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NEW AND CRITICAL MALAYSIAN PLANTS—II*

A. J. G. H. KOSTERMANS **

SUMMARY

In the present paper 14 new species of *Pithecellobium* Mart. are described and 3 new combinations are made with that name. Notes on several species of the related genus *Archidendron* F. Muell. are added.

MIMOSACEAE

Pithecellobium Mart.

A monographic treatment of the Asiatic, Malaysian, Australian, and Pacific species of *Pithecellobium* Mart. will be published elsewhere. This paper is mainly a brief account of the new species that were encountered during the authors studies on the subject.

1. Pithecellobium monopterum Kostermans, *sp. nov.*[1]—Fig. 1

Arbor parva. Inflorescentia cauliflora parva gracilis haud ramosa, pseudo-umbellis pauciforis, bracteis parvis suffultis.

Small tree. Branchlets cylindrical, grey, lenticellate. Leaves with 1 or 2 rachillae; petiole up to 4 cm long; rachillae 1—2 cm long, each bearing terminally 1 leaflet. Leaflets rigid-papery, glabrous, elliptic, up to 37 × 18 cm, base rounded, top obtuse (?); midrib and up to 11 pairs of inarching lateral nerves prominulous above, prominent on lower surface; secondary nerves laxly reticulate, prominulous; petioles very short, 1 mm long, very broad (4 mm), rough. Cauliflorous; inflorescences 1—3 together, glabrous; peduncles up to 3 cm long, slender, each bearing a glomerule consisting of few flowers subtended by small, lanceolate or ovate bracts; mature flowers unknown; buds glabrous.

TYPE.—Kostermans *s.n.*, Morotai (L).

DISTRIBUTION.—Morotai.

By its unifoliolate rachillae this is a very aberrant species. The inflorescence, consisting of a few filiform peduncles on the older branches

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[1]The rachillae are unifoliolate.

[Reinwardtia, Vol. 2, Part 3 was issued April 15, 1954]

FIG. 1. *Pithecellobium monopterum* Kosterm.: a, leaf (× 0.5); b, inflorescence (× 0.5); c, rachilla (× 2). — After Kostermans *s.n.* (*type*).

and each peduncle bearing a small cluster of glabrous florets, would point to *Archidendron* F. Muell., but there is only one ovary in each flower.

SPECIMEN EXAMINED.—MOLUCCAS. Morotai. Along Sangowo R., fl., *Kostermans s.n.* (BO, L, *type*).

2. **Pithecellobium landakensis** Kostermans, *sp. nov.*—Fig. 2

Arbor, foliis bipinnatis, pinnis 1-jugis, foliolis 3- vel 4-jugis, oblongo-ovatis vel ovatis, glabris. Inflorescentia axillaris racemum contractum pedunculatum formans; flores pedicellati glabri. Legumen lignosum, oblongum, utraque sutura dehiscens (?), endocarpium pulposum interne membraneum, semen unicum subreniforme.

Tree up to 28 m tall; clear bole of 18 m, 40 cm in diameter. Branchlets brown, glossy, lenticellate. Leaves with 1 pair of rachillae, glabrous; petiole 1—2 cm long, with long-stalked, slender gland below bases of rachillae (gland sometimes absent); rachillae up to 11 cm long, with similar glands below bases of petiolules (glands near lower petiolules sometimes absent), 3—4-jugate. Leaflets rigid-chartaceous or coriaceous, oblong-ovate or ovate, distal ones up to 9 × 5 cm, proximal ones ovate, sometimes less than 2 × 1 cm, base rounded, margins reflexed, top sharply acute or acuminate; both surfaces glossy and densely, prominulously subareolate-reticulate; midrib and lateral nerves (4—6 pairs, arcuate) somewhat sunken above, prominulous below; petiolules 1—2 mm long. Inflorescences contracted racemes; peduncles sparsely, minutely pilose, glabrescent, up to 3 cm long; flowers glabrous. Pedicels slender, 5 mm long. Calyx cup-shaped, 1.5—2 mm long, with short, triangular teeth. Corolla-tube slender, funnel-shaped, 3—4 mm long; lobes lanceolate, about 3 mm long, often thickened at apices. Staminal tube present. Ovary glabrous, on short stalk. Pod flat, woody, oblong, 4 × 2 cm, top and base rounded or acutish, dehiscent along both sutures (?) which are equally developed; valves 1—2 mm thick, reticulate outside; endocarp with lines of red-brown, close dots. Seed single, 1.5 × 1 cm, subreniform or oblong, glossy, surrounded by pulp.

TYPE.—Teijsmann *s.n.*, Borneo (BO 138818).

DISTRIBUTION.—Landak River region in West Borneo.

The species seems to be rather rare. The upper and free part of the filaments had already disappeared when the type specimen was collected.

SPECIMENS EXAMINED.—BORNEO. West Borneo. Landak R. region, fl., fr., *Teijsmann s.n.* (BO, *type*; K, L), near village Ngabang, 40 m alt., Apr., ster., *de Jong 118 B.W.* = *bb.6404* (BO, K, L).

3. **Pithecellobium rosulatum** Kostermans, *sp. nov.*—Fig. 3

Arbor floribus pedicellatis in pseudo-umbellis solitariis dispositis; florum forma et forma texturaque foliolorum Pithecellobio acle *Vidal*

