elliptical to subobovate-elliptical and suboblanceolate, 9—19 by 2—7 cm, base cuneate, somewhat decurrent into the slender, concolorous, up to 3 cm long petiole, apex acutish or rounded; upper surface glossy, smooth (in young leaves densely reticulate), midrib sulcate; lower surface glaucous, subareolate-reticulate, midrib strongly prominent, lateral nerves 12—16 pairs, slender, prominulous.

Panicles axillary below the new flush, 6—15 cm long; peduncle 4—13 cm long, ramifications few, up to 2 cm long; flowerbuds subtended by slender, acute, 2 mm long, deciduous bracts. Flowers large, 5—6 mm long; tepals elongate, base broad, 5 mm long, about equal in size, outer ones partly pilose near apex inside; inner ones pilose over the entire inner surface. Filaments slender, pilose, 3.5—4 mm long; anthers oval, 1 mm, outer ones introrse, inner ones extrorse; glands on slender, pilose, 0.5—1 mm long stalks; staminodes triangular on 1.5—2 mm long, pilose stalks; ovary glabrous, merging into a 2 mm long style; stigma inconspicuous. Pedicels slender, 5—7 mm long.

Fruit globular, sometimes a little pointed, up to 3.5 cm in diam., rusty-green (fresh), roughish; pedicel stout, warty, up to 12 mm long and 8 mm in diam.

TYPUS. — *J. & M. S. Clemens 28915* (SING).

DISTRIBUTION. — North Borneo, Mt. Kinabalu.

The species is related to *A. hainanensis* Merr., from which it differs in its leaf and flower characters; the fruiting pedicel in *A. hainanensis* is much longer.

North Borneo, Mt. Kinabalu, Tenompok, above Dallas trail, jungle trail to Tomis, alt. 1600 m., Jan., young fr., *J. & M.S. Clemens* 27890 (BO, G, SING); *ibid.*, March, young fr., *J. & M.S. Clemens* 28709 (BO); *ibid.*, March, fr., *J. & M.S. Clemens* 28795 (BO); *ibid.*, March, fl., *J. & M.S. Clemens* 28915 (BO, G, SING); *ibid.*, Apr., buds, *J. & M.S. Clemens* 29426 (BO, G); *ibid.*, Apr., fr., *J. & M.S. Clemens* 29452 (BO, G, SING); *ibid.*, Febr. fr., *J. & M.S. Clemens* 39352 (BO).

*Alseodaphne philippinensis* (Elmer) Kosterm., *comb. nov.* — Fig. 3

*Iteadaphne philippinensis* (basionym) Elmer, Leaflets Philipp. Bot. 21: 713. 1910. — *Elmer* 11493.

Tree glabrous in all its parts; branches grey-white, roughish, corky, Leaves alternate, congested near apex of branchlets, rigidly coriaceous, oblanceolate, 3.5—7 by 1—2.5 cm, base acute, somewhat decurrent, apex acute or subacuminate; upper surface glossy, rather smooth, midrib channelled; lower surface glaucous, densely areolate-reticulate, midrib prominent, nerves rather patent, ca 9 pairs, slender. Petioles up to 10 mm long.

Infructescence up to 7 cm long, not branched. Fruit globular (only immature ones seen); pedicel about 1 cm long, thickened (3 mm diam.).

PHILIPPINES. — Mindanao, Todaya (Mt Apo), Distr. of Davao, Aug., fr., Elmer 11493 (BO, G, NY).

#### NOTHAPHOEBE BL.

*Nothaphoebe pachyphylla* Kosterm., *spec. nov.* — Fig. 4.

*Arbor in omnibus partibus glabris, foliis coriaceis, magnis, obovato-ellipticis, basi sensim acutatis, apice obtusis, petiolo crasso, suberoso; infructescentiis parvis; fructu magno, claviforme vel ellipsoideo.*

Tree, glabrous in all its parts, ca 20 m. high, free bole 12 m, diameter up to 70 cm, slightly buttressed. Bark pinkish grey to yellowish brown, slightly fissured, ca 1 mm thick, with numerous lenticels; living bark pink to dark red, outside glossy lack-red, inside brown, 10—15 mm thick. Sapwood yellowish, 10 mm thick; heartwood yellowish blackish-brown with cigarbox-wood smell. Branchlets rough; apical bud broadly conical, 5 mm long; branches brownish grey, covered with a corky layer, rough. Leaves congested near apex of branchlets, coriaceous, up to 36 by 16 cm (average 26 by 11); obovate-elliptical, base gradually acute, apex rounded; upper surface glossy, smooth; lower surface dull, dark rusty when dried, midrib

and the 11—15 pairs of the erect-patent nerves prominent; secondary nerves slender, lax. Petioles stout, grey-brown, corky, rough, about 2 cm.

Infructescence below the new flush or farther down, 2—10 cm long, rough. Fruit club-shaped or ellipsoid, 8 by 3.5 cm, on a very short, thick stalk.

TYPUS. — *Kostermans 13376* (BO).

DISTRIBUTION. — East Indonesian Borneo, Sangkulirang District.

In general appearance resembling *Alseodaphne panduriformis* Hook. f. but different by its long petioles and not auriculate leafbase. The specimen *Kostermans 5554* has flowers (post anthesis) of which the description follows:

Inflorescence up to 10 cm, stiff, few-branched, slightly, sparsely, microscopically pilose towards the apex of the ramifications. Tepals ovate-triangular, acute, outer ones 1—1.5 mm, inner ones 2 mm long; stamens sessile, outer ones flat, depressed-ovate, broader than long, hardly 1 mm; cells very small in one arc, introrse; ovary glabrous, style short, stigma inconspicuous.

The inner stamens could not be traced any more. The species occurs along rivulets in moist places up to 400 m. alt.

East Indonesian Borneo. Sangkulirang Distr., Sg. Susuk region (N. of Sangkulirang), alt. 20 m., June, post anthesis, *Kostermans 5554* (A, BO, K, L, LAE, NSW, P, PNH); *ibid.*, Mt. Medadem, alt. 200 m. (N.W. of Sangkulirang), Aug., fr., *Kostermans 13376* (A, BM, BO, CAL, G, K, KEP, L, LAE, NY, P, PNH, SING); Berouw, Mt. Has Bungaän, alt. 300 m., Sept., fr., *Kostermans 1390k* (A, BO, CANB, K, KEP, L, LAE, P, PNH, SING).

*Nothaphoebe pahangensis* Kosterm., spec. nov. — Fig. 5.

*Alseodaphne reticulata* (Gamble) Kostermans, *New and crit. Mai. PL 4*: Oct. 1955., p.p., quoad spec. Henderson S.F.N. 23483 et Nur S.P.N. 32925.

*Arbor mediocris ramulis crassis glabris, foliis alternantibus apicem ramulorum sub-aggregatis, coriaceis glabris ellipticis apice inconspicue acuminatis basi acutis utrinque dense prominule reticulatis nervo mediano supra sulcato; petiolo longo; paniculis magnis multifloris, apicem versus minute pilosis; floribus dense minute pilosis parvis pedicellatis, tubus parvis, tepalis aequalis; filamentis brevis; ovario glabro; stigmatate peltato.*

Small tree, 10 m tall; branchlets stout, glabrous; apical bud small, ovoid-acute, densely pulverulently pilose. Leaves alternate, more or less aggregate near apex of branchlets, coriaceous, glabrous, elliptical 12—31 by 4—10 cm, apex rather shortly sharply acuminate, base acute, both surfaces densely, prominulously reticulate, upper surface glossy midrib impressed,

lower surface less glossy, midrib strongly prominent, nerves about 10 pairs, erect-patent, prominent. Petiole 2—5 cm long.

Panicles axillary below the apical bud, up to 35 cm long with stout bare peduncle (up to 15 cm long) and widely spaced patent ramifications, glabrous, the ultimate branchlets minutely pilose; bracts caducous. Flowers densely, minutely pilose, ca 2 mm in diameter; tube ca 1 mm; tepals spreading, stiff, ovate-acute, ca 1 mm. Anthers glabrous, about  $\frac{3}{4}$  mm, outer ones oval with introrse cells, placed in 2 tiers, filament very short, but distinct; inner ones more narrow, cells lateral; filament about half as long as the anthers; basal glands large, sessile; staminodes small. Ovary glabrous ovoid; style  $\frac{3}{4}$  mm long, stigma peltate.

TYPUS. — *Henderson S.F.N. 23483* (SING).

The species is related to *Alseodaphne petiolans* Hk. f. (which belongs in *Nothaphoebe*) and differs by the dense reticulation and the narrower leaves.

Malaya. Pahang, Camerons Highlands, alt. 1500 m., April, fl., *Henderson S.F.N. 2SA83* (BO, NY, SING); *ibid.*, Boh Plantation, alt. 1300 m., April, young fr., *Nur S.F.N. 32925* (SING).