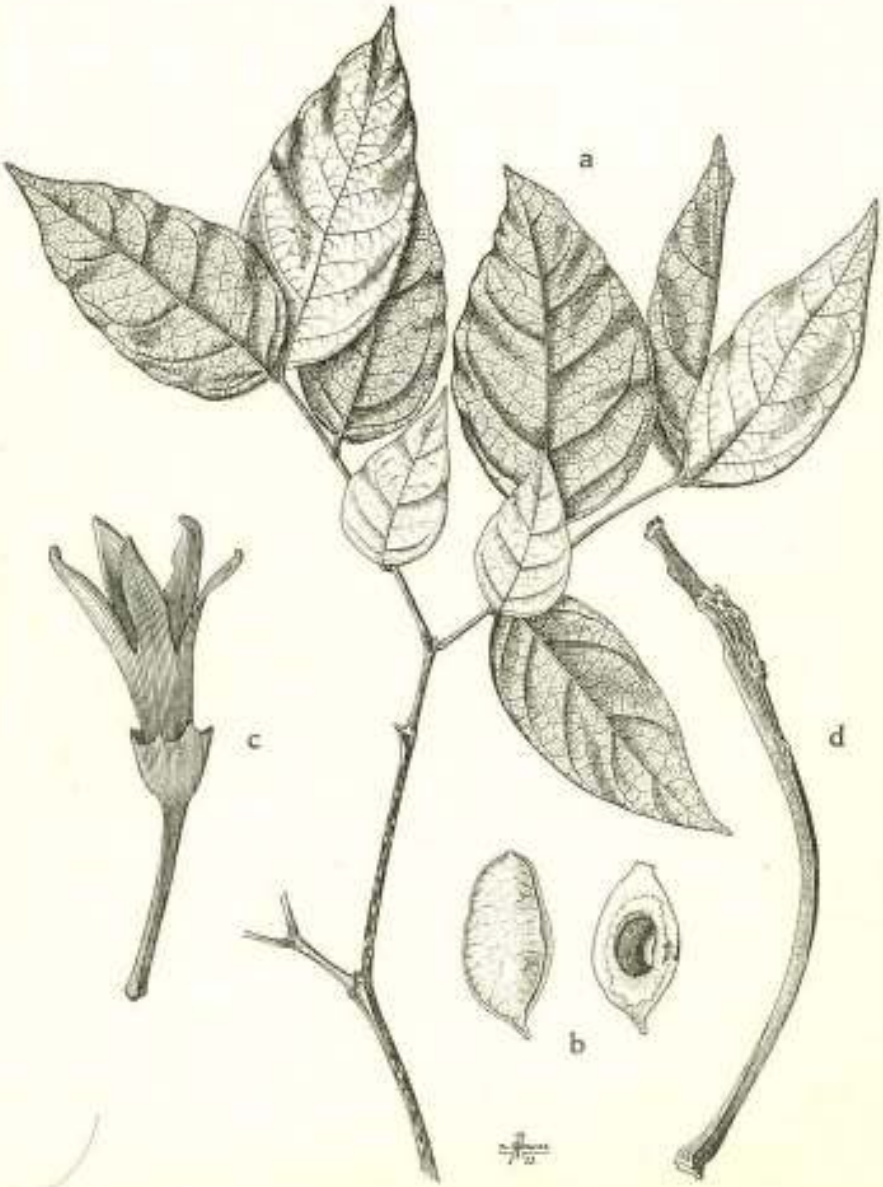

FIG. 2. *Pithecellobium landakensis* Kosterm.: *a*, branchlet with leaf (× 0.5); *b*, closed and opened pod (× 0.5); *c*, flower; *d*, stalk of inflorescence (× 5). — After Teijsmann *s.n.* (*type*).

affinis, sed flores glabri. Legumen non dehiscens in spiralam orbiculatam complanatum tortum extus segmentatum.

Tree up to 37 m tall; clear bole of 22 m, 70 cm in diameter; usually no buttresses; roots superficial, yellowish-green. Bark yellowish-brown, peeling off in large, irregular strips, the strips darker than the underlying portion of bark and producing a scale-like appearance when they loosen and curve up at bases; dead bark 1—4 mm thick; living bark 5—9 mm thick, cross-section reddish (rarely yellowish), inside paler. Sapwood 2—5 cm, white or pale-brown; heartwood blackish-brown with yellowish streaks. Branches grey, smooth, remotely lenticellate; branchlets slender, cylindrical, smooth, glossy, brown when dried, sometimes lenticellate; buds and very young branchlets rusty-pubescent, soon glabrous. Leaves glabrous (only in very young condition rachises sparsely pubescent), with 2 rachillae; petiole 1—2(—3) cm long, its top protruding beyond bases of the rachillae, provided with cup-shaped, sessile or subsessile gland slightly below bases of rachillae; rachillae 5—12(—22) cm long, slender, glossy, provided with sessile or shortly stalked, cup-shaped glands below the insertion of bases of petiolules, 3- (rarely 4-) jugate with subopposite, leaflets. Leaflets papery or stiff-chartaceous, oblong to oblong-lanceolate, sometimes ovate, the distal ones larger than the proximal ones, 3—18 × 1.5—7 cm, usually 8 × 4 cm, base acute, top bluntly acuminate or sometimes caudate-acuminate; upper surface glossy, dark-green, minutely but densely, prominulously reticulate, midrib and lateral nerves (5—7 pairs, ascendant, arcuate near margin) slender, impressed, secondary nerves hardly distinct from reticulation; lower surface dull, brown when dried, midrib prominent, lateral nerves prominent, reticulation obscure or indistinct; petiolules distinct, cylindrical, dark when dried, up to 5 mm long. Inflorescences axillary, stalked single pseudo-umbels, or 2 of the latter on axillary branchlets (up to 1 cm long, rusty-pubescent); peduncles glabrous, slender, glossy, 4—6 cm long; bracts and bracteoles not seen; flowers glabrous, slender. Pedicels rather thick, furrowed, 1.5—2.5 mm long. Calyx narrowly funnel-shaped, half as long as corolla, base contracted into pedicel, margin with incurved triangular teeth. Corolla funnel-shaped; tube longer than calyx; lobes ovate-oblong, acute, reflexed, 3 mm long. Staminal tube as long as corolla-tube, thin; free portions of filaments slender, up to 2 cm long, with small, dithecous anthers. Ovary glabrous, slender, sessile, 2 mm long; style filiform, up to 3 cm long; stigma minute, pinhead-shaped. Pod superficially divided into segments, compressed, smooth, black, 3—5 cm wide, indented at the basal suture, twisted to a complete circle or a flattened spiral up to 10 cm in diameter; dorsal suture thickened, ventral not. Seeds transverse, compressed, oval or suborbicular, rather unequal, brown, very hard, marked with a concentric area; seed-coat consisting of 3 layers; cotyledons flat.

TYPE.—Dachlan *s.n.* = bb.2186, Borneo (BO).

DISTRIBUTION & HABITAT.—Borneo, on well drained, acid, sandy soils.

In East Borneo the tree grows on well drained, acid, sandy soils on low hills where it is a character tree of the forest type on these soils.