#### BEILSCHMIEDIA Nees

- A *Beilschmiedia filicifolia* Kosterm., *spec. nov.* — Fig. 6.

*Arbor ramulis glabrescentibus, apice excepta, foliis alternantibus, glabris, rigide coriaceis, valde bullatis, anguste lanceolatis, petiolatis; inflorescentibus immaturis pulverulente pilosis.*

Tree 27 m high, 41 cm diameter; bark 10 mm, thick, black; wood rose; crown not wide spreading. Branchlets black (dried), glossy, smooth; apical buds short, sparsely, pulverulently pilose. Leaves alternate, glabrous, rigidly coriaceous, conspicuously bullate, narrowly lanceolate, 8—12 by 1—2 cm, apex gradually acute, base cuneate, margins strongly incurved; upper surface glossy, midrib prominent in a groove, nerves numerous (ca 30 pairs) parallel, patent, impressed, reticulation not visible; lower surface paler, dull, midrib strongly prominent, nerves very slender, reticulation not visible. Petiole 5—8 mm, sulcate above.

Inflorescence (immature) axillary, paniculate, pulverulently pilose, bracts aciculate, lower ones 3 mm long. Flower buds yellowish green.

TYPUS. — *Brass & Versteegh 11132* (BO).

DISTRIBUTION. — W. New Guinea, Habbema lake region.

According to the information on the label the tree is common in primary forest at about 2400 m altitude. Although there are no mature flowers present, the species is so characteristic by its leaves, that I have ventured to describe it here.

New Guinea, Bele R., 18 km. N.E. of Lake Habbema, alt. 2400 m, Nov., fl. buds, Brass & Versteegh 11132 (A, BO).

*Beilschmiedia glauciphylla* Kosterm., *spec. nov.* — Fig. 7.

*Arbor in omnibus partibus glabra, ramulis subcompressis; foliis suboppositis, coriaceis, conspicue reticulatis, basi cuneatis, apice breviter acuminatis, supra nitidis, subtus glaucis; petiolo magno; fructu obovoideo.*

Tree, glabrous in all its parts; branches opposite, regular, apical part compressed; apical bud conical, 3—5 mm long. Leaves coriaceous, subopposite, oblong or elliptical, 11—12.5 by 3.5—6 cm, base cuneate, somewhat decurrent, apex very shortly acuminate; both surfaces conspicuously, prominulously, laxly reticulate; upper one glossy, lower one glaucous; nerves 6—7 pairs, arcuate, prominulous. Petiole 1.5—2 cm, rather stout.

Infructescence axillary, about 6 cm long, unbranched, bearing a single club-shaped fruit, 3 cm long, at apex 15 mm in diam.; pedicel obconical, 5 mm long, 4 mm diam. at apex.

TYPUS. — *Beccari 686* (G).

DISTRIBUTION. — Borneo.

The species looks very similar to *B. percoriacea* Allen from Hainan, but the latter species has a non-decurrent leafbase and the lower leaf surface is not glaucous.

Borneo, locality not indicated, fr., *Beccari P.B. 686* (BO, G, K, L, S).

*Beilschmiedia pilosa* Kosterm., *spec. nov.* — Fig. 8.

*Arbor* (?), *ramulis crassis dense minute pilosis; foliis chartaceis, obovato-ellipticis, basi sensim acutis, apice conspicue cuspidatis, supra glabris, perlaxe prominulo-reticulatis, nervo mediano impresso, subtus hirsutis; infructescentiis parvis, dense minute pilosis.*

Tree (?); branches stout, densely pale brown, velvety pilose; leaf-scars large; apical bud conical, 5—8 mm long, densely velvety. Leaves congested near apex of branchlets, chartaceous, obovate-elliptical, 19—26 by 6—8.5 cm, towards base gradually acute, apex cuspidate, acumen slender, up to 2 cm long; upper surface glabrous, primary and secondary nerves prominulous, midrib impressed; lower surface covered with brown, erect hairs; midrib

strongly prominent; nerves about 15 pairs, rather straight, arcuate towards margin, prominulous, secondary nerves slightly prominulous, lax. Petiole stout, densely, rusty hirsute, 1.5—3 cm long. Infructescence densely pilose, 2—3 cm long, below the apical bud, slightly branched towards apex. Fruit on a naked pedicel.

TYPUS. — *J. & M. S. Clemens 30235* (BO).

DISTRIBUTION. — N. Borneo, Mt. Kinabalu.

The species is easily recognizable by the shape and pilosity of the leaves.

N. Borneo, Mt. Kinabalu, Dallas, alt. 1000 m., Sept., young fruit, *J. & M. S. Clemens 30235* (BO, G).

#### ENDIANDRA R. Br.

*Endiandra eusideroxylocarpa* Kosterm., *spec. nov.* — Fig. 9.

*Arbor elata ramulis foliisque glabris; foliis alternantibus (apicalibus suboppositis), rigide coriaceis, obovato-spathulatis, basi decurrentis apice obtusis, nervis lateralibus paucis, secundariis prominentibus, peraxe reticulatis, petiolo breve. Fructus ellipsoideus, magnus.*

Tree 40 m tall, 55 cm diameter. Buttresses 1 m high, 7.5 cm thick. Bark scaly, living bark 6 mm, brown; sapwood pink; heartwood reddish-brown. Branchlets slender, cylindrical, glabrous. Leaves alternate (apical ones subopposite), rigid coriaceous, glabrous, obovate to obovate-spathulate, 4—7 by 1.5—4 cm, apex rounded, base tapering, both surfaces glossy with slightly prominent midrib and rather erect, few (3—4 pairs) nerves and laxly reticulate secondary ones. Petioles short, thick, 5 mm, with decurrent leaf margins.

Infructescence short, unbranched, with one fruit. Fruit ellipsoid, up to 13 by 5.5 cm, russet.

TYPUS. — *Smythies, Brun. 0831* (BO).

DISTRIBUTION. — Brunei, Borneo.

The enormous fruit resembles that of *Eusideroxylon zwageri* T. & B.

Borneo. Brunei. Belait Distr., Andulau For. Res., boundary trail between Badas and Jelutong R., ridge, alt. 1000 m, sandy loam, Dec, fr., *Smythies, Brun. 0831* (BO, K).

#### DEHAASIA Bl.

*Dehaasia hirsuta* Kosterm., *spec. nov.* — Fig. 10.

*Arbor (?) ramis griseis, suberosis, ramulis dense minute pilosis; foliis apicem versus confertis, chartaceis, obovato-oblongis, conspicue prominulo-*



*reticulatis, basi acutis, apice acuminatis, supra glabris, nervo mediano subimpresso, subtus sparse pilosis; petiolo crasso, dense piloso, infructescentiis perbrevibus; fructu ellipsoideo, glabro, in pedicello perlongo colorato (?) imposito.*

Tree (?); branches grey-white, smooth, corky, towards apex densely minutely pilose; apical bud ovoid, acute, densely minutely, sericeous-stri-gose. Leaves alternate, congested near the apex of the branches, thinly chartaceous, obovate-oblong, 19—31 by 8.5—12 cm, base acute, apex shortly acuminate with a sharp tip; above glabrous, conspicuously, rather laxly, prominulously reticulate, midrib slightly impressed; lower surface dull, laxly pilose, midrib strongly prominent, nerves about 12—15 pairs, arcuate, prominulous, reticulation lax, prominulous. Petiole stout, densely, minutely pilose, up to 1.5 cm. Infructescence very short (or fruit single). Fruit ellipsoid, smooth, 3 by 1.5 cm, seated on a fleshy, coloured (?), 6 cm long stalk, 4 mm in diam.

TYPUS. — *Ridley s.n.* (K.)

DISTRIBUTION. — Borneo, only known from type locality.

The species is related to *Dehaasia membranacea* Kostermans, differs by its acute leaf base.

Borneo. Bongaya, Dec, fr., *Ridley s. n.* (K).

## LEGUMINOSAE

*Millettia vasta* Kosterm., *spec. nov.* — Fig. 11, 12.

*Arbor vasta foliis imparipinnatis, glabris; inflorescentiis pilosis terminalis paniculatis; floribus breve pedicellatis in racemo dispositis; calyce cupuliforme glabro, corolla purpurea, papilionacea, ovario stipitato, stylo parvo.*

Large tree, up to 40 m tall, up to 90 cm in diameter; buttresses up to 2 m high, out 1.5—2 m. Bark smooth, lightbrown. Branches with a soft pit, sometimes hollow. Leaves simply imparipinnate, glabrous; rachis up to 32 cm long, cylindrical, glossy, smooth; leaflets subopposite, up to 4 pairs, coriaceous, glabrous, elliptical to ovate and obovate-elliptical, 8—18 x 6—9 cm, base contracted into petiolule, apex obscurely acuminate (in young leaves caudate-acuminate), on both surfaces prominulously reticulate, midrib (upper part) somewhat impressed on upper surface, prominent on lower one, nerves about 6 pairs, curved, running out along margin. Leaves after drying brown or yellow on lower, green on upper surface. Petiole (drying black), 5—10 mm long, cylindrical.