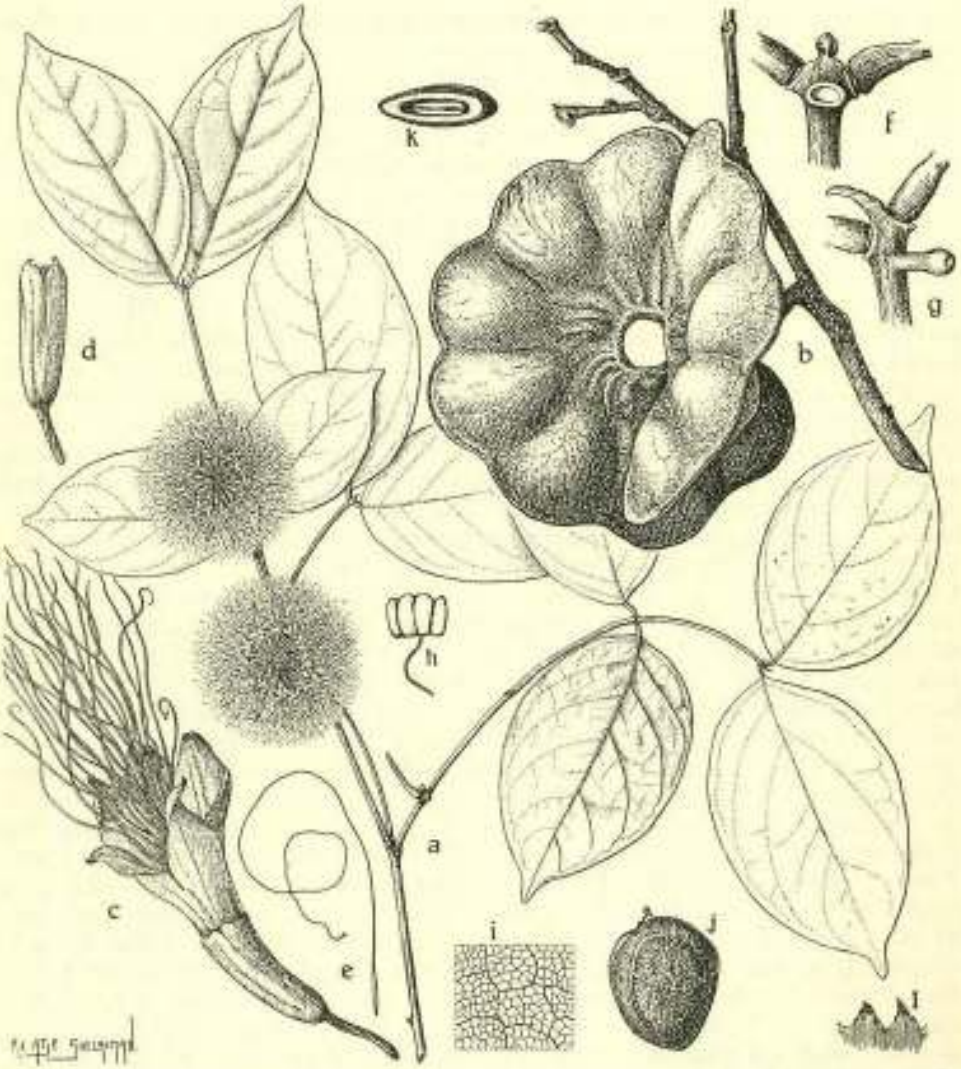

FIG. 3. *Pithecellobium rosulatum* Kosterm.: *a*, flowering branch (× 0.5); *b*, pod (× 0.5); *c*, flower (× 5); *d*, calyx (× 5); *e*, ovary (× 2.5); *f*, gland (× 5); *g*, gland between bases of apical leaflets (× 5); *h*, anther (× 10); *i*, leaf reticulation (× 5); *j*, seed (× 0.75); *k*, seed, transverse section (× 0.75); *l*, teeth of calyx (× 5). — After Dachlan 2186 (*type*).

In South Borneo the author observed it in a limited area of sandy soil along the Sungei Sapiri, a tributary of the Sungei Mentaja, near Kualakuajan. It is currently known by the Malay name of djaring hantu (djaring = *Pithecellobium jiringa* Prain; hantu = phantom; fruit not edible). Names like girik, kerek (cited below) mean black, which refers to the

heartwood. The inhabitants usually do not distinguish between *P. splendens* Corner and the present species. The exposed, superficial, thick, yellowish green roots are very striking. The monkeys and squirrels eat the unripe seeds; the ground under the tree in the fruiting season is usually covered with pods of which the ventral sutures are bitten open by these animals to get at the seeds.

The timber is rather durable and has a nice grain. It is in high esteem for construction purposes under cover. Although it is not so durable as that of *P. splendens*, it is used for the same purposes. The specific weight varies between 0.62 and 0.81 (17 samples), with an average of 0.77. Its durability-class lies between 2 and 3; its strength-class is 2 (data communicated by the Forest Research Institute, Bogor).

LOCAL NAMES.—Kelupit, sampolong (Dayak language in W. Borneo); melanjir, djaring hantu (Malay language); girik, kerek (Kutei language); takorak, takerung, karakara, kerangkerang, kalalak (Dayak languages in S. and SE Borneo).

SPECIMENS EXAMINED.—BORNEO. West Borneo. Pontianak Div., Landak Subdiv., Ngabang, 50 m alt., on lime containing sandy soil, June, ster., *bb.15330* (BO); Sanggau Subdiv., Sg. Labai, 10 m alt., clay soil, *bb.7875* (BO); Sg. Tjempede, 5 m alt., Aug., ster., *bb.14406* (BO); Ketapang Div., Muara Kajang, Sg. Kelek, 10 m alt., clay soil, Oct., ster., *bb.7480* (BO), *bb.7456* (BO); Sintang Div., Lubukbatu, sandy soil, 5 m alt., Oct., ster., *bb.7335* (BO). South Borneo. Lower Dajak Subdiv., Tewaibaru, 40 m alt., March, ster., *bb.8193* (BO); Kualakapuas, Sg. Bakumin, March, fl., *Dachlan s.n.* = *bb.3186* (BO, *type*); Puruktjau Subdiv., Tb. Maruing, sandy loamy soil, 75 m alt., Mar., fr., *Atmosoewarno 3* = *bb.9851* (BO); Tb. Kunji, 160 m alt., July, ster., *bb.21237* (BO, L); Puruktjau, 100 m alt., Mar., ster., *bb.11122* (BO); Bandjermasin Div., Pelaihari Subdiv., Kintap, 25 m alt., Nov., ster., *bb.7757* (BO). East Borneo. Beraü Subdiv., Inaran, 50 m alt., Oct., ster., *bb.12095* (BO); Tandjongredeb, Labanan, June, ster., *bb.11539* (BO); Upper Mahakam Subdiv., Lirungpadung, 50 m alt., Jan., ster., *bb.20618* (BO, L); West Kutai Subdiv., Longbleh, 30 m alt., sandy loamsoil, Nov.—Dec., ster., *bb.16134* (BO, L), *bb.16078* (BO, L), *bb.16147* (BO, L); Mujup, 25 m alt., Apr., ster., *bb.16758* (BO, L), *bb.16808* (BO, L); East Kutai Subdiv., Sangkulirang, Bengang, 40 m alt., Nov., ster., *bb.12987* (BO); Samarinda Subdiv., Sangasanga region, low sandy ridges, 20 m alt., Aug., fr., *Kostermans 7727* (A, BO, K, L); Balikpapan Subdiv., Sg. Wain region, 60 m alt., sandy loamy soil, Sept., fr., *Kostermans 4515* (BO), 50 m alt., Oct., ster., *bb.34328* (BO), Oct., fr., *Kostermans 4036* (BO).

4. **Pithecellobium harmsii** (Malm) Kostermans, *comb. nov.*

Archidendron harmsii von Malm *in* Notizbl. bot. Gart. Berlin 11: 629. 1932 (basonym); Wit in Bull. bot. Gdn Buitenz. III 17: 266. 1942; *in* Reinwardtia 2: 96. 1952. — I. Rensch 277, Flores.

The type specimen from Gegi Keli, the mountainous region north of Endeh, Flores, was not available for examination, but our specimens

comply sufficiently with Von Malm's description to warrant conspecificity. The species is very much like a species of *Archidendron*, but for its single ovary. Von Malm mentioned, but did not describe, the pods. It is possible, that a specimen labeled Rensch *s.n.* in Herbarium Bogoriense, consisting of one fruit only, belongs here.

5. **Pithecellobium tjendana** Kostermans, *sp. nov.*

Pithecellobio harmsii *Kosterm. proximum sed differt floribus minoribus, pedicellis gracilibus longis, dentibus calycis inconspicuis, tubi calycis margine membranaceo, tubo staminum tubo corollae longiore. Foliola* P. harmsii *simillima, sed tenuiora, 1- vel 2-jugis.*

Medium sized tree, up to 20 m tall; clear bole of 15 m, 25 cm in diameter; crown rather small and lax. Dead bark smooth, 0.5 mm thick, dark red-brown; living bark 4 mm thick, pale-yellow, inside white. Sapwood white, 3—4 cm thick; heartwood yellowish red-brown. Branches grey, often pustulate; branchlets smooth, glabrous, dark when dried, slender, often remotely lenticellate. Leaves with 1 pair of rachillae; petiole glabrous, 2—5 cm long, sometimes with orbicular gland above base; rachillae 2—8 cm long, sometimes each with a small gland between upper pair of leaflets, as a rule 2-jugate, the lower pair of leaflets sometimes reduced to 1 leaflet or missing altogether. Leaflets glabrous and shining on both surfaces, rigid-papery or subcoriaceous, oblong, distal ones 6—20×2—9 cm, proximal ones 2—5×1.5—2 cm, contracted and cuneate at base, top bluntly acutish; lateral nerves 4—5 pairs, ascending; petiolules distinct, glabrous, 3—5 mm long. Inflorescences large, 5—18-flowered pseudo-umbels up to 3 cm across, on glabrous, striate, glossy peduncles (2—3 cm long) in axils of apical leaves, sometimes several compounded into a single terminal, rather irregular inflorescence; flowers glabrous; bracteoles caducous. Pedicels slender, 5—10 mm long. Calyx funnel-shaped, 5—8 mm long, with inconspicuous teeth on membranous margin. Corolla white, 2—2.5 × as long as calyx; lobes oblong, as long as tube. Filaments 2—2.5 cm long, united into a slender tube distinctly longer than corolla-tube, white. Ovary glabrous, slender, 3 mm long, on 1 mm long stalk; style slender, 2—2.5 cm long; stigma pinhead-shaped. Pod reddish-brown, smooth, falcate, subcylindrical, top obtuse, base tapering, 15 × 2 cm, 1.5 cm thick; sutures thin, hardly or not indented; valves thick, leathery. Seeds about 8, elliptic, compressed, smooth, 17 × 12 mm.

TYPE.—Waturandang 13 = Cel./III-13, Celebes (BO).

DISTRIBUTION.—Thus far known only from the Malili region, north of Gulf of Bone, Celebes.

The species belongs to the group of large-flowered *Pithecellobium* species with *P. grandiflorum* Benth., *P. harmsii* Kosterm., and *P. hendersonii* F. Muell.

The heartwood is rather durable and appraised for furniture, beams, and the like. The specific weight is 0.68 (1 sample); its durability class

is 3; its strength-class is 2 (data communicated by the Forest Research Institute, Bogor).

LOCAL NAMES.—Tjendana (Padoë language); talibara (Tobela language).

SPECIMENS EXAMINED.—CELEBES. Malili Subdiv., Luwu Distr., Usu, 200—250 m alt., Dec., fr., *Reppie 224* = *Cel.III-13* (BO), Febr., ster., *Reppie 291* = *Cel.III-91* (BO, L), Mar., ster., *Reppie 693* = *Cel.II-252* (BO, L), Mar., ster., *Reppie 694* = *Cel.II-253* (BO), 4 m alt., Oct., fl., *Waturandang 13* = *Cel.III-13* (BO, *type*); Tabarano, 600 m alt., Apr., ster., *Hoornstra 30* = *bb.9708* (BO).

6. **Pithecellobium cuneadenum** Kostermans, *sp. nov.*—**Fig. 4**

Arbor foliis bipinnatis, pinnis 1-jugis, glandulis cuneiformibus inconspicuis, rachillis 2—4-foliolatis. Inflorescentia terminalis floribus longe pedicellatis tubo corollae tubo calycis duplo longiore; ovario dense piloso.

Tree 13 m tall. Branches with decurrent leaf-buttresses, smooth, glabrous. Leaves with 1 pair of rachillae; petiole up to 10 cm long, with long, cuneiform impression (gland) between bases of rachillae; rachillae up to 7 cm long, with similar glands between bases of distal petiolules, with 2 pairs of leaflets and single basal leaflet. Leaflets coriaceous, elliptic to ovate (proximal ones), up to 11 × 4 cm (proximal ones 3.5 × 1.5 cm), base acutish, top acuminate; upper surface rather glossy, glabrous, reticulation conspicuous; lower surface paler, dull, with minute, somewhat appressed hairs; lateral nerves 6—8 pairs, arcuate towards margin, reticulation prominulous; petiolules 3—6 mm long, glabrous. Inflorescences terminal, with few stout, in cross-section angular, glabrous, branches, up to 16 cm long; flowers in pseudo-umbels. Pedicels pilose, 3—4 mm long. Calyx minutely pilose, cup-shaped, up to 2—2.5 mm long and 3 mm in diameter at apex; teeth small, triangular. Corolla-tube trumpet-shaped, silky, about 5 mm long; lobes elliptic-ovate, acute, silky outside, 3 mm long. Staminal tube 4 mm long; free part of filaments 10 mm long. Ovary stalked, densely silky.

TYPE.—For. Dept. 22418, Malay Peninsula (SING).

DISTRIBUTION.—Only known from type locality.

Superficially the species shows some likeness with *Pithecellobium pahangensis* Kosterm. and *P. künstleri* Benth., but differs from the former by its leaf-spurs and glands, from the latter moreover by the characters of flower and inflorescence.

SPECIMEN EXAMINED.—MALAY PENINSULA. Pahang. Fraser's Hill, Jan., fl., Kalong, *For.Dept.22418* (SING, *type*).

7. **Pithecellobium dolichadenum** Kostermans, *sp. nov.* — **Fig. 5**

Arbor foliis bipinnatis glandulosis, glandulis stipitatis, foliolis majusculis glabris oppositis. Inflorescentia axillaris, racemus contractus subumbellatus longe pedunculatus, floribus pedicellatis sparse pilosis, calycibus

FIG. 4. *Pithecellobium cuneadenum* Kosterm.: flowering branch (× 0.5); flower (× 2.5). After F.D.22418 (*type*).

4 mm longis conspicue dentatis, corollis usque ad 10 mm longis. Legumen ignotum.

Tree, 25 mm tall; bole 40 cm in diameter. Sapwood white or pale-yellow; heartwood dark-yellowish or brownish. Branchlets smooth, brown. Leaves with 1 pair of rachillae; petiole 2—3 cm long, sparsely, minutely pilose with a small, knob-like, stalked gland just below bases of rachillae,

elongated into a short, broad, pilose prolongation; rachillae up to 10 cm long (as only leaves from neighbourhood of inflorescence are represented, the normal leaves may prove to be much longer), minutely pilose, with 2—3 mm long, stalk-like glands with slightly enlarged tops (which sometimes show slit-like excavations) below bases of petiolules, top with a conspicuous, pilose prolongation. Leaflets opposite, chartaceous, glabrous, ovate-oblong to elliptic, 7—11 × 3—5 cm, base slightly cuneate, usually unequal, top acuminate; lateral nerves 5—6 pairs, arcuate towards margin, anastomosing (especially near tip) at some distance from margins; reticulation dense, prominulous on both surfaces; petiolules glabrous, 2—4 mm long. Inflorescences consisting of contracted, umbel-like racemes, either single in the leaf-axil on slender, sparsely, minutely pilose, up to 5 cm long peduncles, or a few together on very short, contracted branchlets. Pedicels sparsely pilose, 3—4 mm long. Calyx trumpet-shaped, broad, 3—4 mm long, sparsely pilose; teeth conspicuous, acutish. Corolla-tube 1—2 mm longer than calyx, slender, trumpet-shaped; lobes lanceolate, pilose (especially towards tips), inside glabrous, 4—5 mm long. Staminal tube as long as corolla-tube. Ovary glabrous, sessile. Pod unknown.