Inflorescence terminal, consisting of racemes, arranged in a lax, pyramidal panicle, up to 35 cm long, peduncle and the virgate branches stout, minutely, densely pilose (towards base glabrous). Flowers dark purple, shortly (2 mm) petioled, glabrous; calyx cupshaped, stiff, up to 4 mm deep, up to 9 mm in diameter. Vexillum 2 cm long, 16 mm wide (folded), top incised, claw curved, 5 mm, conspicuous; keel up to 25 mm, knee-shaped, claw small; wings 15 mm, obliquely spatulate, at base auricled, claw 5 mm. Staminal tube up to 23 mm, the (5 mm) apical part bent upwards at an angle of 90 degrees; connate stamens 9, free stamen one; anthers versatile, elliptical, 1.5 mm long. Ovary slender, glabrous, 1.5 mm, on a 3 mm long stype; style 23 mm, stigma inconspicuous. Pod up to 25 cm long, obliquely spatulate, top acuminate; margins somewhat thickened, reticulation obscure (originating from basal suture), dehiscent along both sutures and becoming somewhat twisted spirally, inside smooth. Seeds oval, up to 3 cm long.

TYPUS. — *Kostermans 12516 A* (BO).

DISTRIBUTION. — E. Borneo.

The area of distribution in East Indonesia Borneo is rather sharply marked. Travelling from East to West it appears somewhat south of Kembang Djangut on Belajan R. and Melak on Mahakam R. and is found as far as the foothills of the Central Bornean Range. In South Borneo it appears likedise near the foothills.

It is always restricted to alluvials along rivers and rivulets. The tree in fruit may be easily mistaken for *Endertia spectabilis*. From a distance the hanging, stiff pods are conspicuously protruding from the dense dark green foliage of the canopy. The pods are similar to those of *Endertia spectabilis*. The latter grows in the same area, but not on the alluvial river banks, but on the slopes; moreover *Endertia* has no buttresses, and *Millettia vasta* has enormous buttresses. The timber is used for the same purposes as that of *Endertia spectabilis*. The local tribes make no difference between the two species. The inflorescence and colour of flowers strongly resemble those of *Millettia atropurpurea* from Sumatra, which is characteristic for slopes. The local name near Belajan was Dalok (name a tree finder from the Lake district).

INDONESIAN BORNEO, E. Borneo, W. Kutei, Belajan R. near Tabang, Aug., fr., *Kostermans 12668* (A, BM, BO, CANB, K, L); *ibid.*, near Muara Lempong, alt. 20 m., June, fl., *Kostermans 12516 A*, type (A, BO, K, L, SING); *ibid.*, near Long Bleh, alt. 30 m, Dec, ster., 66. 16066, 16113, 16118 (BO, L); *ibid.*, Oct., ster., 66. 29600 (BO); *ibid.*, near Kembang Djangut, Sept., ster., 66. 15607 (BO, K, L); South Borneo, Baritu Basin, Puruktjahu, Kalapak, alt. 200 m., March, ster., 66. 10988 (BO), 11035 (BO), 11091 (A, BO); 11112 (BO); *ibid.*, Oct., ster., 66. 10482 (BO, L).

## MELIACEAE

*Lansium* <sup>u</sup>*aqueum* (Jack) Kosterm., *comb. et stat. nov.* — Fig. 13.

*Lansium doinestium*, var. *aqueum* Jack in Trans. Linn. Soc. 14 (1): 116. 1823.

*Lansium domesticum*, var. *pwbescens* Koord. & Valeton, Bijdr. Boomsort. Java 3 in Meded. 's Lands Plantentuin 16: 181. 1896.

ILLUSTRATIVE SPECIMEN. — *Kostermans s.n.* (BO).

Apart from *Lansium domesticum*, the "duku" or "langsats" of Indonesia, a common market fruit is the "kokkossan", which has been considered a simple variety of *L. domesticum*.

The variety was described for the first time by Jack from Sumatra, where it is (was) known under the local name of "Ayer-ayer" (= water), an appropriate name, as the fruit is more juicy than that of *L. domesticum* and is eaten — not like those of the "duku" by peeling off the skin and consuming the aril of each seed — but by pressing the fruit till it bursts and then sucking out the juice through the aperture.

The partitional septa in the kokkossan are thicker and tougher than those of the "duku"; the fruit skin is thicker and pilose.

Koorders and Valeton created the varietal name *pubescens* for the kokkossan, as they were not sure about the conspecificity of the variety *aqueum* of Jack.

They stated incorrectly that Jack's variety should be at the specific level and their contention, that Jack's description consisted of one line only, is partly misleading, as Jack provided, apart from a short latin diagnosis, also a more ample English one.

From Jack's description it is almost certain, that the Javanese "kokkossan" is meant.

In Ochse (like Burkill, Diet. econ. Prod. Mai. Pen. 2: 1314. 1935 and Heyne, Nuttige PI. Ned. Indie, ed. 3, 1: 896. 1950), Vruchten & vruchten-teelt in Nederl. Oost-Indie 63, pi. 25. 1931) the "kokkossan" was considered to be a mere variety of the "duku" (*Lansium domesticum*).

After studying the flowers of the "kokkossan" (a fact neglected by former authors) it became evident, that a species quite distinct from *Lansium domesticum* was involved.

The main differences are tabulated below :

<i>L. domesticum</i>	<i>L. aqueum</i>
Leaves and branches glabrous	Leaves and branches pilose, larger than in <i>L. domesticum</i>
Flowers pedicelled	Flowers sessile

Calyx tube large, sepals minute	Calyx tube minute, sepals large
Anthers 1—1.5 mm	Anthers 2—3 mm
Ovary glabrous	Ovary densely pilose
Fruit glabrous with very thin septs	Fruit pilose with thicker septs

Trees of both species are much alike in habit, but the leaves of the kokkossan are distinctly larger.

The inflorescences of *L. aqueum* are always at the underside of the bare branches, in the "duku" they appear also on the upper side. The fruit are sessile and hence the infructescence looks more compact.

The kokkossan is found wild in Java in some vestiges of forests, the "duku" not.

It is possible that *Lansium domesticum* was endemic in Borneo and *L. aqueum* in Java, Sumatra and Borneo.

Of the Pisitan variety of West Java I have seen thus far only sterile specimens, which have the large leaves of *L. aqueum* but the pilosity is very scanty. This variety might eventually represent a hybrid between *L. aqueum* and *L. domesticum*.

Bogor. Culta, Nov., fl., *Kostermans s.n.* (BO, BM, CANB, K, L, MO, LAE, P, NY).

#### VERBENACEAE

*Teijsmanniodendron pendulum* Kosterm., *spec. nov.* — Fig. 14.

*Arbor mediocris, foliis palmate compositis, rigide chartaceis, glabris, petiolo longo; foliolis elliptico-lanceolatis acuminatis, basi in petiolulum conspicuum cuneatim angustatis, untrunque reticulatis, subtus glaucis. Infructescentia plerumque simplex, longa; fructu plerumque uno, pendulo, subgloboso, basi sepalis persistentibus pateriformibus.*

Tree 15 m tall, diameter 30 cm, with irregular 9 m long free bole. Bark smooth, brown, thin. Living bark 15 mm, redbrown, brittle. Wood light-brown, rather soft. Leaves, glabrous, palmately compound; petiole slender up to 5 cm long, thickened at base; leaflets usually 3, glabrous, rigid-chartaceous, elliptical-lanceolate or lanceolate, 5—18 by 1.5—4 cm, acuminate, base cuneate, reticulate on both surfaces, midrib and the 3—6 pairs of arcuate, ascending nerves prominent on the lower surface; reticulation marked in grey with microscopical dark dots; petiolule 1—1.5 cm, slender, thickened at base. Living leaf dark green on upper, dull pale green on lower surface (dried: somewhat glaucous below).

Infructescence apical, unbranched or hardly branched at apex, up to 15 cm long with thickened nodes and bract scars, at the apex with a few, very short branchlets. Fruit green, subglobose, glabrous, about 2 cm in diameter, seated on the round, hardened, 5 mm long sepals which are arranged in one plane; young fruit completely filled with a jelly-like substance.

TYPUS. — *Kostermans 13007* (BO).

DISTRIBUTION. — Indonesian East Borneo.

The species was seen only once on a small area of loam soil intercalated between acid sandy soil. The lobed fruit cup and the pendulous solitary fruit are characteristic.

East Indonesian Borneo. W. Kutei, Belajan R. region near Tabang, Mt. Palimasen near Tabang, alt. 500 m, Sept., fr., *Kostermans 13007* (A, BISH, BM, BO, BEI, BZF, CAL, CANB, K, L, SING, NY, P, PNH, CANB).

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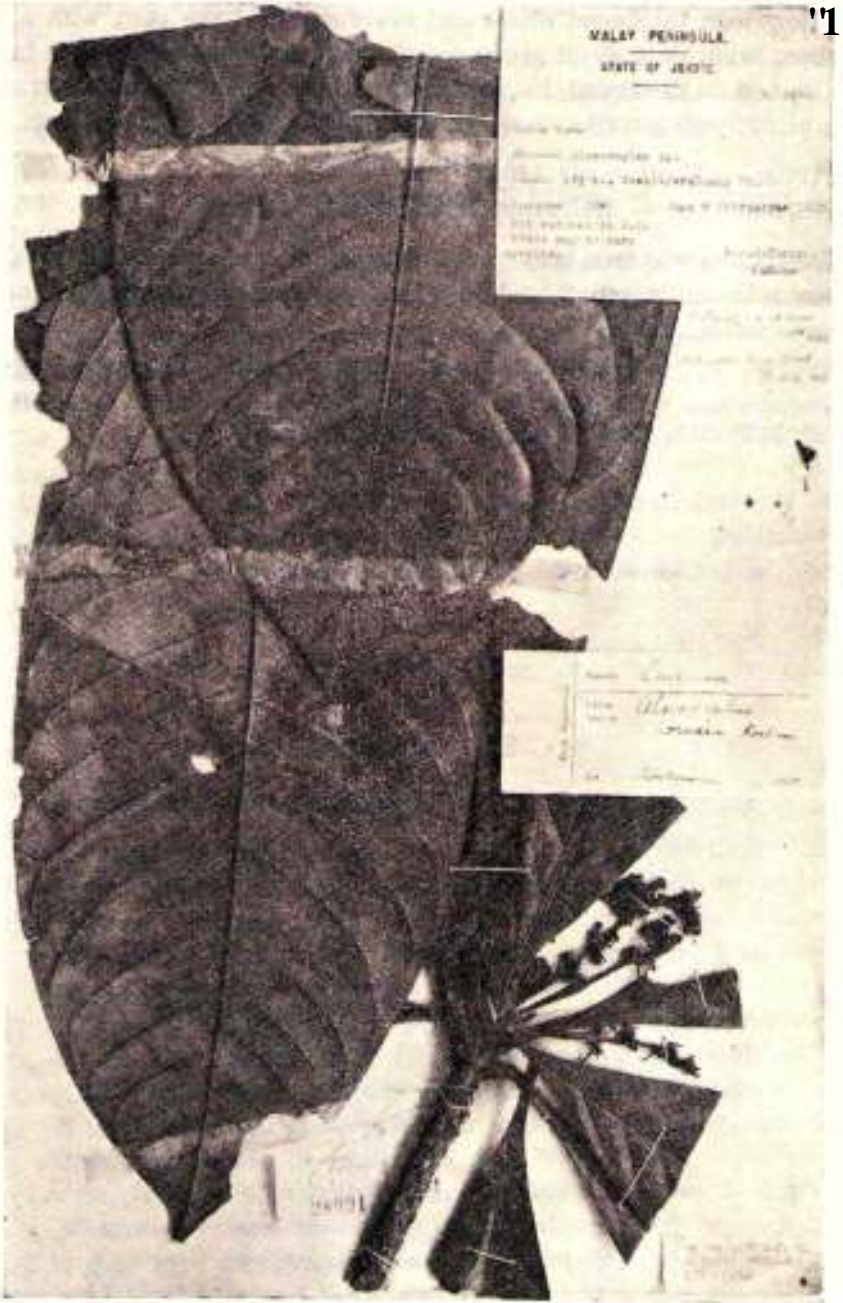


Fig. 1a. — *Alseodaphne corneri* Kosterm.



Fig. 1b. — *Aseodaphne corneri* Kosterm.

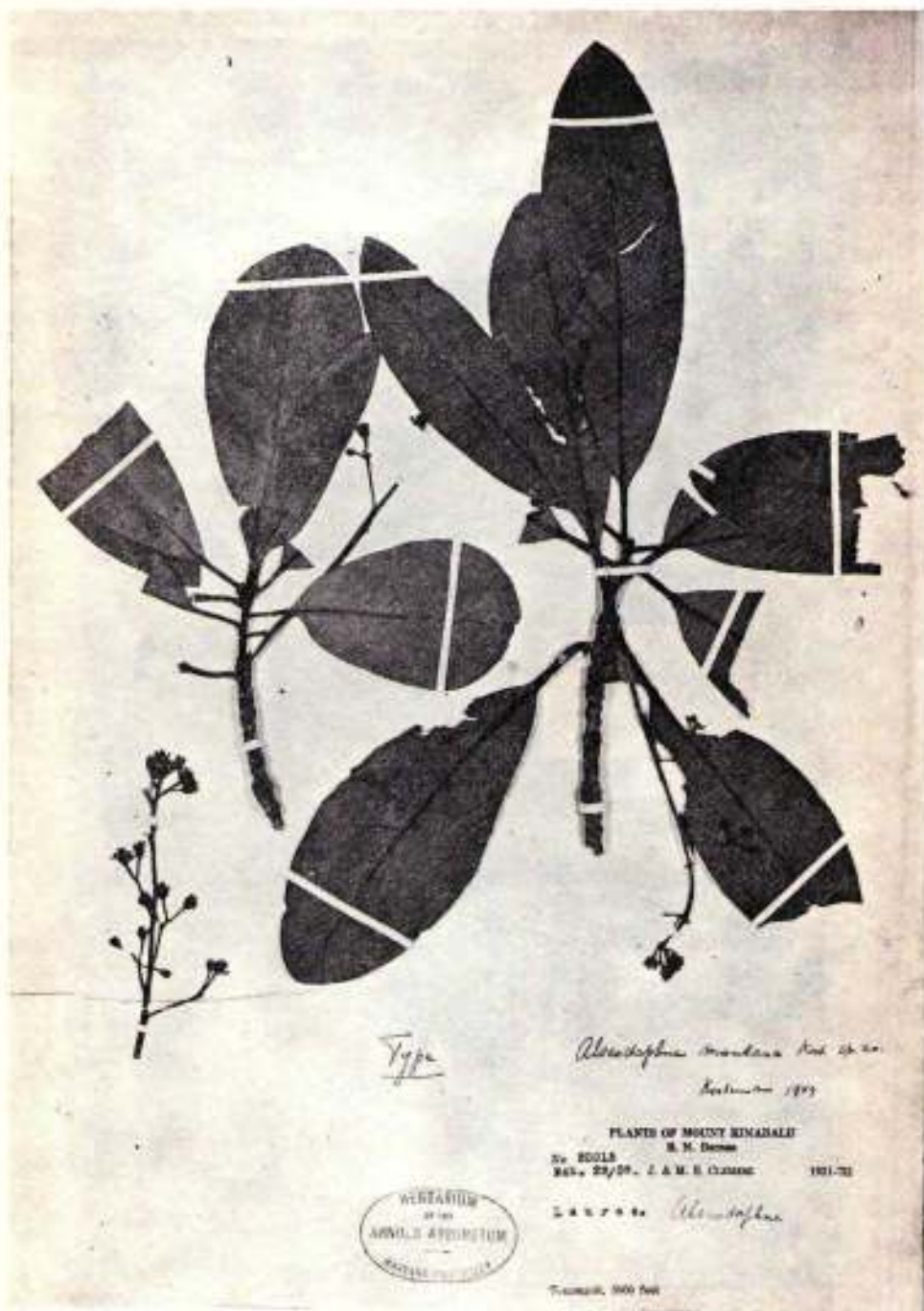


Fig. 2a. — *Alseodaphne montana* Kosterm.