TYPE — Alexadra F.D. A 4093, North Borneo (SING).

DISTRIBUTION. — Only known from type locality.

By its comparatively large florets, the species is related to *Pithecellobium grandiflorum* Benth. Its leaflets show a striking likeness to those of *P. splendens* Corner. Even in sterile condition it may be easily distinguished by its long-stalked glands.

SPECIMEN EXAMINED.—Colony of North Borneo. Membabut, Kuala Binsuluk, highland, Aug., fl., *Alexadra F.D. A 4093* (SING, *type*).

8. **Pithecellobium globosum** (Blume) Kostermans, *comb. nov.*

Inga globosa Bl., Catal. Gewassen Lands PlTuin Buitenz, 88. 1823 (basonym). —*Pithecolobium rostratum* (Bl.) Miq., Fl. Ind. bat., Suppl. 105, 282. 1860, 1861.— Blume *s.n.*, Mt. Salak, Java (L).

The type of *Inga globosa* Bl., preserved in the Herbarium at Leyden, is labelled in Blume's handwriting, *Inga globosa* Bl., but this name has been crossed out (apparently by Blume himself) and changed by him into *Albizzia rostrata* Bl., a name taken up by Miquel as *Pithecolobium rostratum* Miq. However, the name *Inga globosa* Bl. being the one published validly first, it takes precedence over *Pithecolobium rostratum* (Bl.) Miq.

9. **Pithecellobium monadelphum** (Roxburgh) Kostermans, *comb. nov.*

Mimosa monadelpha Roxb., Fl. ind. (ed. Carey) 2: 544. 1832 (basonym); Benth. *in* Trans. Linn. Soc., Lond. **30**: 634. 1875. — Roxburgh *s.n.* (BR).

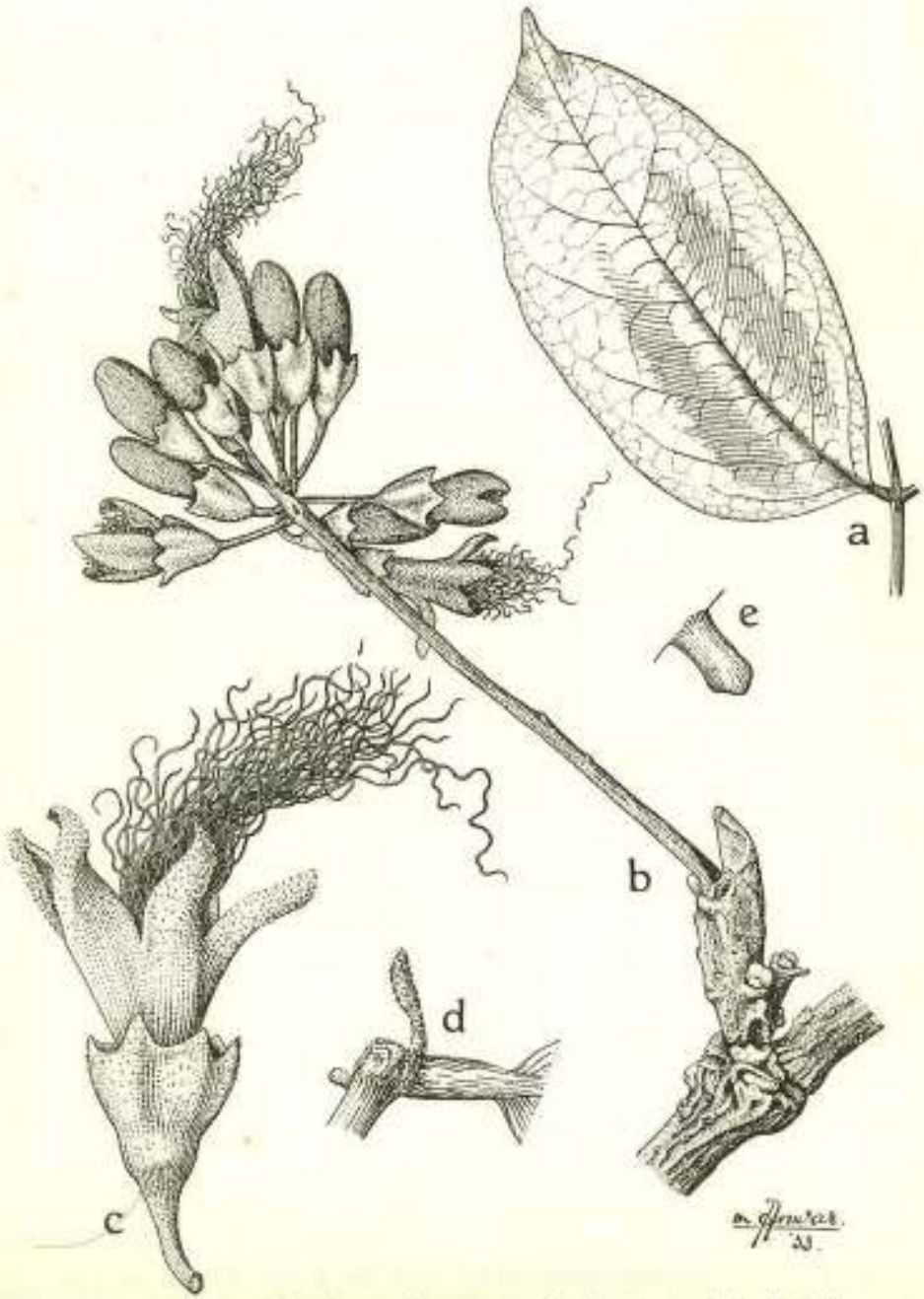

FIG. 5. *Pithecellobium dolichadenum* Kosterm.: *a*, leaflet (nat. size); *b*, inflorescence (× 3); *c*, flower (× 6); *d*, top of rachilla (× 8); *e*, gland (× 15). — After Alexadra F.D. A4093 (*type*).

Bentham (l.c.) confused *Pithecellobium bigeminum* (L.) Mart., a species from Ceylon, with *Mimosa monadelpha* Roxb., which was kept separate by Roxburgh. The latter species differs from *P. bigeminum* by its puberulous branchlets; its puberulous and dull lower surface of the leaflets; its raised, circular, substipitate glands; its densely rusty-pubescent flowers; and its slender calyx.