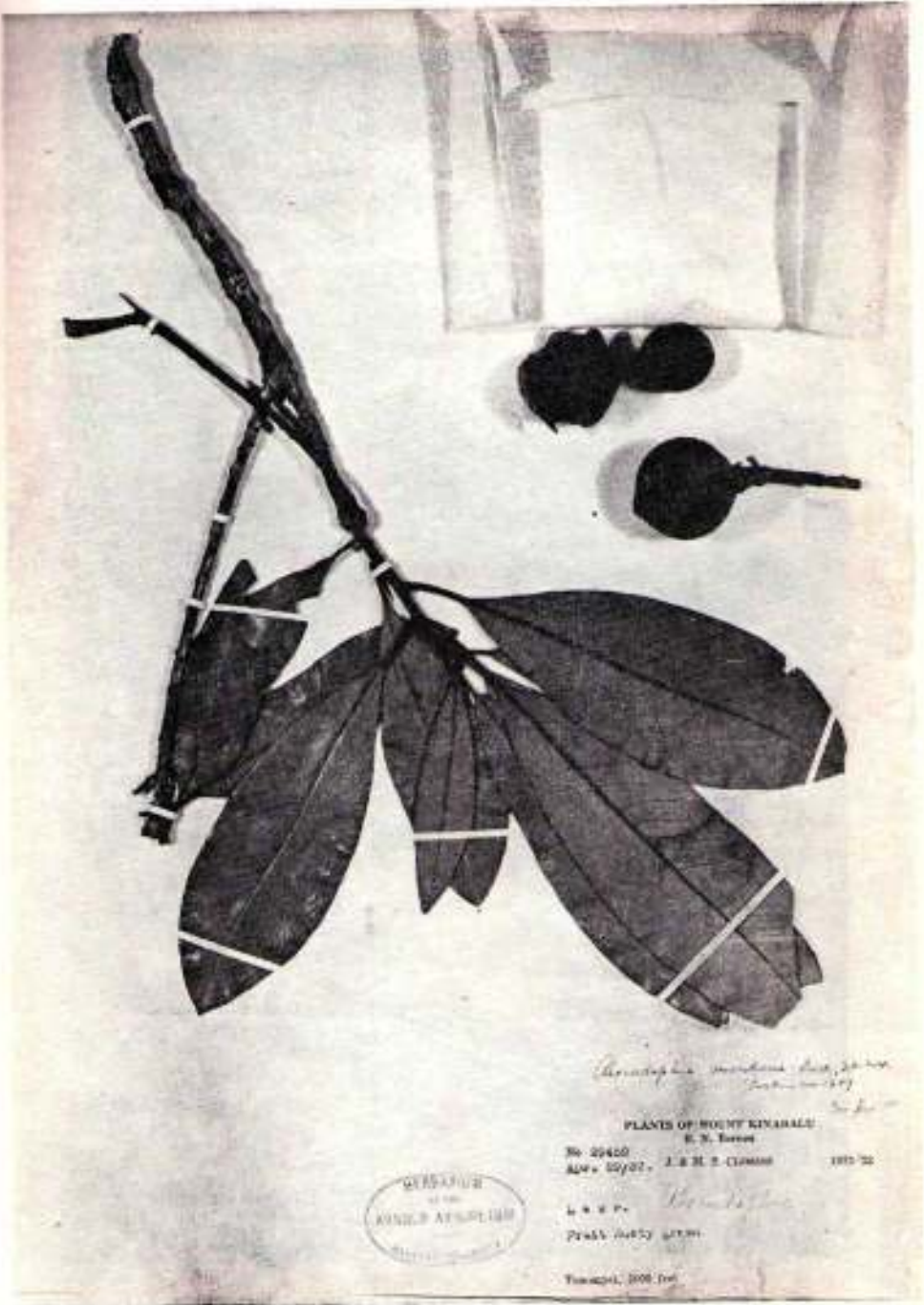


Fig. 2b. — *Aseodaphne montana* Kosterm.

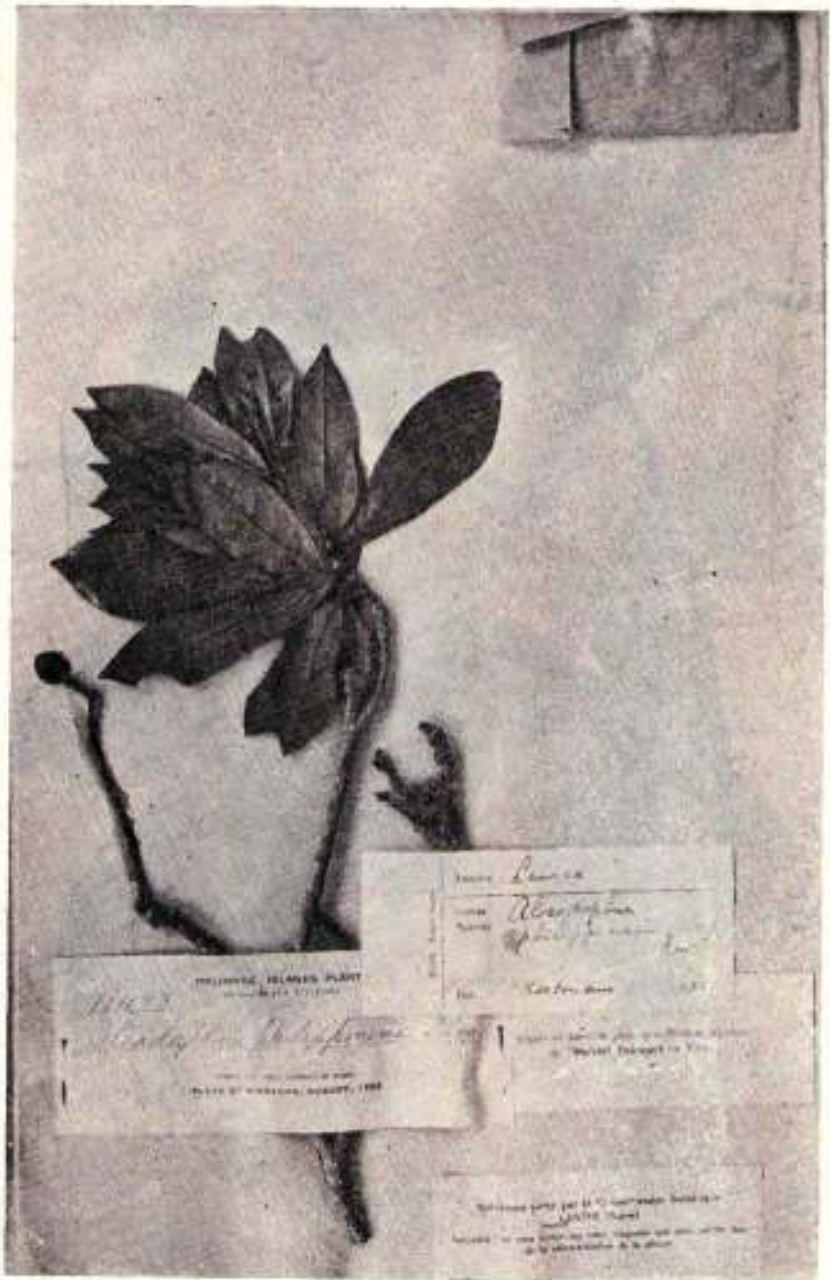


Fig. 3. — *Alseodaphne philippinensis* (Elm.), Kosterm.



Fig. 4. — *Nothaphoebe pachyphylla* Kosterm.