10. **Pithecellobium waitzii** Kostermans, *sp. nov.* — **Fig. 6**

Arbor (?) ramulis cylindricis glabris; foliis bipinnatis, pinnis 1-jugis, basi glandula magna ovali ornatis, rachillis 6-foliolatis, foliolis oppositis subcoriaceis, glabris, ellipticis vel subobovato-ellipticis, foliolis basalibus ovatis, nervo mediano supra sulcato. Inflorescentia axillaris, perlaxe ramosa, apicem versus dense pubescens, floribus sessilibus in pseudo-umbellis pauciforis breve pedunculatis dispositis, dense sericeis, ovario glabro stipitato.

Tree or shrub (?). Branches cylindrical, smooth, or faintly ribbed, brown, glabrous. Leaves (only distal ones present) with 1 pair of rachillae; petiole glabrous, up to 5 cm long, with cushion-like, oval, 3—4 mm long gland near base; rachillae 3-jugate, up to 8 cm long, unequal, with large, flat, oval glands between bases of distal petiolules. Leaflets glabrous, subcoriaceous, elliptic or subobovate-elliptic, up to 18 × 7 cm, lower ones ovate, only 5 × 2 cm, base somewhat rounded, margins incurved, top obscurely acuminate; upper surface glossy, showing a wrinkled appearance (when dried) with obscure, lax reticulation, midrib sulcate; lower surface paler, glossy, midrib prominent; lateral nerves about 5—7 pairs, only slightly curved, prominent; reticulation lax, prominulous; petiolules 3—4 mm long. Inflorescences in the axils of distal leaves, up to 30 cm long, densely pubescent towards apex, forming lax panicles with only few branches (up to 10 cm long), each branch itself representing a narrow, lax panicle bearing fascicles of short peduncled (up to 6 mm long) pseudo-umbels towards its apex; the fascicles subtended by strongly reduced leaves each with large gland; flowers sessile, densely silky. Calyx campanulate, 1—1.5 mm long; teeth minute. Corolla-tube as long as calyx-tube, silky; lobes silky, glabrous inside, about 1.5 mm long. Staminal tube as long as corolla-tube. Ovary glabrous, on short stalk. Pod unknown.

TYPE. — Waitz. *s.n.* (L).

DISTRIBUTION. — Borneo or Sumatra.

By its glands this species is related to *Pithecellobium ellipticum* Hassk., but differs in its leaf and flower characters. No locality is indicated on the label. Waitz had some plants from Sumatra and Borneo in his collection, although it is not certain, that he visited those islands himself (van Steenis-Kruseman *in* Fl. Males. I 1: 544, 1950).

SPECIMEN EXAMINED.—BORNEO or SUMATRA. Fl., *Waitz s.n.* (L, *type*).

FIG. 6. *Pithecellobium waitzii* Kosterm.: flowering branch (× 0.5); flower and flower bud (× 6).—After Waitz *s.n.* (*type*).

11. **Pithecellobium trichophyllum** Kostermans, *sp. nov.*

Arbor parva, ramulis apicem versus ferrugineo-villosis; foliis bipinnatis, pinnis 2-jugis, foliolis oppositis 3-jugis; glandulis foliorum pulvinatis ad basin petioluli, glandulis basalibus pulvinatis 2—4 cm supra basin petioli; pagina inferior foliolorum dense pilosa. Inflorescentia terminalis, dense ferrugineo-villosa, floribus sessilibus tomentellis, calycibus 4 mm longis, corollis 10 mm longis. Legumen cochleatum, margine ventrali integro, 6 cm diametro, 2,5 cm latum, laeve, dehiscens.

Tree up to 6 m tall, or shrub. Branches smooth; branchlets ferrugineous-villose near apex. Leaves with 2 pairs of rachillae; axis cylindrical, glabrous, up to 15 cm long; petiolar portion up to 9 cm long with large, cushion-like gland about 2—4 cm above base; foliolar portion with large, sessile cushion-like, oval gland just below each pair of pinnae; rachillae usually 3-jugate (lower pair usually 2-jugate), with cushion-like, suborbicular gland between each pair of leaflets. Leaflets elliptic, 7—20 × 3—8 cm, (base acute, top distinctly caudate-acuminate, blunt; upper surface dark-green, glabrous, with inconspicuous nerves; lower surface pale-green (rusty when dried), densely rusty-pilose (when dried), with prominent midrib and 6—8 pairs of primary nerves with loops about 5 mm from margin; secondary veins slightly prominent; petiolules puberulous, 3 mm long. Inflorescences panicles with few-flowered heads, very lax, terminal, up to 30 cm long; flowers sessile, very sparsely spicate, in axils of bract-like leaves. Calyx campanulate, 3 mm long, with 1 m long, ovate teeth, outside densely pubescent. Corolla yellowish-white, funnel-shaped, 9—10 mm long, outside densely silky; lobes 3 mm long. Stamens 15—18 mm long, white; staminal tube 4 mm long. Ovary pilose, on 4 mm long stalk pilose in upper part. Pod spirally twisted to a complete circle, 6 cm in diameter, 2.5 cm wide, dehiscent along ventral suture; valves coriaceous, not sinuate between the seeds.

TYPE. — Lörzing 7948, Sumatra (BO).

DISTRIBUTION. — Sumatra.

By the shape and size of its pods the species is related to *Pithecellobium ellipticum* Hassk. The glands and tomentum of the leaves and the inflorescences make it easily separable from that species. It comes also near *P. künstleri* Prain, from which it differs in its leaves (which are larger), glands, fruits, and tomentum.

SPECIMENS EXAMINED.—SUMATRA. Tapanuli. Near Toba Lake, Central Habinsaran, between Pasoburan and Nassau, on Ruwalu R., 800—1000 m alt., Nov., fr., *Lörzing 7948* (BO, *type*). East Coast Res. Locality not indicated, fl., *Yates 1190* (BO, L). Djambi. Road to Bangko, 180 m alt., Aug., fl., *Posthumus 725* (BO).

12. **Pithecellobium kinabaluense** Kostermans, *sp. nov.*

Pithecolobium angulatum (non Benth.) *sensu* Heine in Fedde, Rep. 54: 229. 1951 p.p., quoad spec. Clemens 29778.

Arbor parva; foliis bipinnatis; pinnis 2- vel 4-jugis; foliolis 1—4-jugis, oppositis, glandulis magnis, ovalibus supra planis, subsessilibus. Inflorescentia terminalis, dense pilosa, late paniculata, ramificatione secundum scedulam, floribus pedicellatis, calycibus 1,5 mm longis, corollis tubo 4 mm, lobis 2—3 mm, tubo staminum 2 mm longo, ovario dense piloso, stipite 3 mm longo imposito. Legumen circinatum, sutura ventrali dehiscente.

Tree up to 25 m high with bole 40 cm in diameter, usually much smaller. Bark brown, dull, rather roughish, scaling off in small particles. Wood white. Branchlets cylindrical, slightly ribbed, pilose. Leaves with 2 (rarely 4) pairs of rachillae; petiole 5—7 cm long, with large (up to 10 mm long), oval, slightly raised, flat gland near base; rachis densely pilose, 3—6 cm long, with similar glands below bases of rachillae; lower pair of rachillae (if present) with 2 pairs of opposite leaflets, apical one with 3—4 pairs; rachillae 8—14 cm long (the basal ones much shorter), pilose, with large, oval, subsessile glands at bases of petiolules, sometimes terminating into a short prolongation. Leaflets chartaceous, elliptic to lanceolate, oblique, the apical ones up to 13 × 6 cm, those of the lower rachillae more ovate and sometimes less than 3 × 2 cm, base acute, top subacuminate; upper surface rather dull, smooth, slightly reticulate, midrib pilose; lower surface glabrescent but for midrib and the prominent (3—)8—10 pairs of inarching lateral nerves, dull-brown (when dried); veins prominulous, laxly reticulate. Inflorescences terminal, forming lax, broad, densely pilose panicles up to 30 cm long with usual ramification; bracts each with large gland; flowers cream-coloured, densely silky, up to 8 mm long. Pedicels 3—5 mm long. Calyx campanulate, 1.5 mm long, with broad, 0.5 mm long teeth. Corolla-tube funnel-shaped, 4 mm long; lobes erect-patent, 3—4 mm long, fleshy, elliptic, acute. Staminal tube 2 mm long. Ovary densely silky, on 3 mm long, pilose stalk. Pod twisted spirally into complete circle, 5 cm in diameter, 1.5—2 cm wide, yellow, smooth outside, red inside, slightly lobed at the ventral suture between seeds.

TYPE. — Clemens 29778 = 29865, Borneo (BO).

DISTRIBUTION. — Thus far only known from Mt. Kinabalu, Borneo.

The species is closely related to *Pithecellobium künstleri* Prain as to leaf-shape and glands. However, the flowers are pedicelled and much smaller. From *P. motleyanum* Benth., it differs in its glands, its pedicelled flowers, its leaf-shape, and its indumentum.

SPECIMENS EXAMINED.—BORNEO. Colony of North Borneo. Mt. Kinabalu, Gurulau Spur, Nov., fl., *Clemens 10792* (BO, CAL); Penibukan, 1500 m alt., Feb., fl., *Clemens 3121* (BO, L); ibid., Mar., fl., *Clemens 32174* (BO, L); Tenompok, 1500 m alt., June, fl., *Clemens 29778 = 29865* (BO, *type*; L, SING); Mentendok-Kinawahi Divide, 1200 m alt., Mar., fl., *Carr S.F.26708* (SING).

13. **Pithecellobium pahangense** Kostermans, *sp. nov.*

Arbor 40 pedalis; ramulis cylindricis griseis glabris; foliis bipinnatis pinnis 2-jugis, glandulis excavatis, rachillis 6-foliolatis, foliolis rigide char-

taceis, glabrescentibus. Legumen applanatum in circulum 8 cm diametro tortum, 20 cm longum, 15 mm latum, sutura ventrali sinuosa dehiscente.

Tree 13 m high. Branches terete, smooth, grey, glabrous. Leaves with 1 pair of rachillae; petiole 15—20 mm long, glabrous with a 2.5 mm long, oval, excavate gland near apex; rachillae up to 10 cm long, glabrous, with circular, excavate, large glands between bases of petiolules, with 3—4 opposite pairs of leaflets. Leaflets subcoriaceous or rigid chartaceous, obovate-elliptic or elliptic, distal ones 8 × 4 cm, proximal ones 4 × 1.5 cm, base cuneate, top acuminate; upper surface rather dull, reticulate, main nerves hardly raised; lower surface dull, paler, reticulate, minutely and laxly pilose, glabrescent; lateral nerves about 6 pairs, arcuate; petiolules up to 5 mm long. Pod slightly pilose, glabrescent, twisted to a complete circle, up to 20 cm long, 15 mm wide over the bullate seed-bearing parts, dehiscent along the sinuate ventral suture.

TYPE.—Nur S.F.11025, Malay Peninsula (SING).

DISTRIBUTION. — Only known from type locality.

The species is close to *Pithecellobium kunstleri* Prain, from which it differs in its more leathery leaves, its smaller pods, and especially in its glands.

The species has been collected three times and all three specimens are constant in their characters.

SPECIMENS EXAMINED.—MALAY PENINSULA. Pahang. Fraser's Hill, 1300 m alt., Aug., fr., *Nur S.F.11025* (SING, *type*), Aug., fr., *Henderson S.F.11279* (SING), Aug., ster., *Corner s.n.* (SING).

14. **Pithecellobium arborescens** Kostermans, *sp. nov.*

Arbor alta; ramulis puberulis, foliis bipinnatis, pinnis 1-vel 2-jugis, petiolis glandula pulvinata apicali imposita, foliolis 2—4-jugis petiolis glandulis pulvinatis ornatis. Inflorescentia terminalis, puberula, floribus sessilibus dense sericeo-puberulis, pseudo-umbellis pedunculatis, pedunculis a basi glandulis duabus sessilibus ornatis, corollis 7 mm longis, ovario piloso, subsessili.

Tall tree, spur-buttressed (Brass). Branchlets minutely brown-puberulous. Leaves with 1 or 2 pairs of rachillae; petiole 10 cm long, puberulous, with cushion-like rather irregular gland between bases of first pair of rachillae and sometimes 2 other ones at both sides of base; rachillae up to 20 cm long, with similar glands between bases of petiolules or glands none, with opposite, 2—4 pairs of leaflets per rachilla. Leaflets chartaceous, with persistent, very minute tomentum on main nerves of both surfaces, elliptic to ovate- or subobovate-elliptic, base somewhat rounded, top usually obscurely acuminate, on both surfaces glossy and densely prominently reticulate; midrib and lateral nerves (5—6 pairs) prominulous, immersed into grooves on the upper surface (making the leaflets a little bullate); lateral nerves arcuate, prominent on lower surface; petiolules 2—4 mm

long. Inflorescences terminal, lax, broad, up to 30 cm long, densely puberulous panicles, the branches representing narrow part-panicles; flowers densely puberulous (corolla more silky), sessile, subtended by small bracts on short (up to 5 mm) broad, flattened, densely puberulous pedicels, the latter fascicled in axils of small leaves that are each reduced to a single gland. Calyx slender, campanulate, minutely, densely, greyish puberulous, about 2.5 mm long, with minute teeth. Corolla densely silky, 7 mm long; tube 4 mm long, slender. Staminal tube as long as corolla-tube; free part of filaments 15 mm long. Ovary pilose, almost sessile.

TYPE. — Brass 8176, New Guinea (BO).

DISTRIBUTION. — North-east New Guinea.

The species is allied to *Pithecellobium novoguineense* Merr. & Perry, from which it differs in its puberulous petioles, rachillae, and inflorescences. The flowers are smaller, with a silky corolla; the ovary is pubescent.

The rachillae are very peculiar; above the second pair of leaflets there is a fork, one branch of which has developed to a rachilla with 2 pairs of leaflets, the other is absent or represented by an abnormal leaf of two fused leaflets.