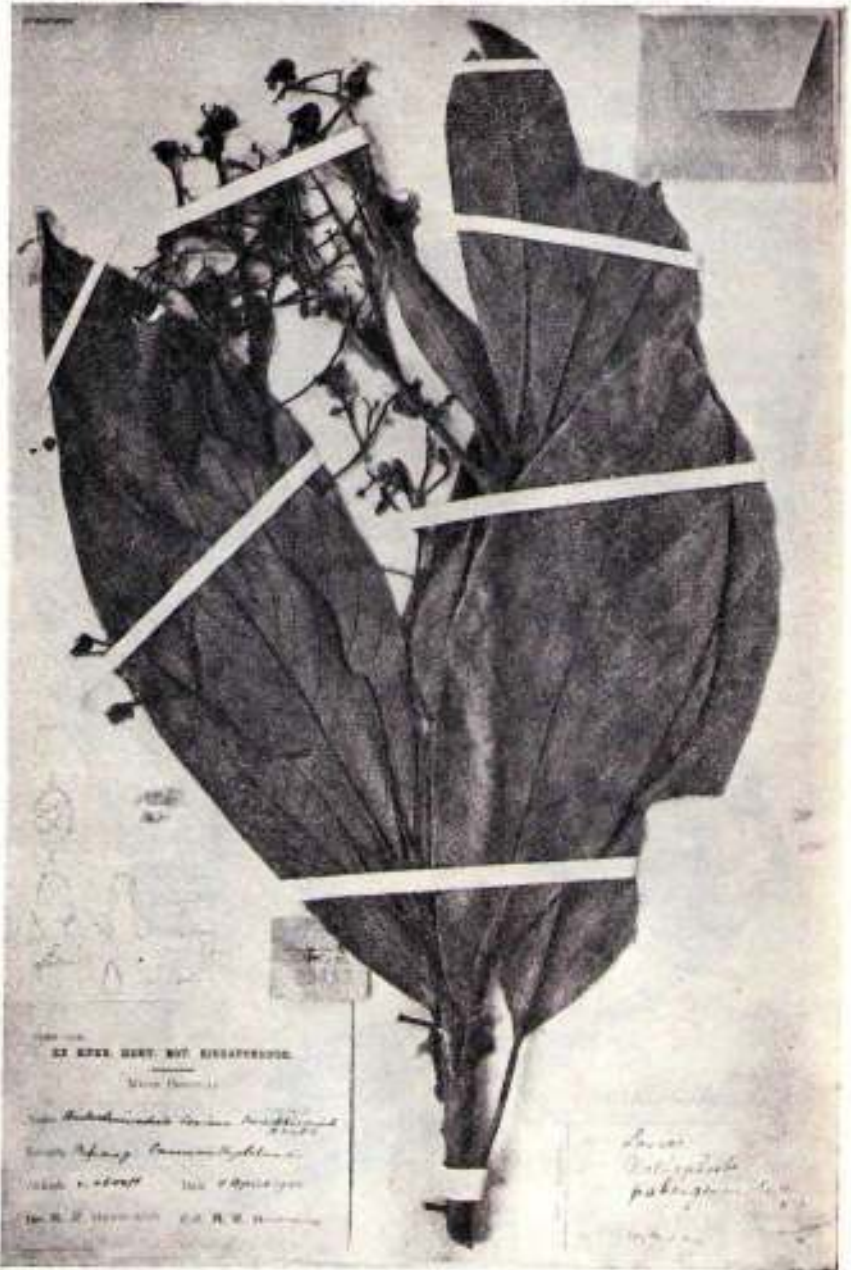


Fig. 5. — *Nothaphoebe pahangensis* Kosterm.



Fig. 6. — *Beilschmiedia filicifolia* Kosterm.

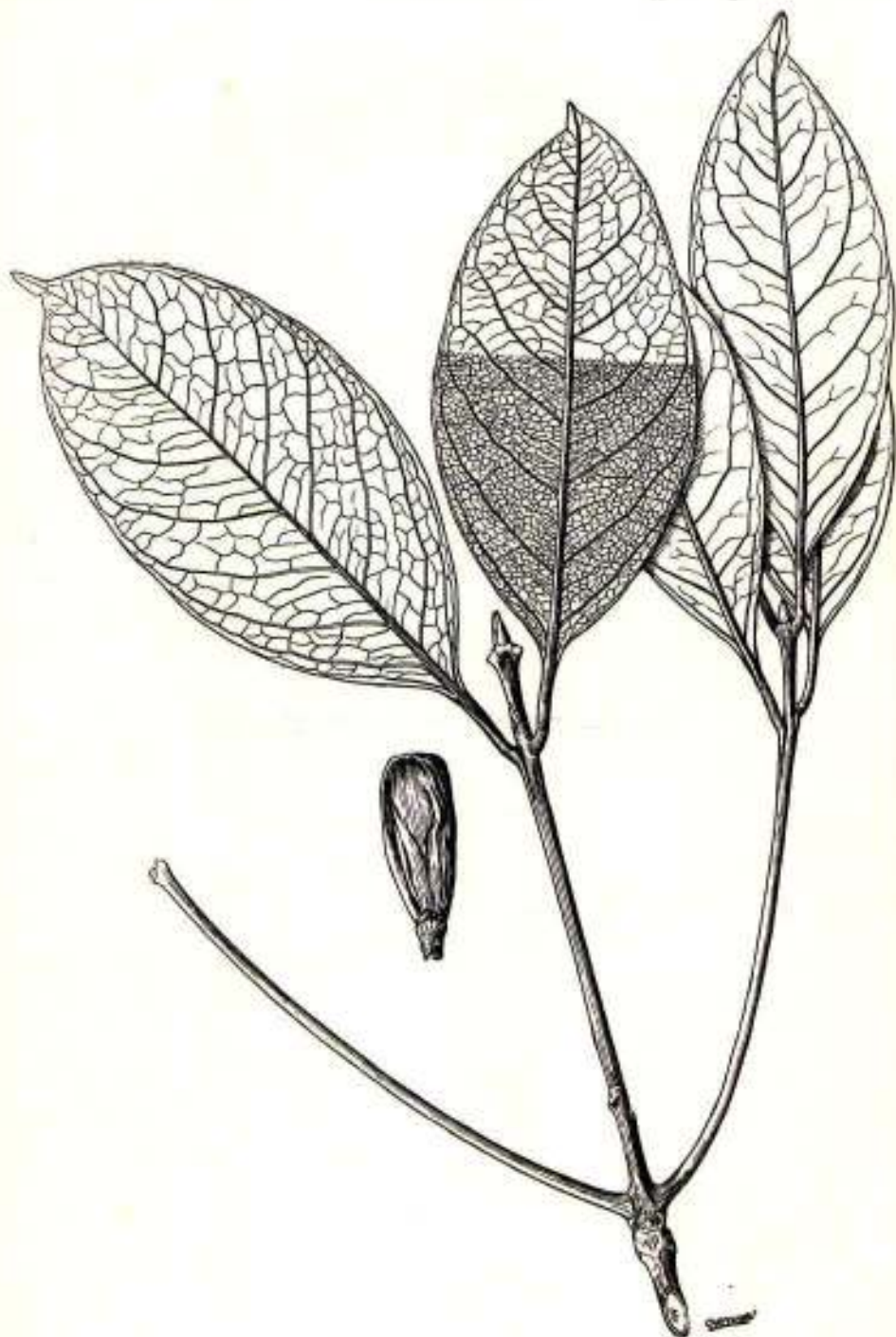


Fig. 7. — *Beilschmiedia glauciphylla* Kosterm.

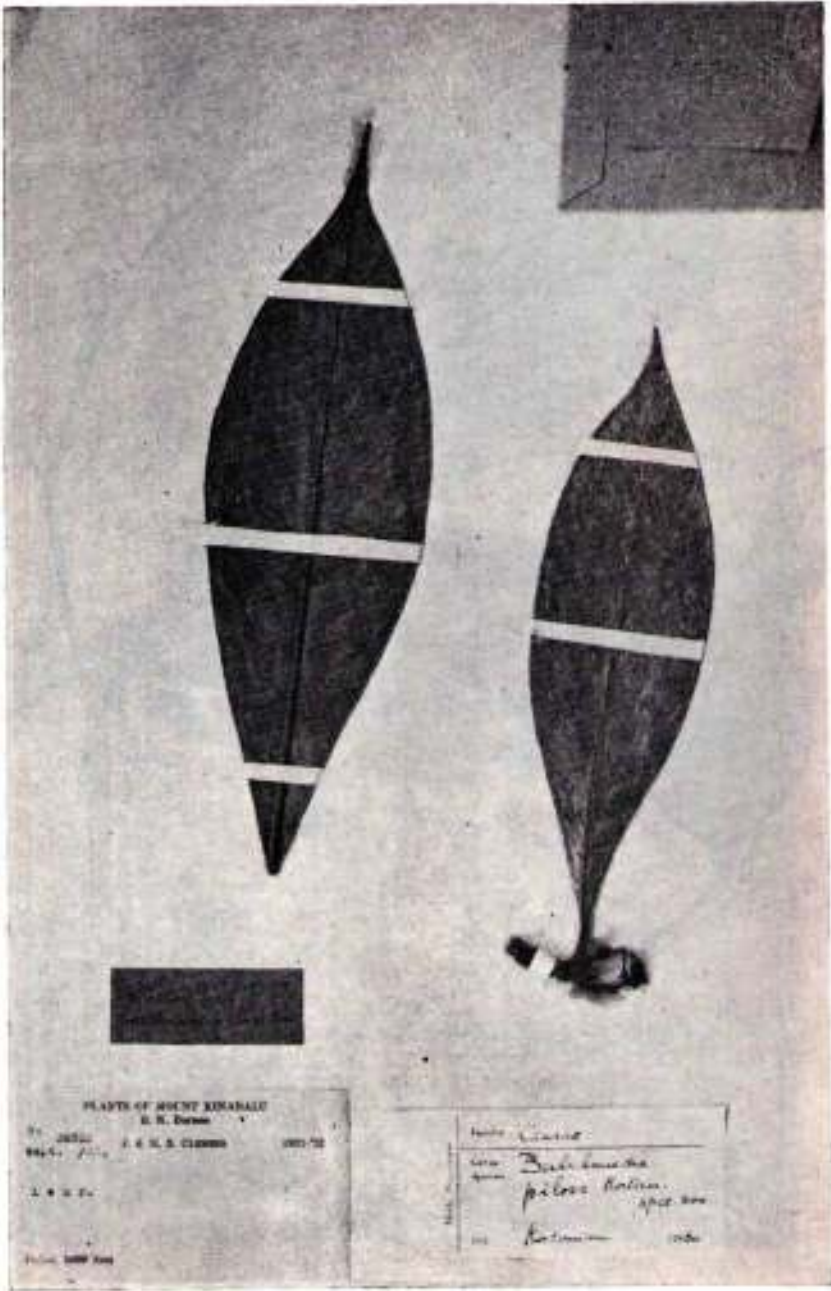


Fig. 8.— *Beilschmiedia pilosa* Kosterm.

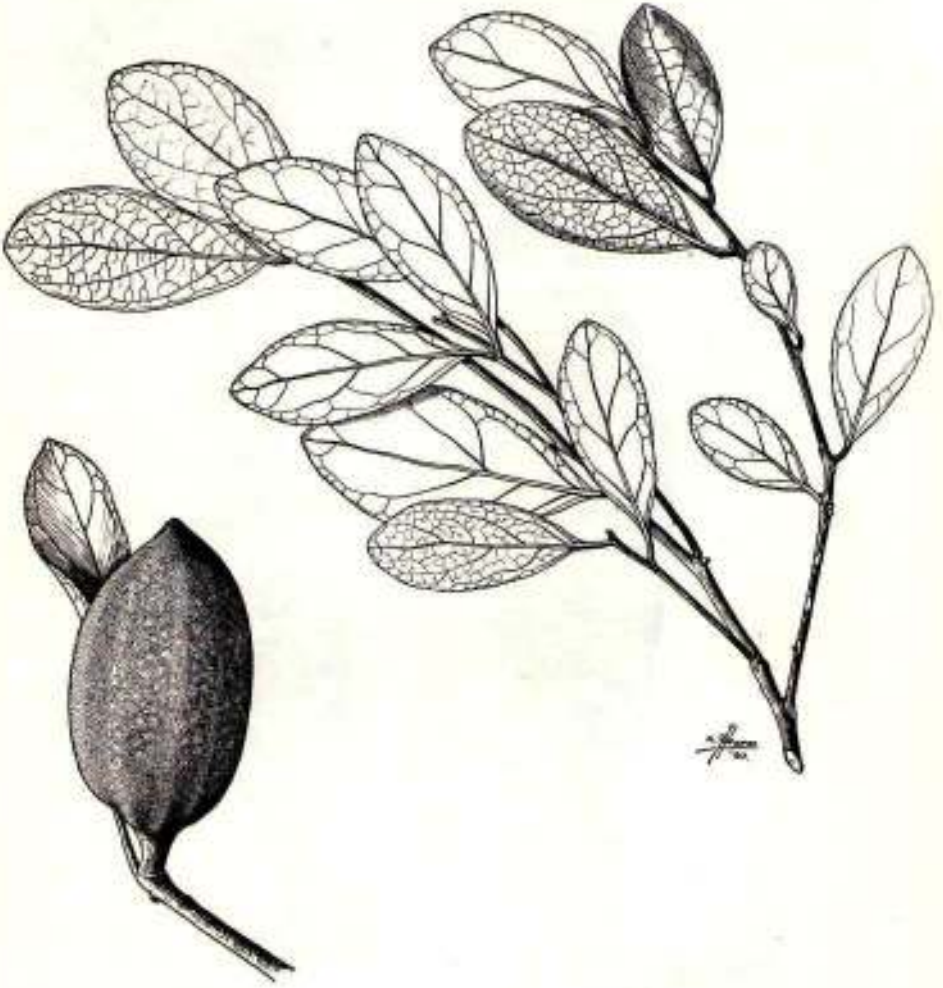


Fig. 9. — *Endiandra cusideroxylocarpa* Kosterm.



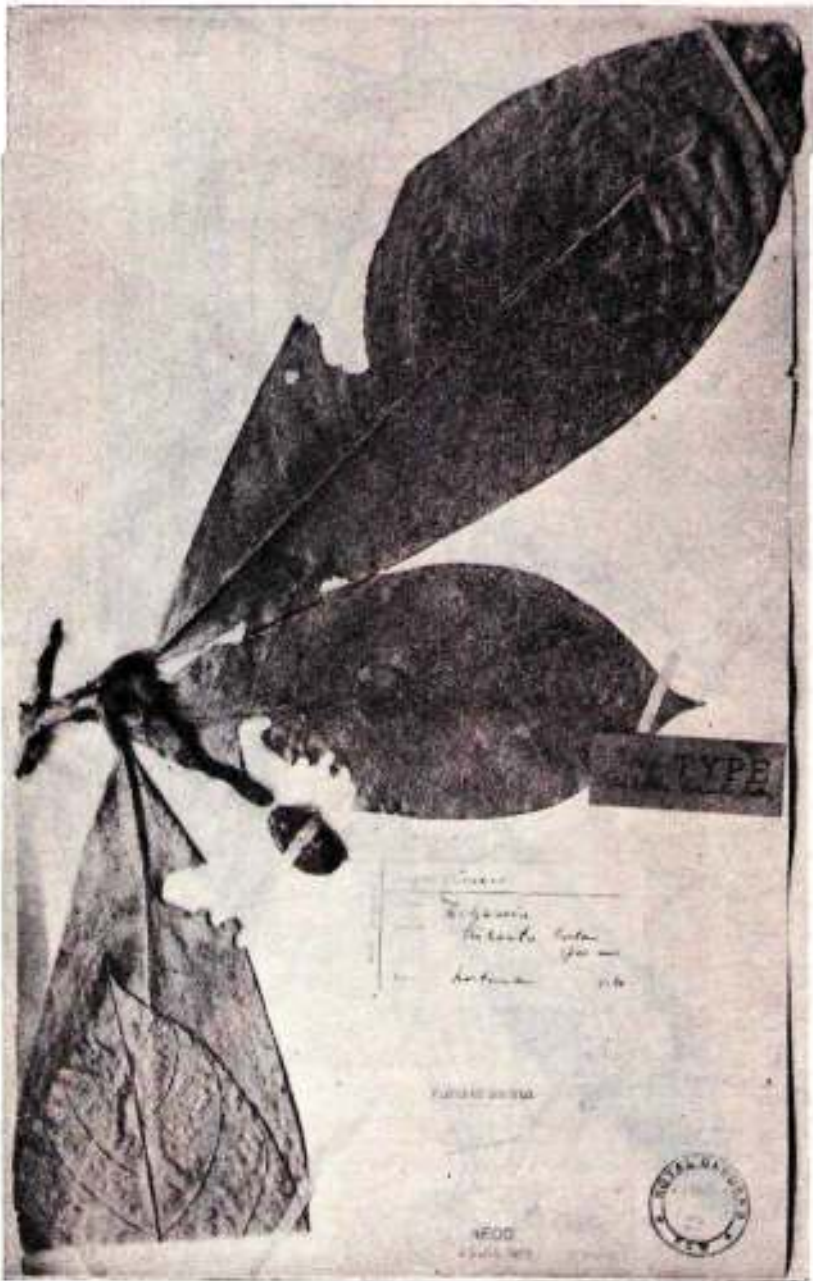


Fig. 10. — *Dehaasia hirsuta* Kosterm.

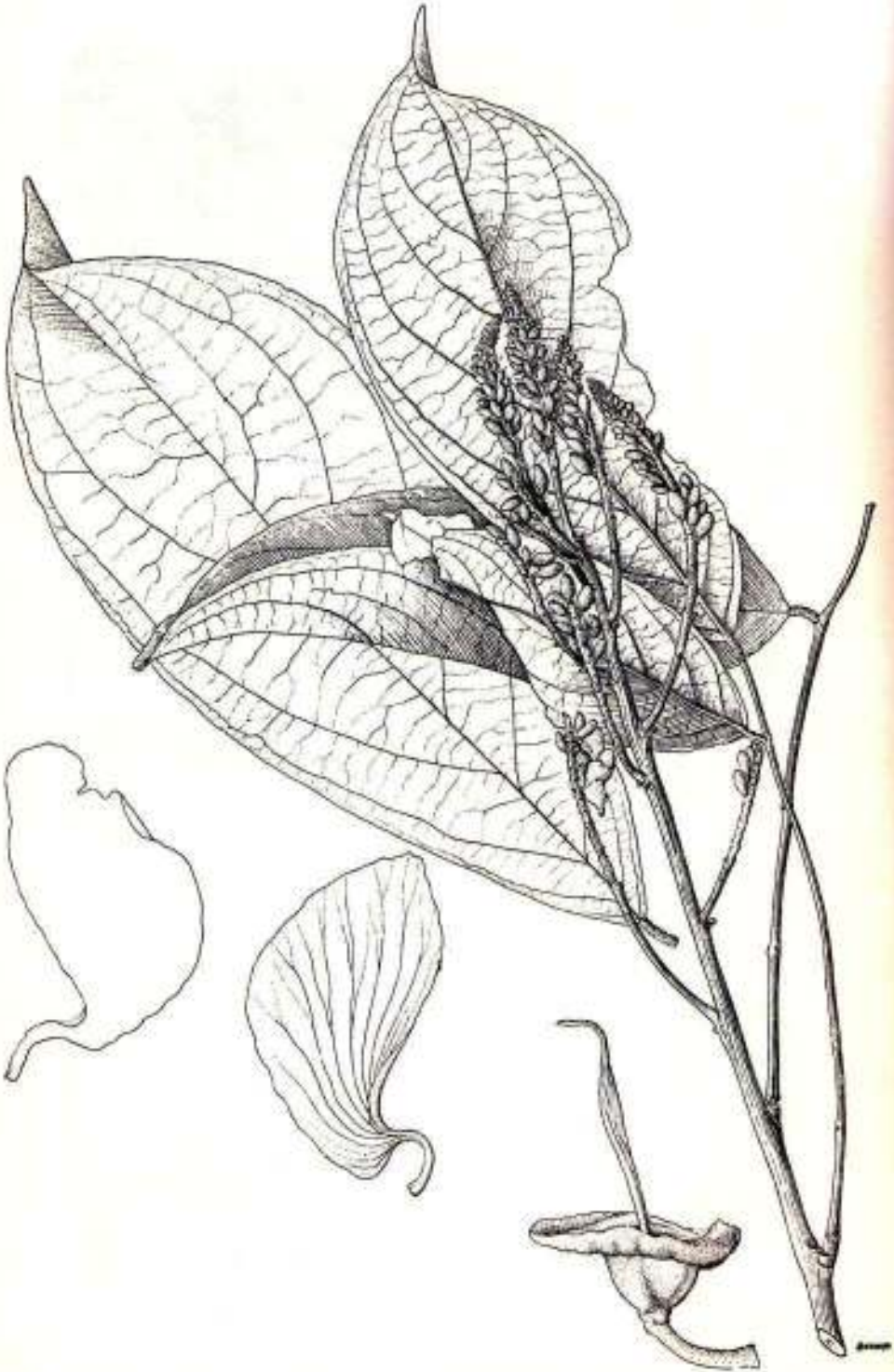


Fig. 11. — *Millettia vasta* Kosterm.

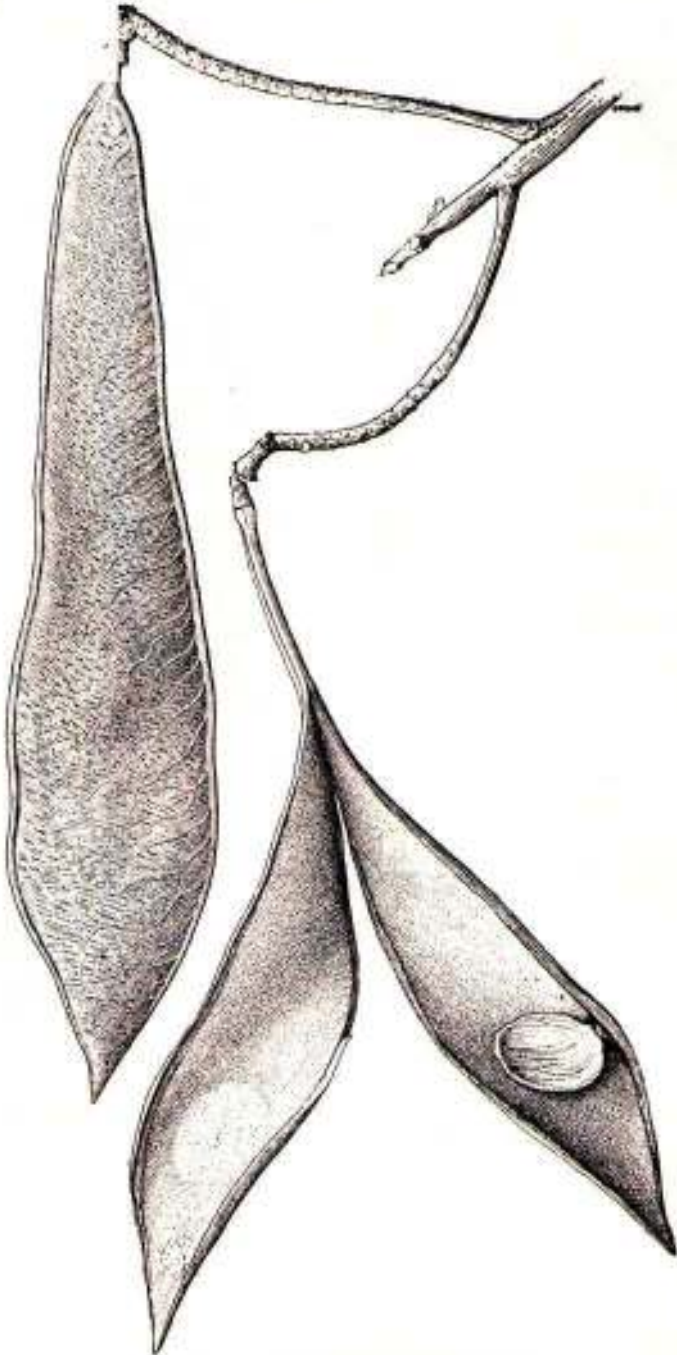


Fig. 12. — *Millettia vasta* Kosterm.

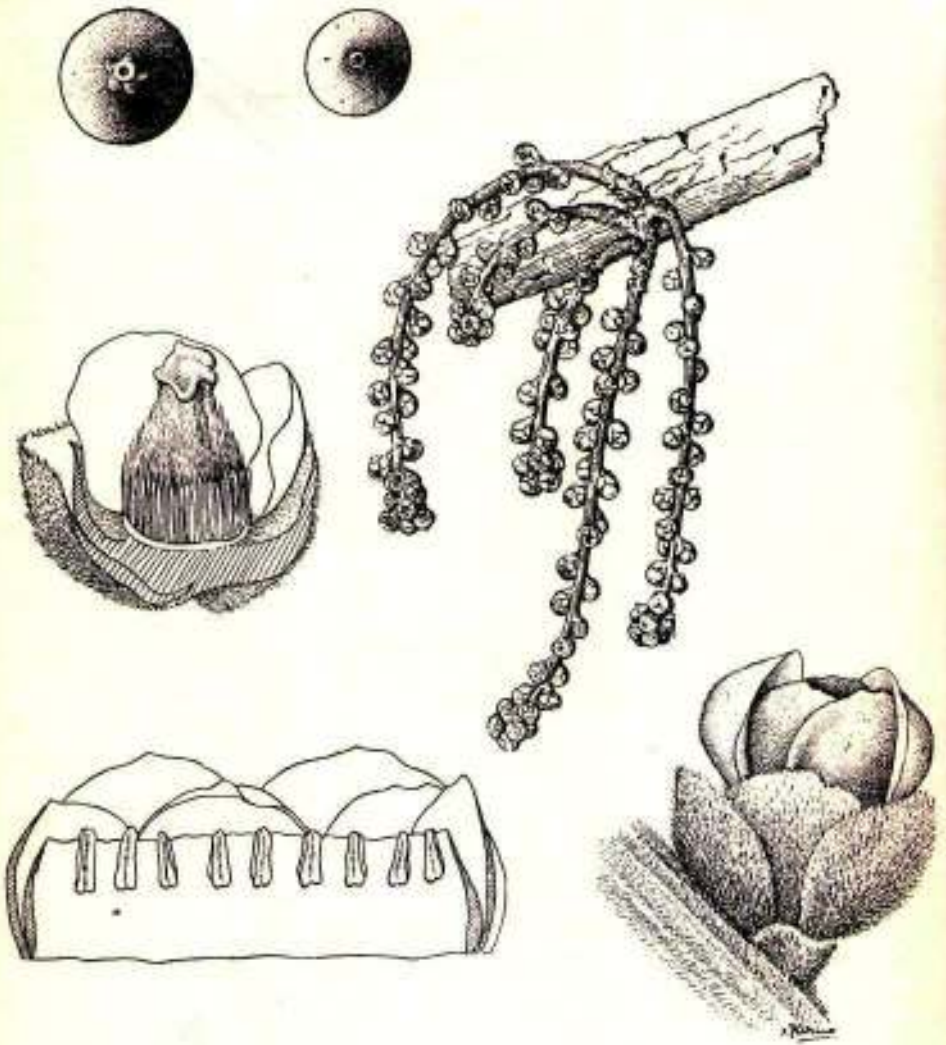


Fig. 13. — *Lansium aqueum* Kosterm.; top left: fruit of *L. aqueum* and of *L. domesticum* for comparison.



Fig. 14. — *Teijsmanniodendron pendulum* Kosterm.