The fruiting specimen (Brass 3854) has smaller leaflets (distal ones 9 × 4.5 cm; smallest ones 6 × 2 cm); its leaves have two pairs of rachillae, of which the basal is longer than the apical one; but the specimen is exactly alike in other respects (reticulation, indumentum, and the characteristic glands of the inflorescence) with the type specimen, as are the remnants of calyx and corolla below a not fully mature fruit. The pilose fruit with its thick, fleshy valves is more like in *Archidendron*. The description of the pod follows:

Pod flattened, twisted to a circle or spiral, bullate over the seeds, dehiscent along lobed ventral suture; valves very thick, fleshy, red inside, pilose outside, up to 15 mm wide (over seed-bearing part). Seeds black, ovate-elliptic, 12 × 4 mm.

SPECIMENS EXAMINED.—NEW GUINEA. North-east New Guinea. Lower Fly R., east bank, opposite Sturt I., drier rain forest, Oct., fl., *Brass 8176* (A, BO, *type*); Central Div., Dieni, Onongo Road, 500 m alt., Apr.—May, fr., *Brass 3854* (BO, NY).

15. **Pithecellobium syringifolium** Kostermans, *sp. nov.* — **Fig. 7**

Arbor parva; foliis bipinnatis, pinnis 1- vel 2-jugis, glandulis minutis, rachillis 6-foliolatis, foliolis ovatis vel oblongo-ovatis, subtus dense pilosis. Flores sessiles dense sericei pseudo-umbellati; pseudo-umbellae longe pedunculatae in axillis foliorum reductorum paniculam perlaxam terminalem formantes.

Small tree. Branches pale-brown, densely and minutely lenticellate. Leaves with 2 or 4 rachillae; petiole (axis) 4—10 cm long, densely pale-

brown pubescent, with small, stalked, circular gland below middle, ending in a pilose prolongation; rachillae ending in a slender, pilose prolongation; distal rachillae up to 7 cm long, with 3 pairs of opposite leaflets and small, slightly stalked, circular glands between bases of petiolules, or lower glands absent; proximal rachillae up to 4 cm long, with 2 pairs of opposite leaflets. Leaflets chartaceous, ovate-oblong or ovate, distal ones up to 8 × 4 cm, proximal ones 5 × 2 cm and less, base somewhat cuneate, top sharply acute or acuminate; upper surface dull with scattered hairs (denser on main nerves), midrib, lateral nerves, and lax reticulation flat; lower surface densely rusty-pubescent, midrib and arcuate, lateral nerves (5—6 pairs) prominent, reticulation very lax, hardly prominent. Inflorescences terminal, pubescent, very lax panicles composed of few, remote, peduncled (peduncles 4 cm long) many-flowered pseudo-umbels in axils of strongly reduced, densely pubescent, up to 5 mm long leaves; flowers densely

FIG. 7. *Pithecellobium syringifolium* Kosterm.: flowering branch (nat. size); pseudo-umbel (× 1.5). — After Brass 7896 (*type*).

brown-silky, sessile. Calyx fleshy, funnel-shaped, 5—6 mm long, with small, acute teeth. Corolla-tube longer than calyx; lobes lanceolate to ovate, longer than tube (in the specimen undeveloped). Staminal tube at least as long as corolla-tube. Ovary glabrous, short-stalked.

TYPE. — Brass 7896, New Guinea (BO).

DISTRIBUTION. — Only known from type locality.

The species is allied to *Pithecellobium lovellae* Bailey, from which it differs in its smaller flowers, differently shaped inflorescences, folioles, and glands on the leaves. The one specimen examined was collected in bud.

SPECIMEN EXAMINED. — NEW GUINEA. Papua. Lower Fly R., on edge of sagu-swamp, Sept., in bud, *Brass 7896* (A, BO, *type*; BRI, L).

16. **Pithecellobium celebicum** Kostermans, *sp. nov.*

Pithecellobio laxifloro *(DC.) Benth. peraffinis differt foliolis crassioribus obovatis basi decurrentibus, leguminibus minoribus seminibus pluribus.*

Small tree, up to 8 m tall. Leaflets oblanceolate, about 10 × 4 cm, smoother and slightly thicker than those of *P. laxiflorum* (DC.) Benth.; base gradually tapering into the petiole. Pods spirally twisted almost in one plane (4—5 cm in diameter), 10 mm wide, bullate over the seeds, only slightly compressed, lobed along ventral suture and indented between the seed-bearing parts. Seeds up to 14.

TYPE. — Nurkas 220, Celebes (BO).

DISTRIBUTION. — Celebes.

The species is very close to *Pithecellobium laxiflorum* (DC.) Benth. and may eventually prove to be only a variety growing on poorer soil.

The main difference is in the narrow, many-seeded pods as compared with the large, few-seeded ones of *P. laxiflorum;* moreover the seeds are smaller and less compressed.

The character of the leaflet, as indicated in the Latin diagnosis, is not quite satisfactory, as in *P. laxiflorum* the same type may occasionally be found, although very rarely, and in the cited specimen Kjellberg 2550 the leaflets are similar to those found in *P. laxiflorum.*

Kjellberg 1793 and 2550 have pilose inflorescences.

SPECIMENS EXAMINED. — CELEBES. Lolombulan, near Paku-uru, June, fl., fr., *Koorders 17665β* (BO); Marae, May, fr., *Nurkas 220* (Exp. van Vuuren) (BO, *type*; K, L); Tjamba, fl., *Teijsmann 12618 HB* (BO, K, L); Palopo, 0 m alt., June, fl., *Kjellberg 1793* (BO, L); Lelewas, Dreho, 460 m alt., Oct., fr., *Kjellberg 2550* (BO); Kendari, Pundidaba, Apr., fr., *Kjellberg 1198* (BO). KABAENA I. Fr., *Elbert 3288* (BO, L, SING). MUNA I. Wakadea, July, fl., *bb.5850* (BO, L, U).

17. **Pithecellobium malinoense** Kostermans, *sp. nov.*

Arbor humilis; foliolis 3-jugis glabris, glandulis minutis orbicularibus. Inflorescentia terminalis subglabra, floribus glabris minutis sessilibus bracteis distinctis.

Small tree. Branchlets pale-brown, rather smooth, lenticellate. Leaves glabrous; petiole up to 1.5 cm long with small, circular gland near base; rachillae 1 pair, 3—6 cm long, with minute, circular glands and 3 pairs of opposite leaflets. Leaflets lanceolate, 3—5 × 1.5 cm, base tapering into 1—2 mm long petiolule, top gradually acuminate; lateral nerves 4—6 pairs; reticulation prominulous on both surfaces (less on upper one). Inflorescences terminal, with the usual ramification; bracts membraneous, ovate, conspicuous, pilose like peduncles; flowers sessile, glabrous. Calyx cup-shaped; 1—2 mm long; teeth small. Corolla twice as long as calyx, glabrous. Ovary glabrous.

TYPE. — Rant 461, Celebes (BO).

DISTRIBUTION. — South-western Celebes, above 800 m alt.

The species is closely allied to *Pithecellobium celebicum* Kosterm. and might represent a mountain variety with smaller and narrower leaflets. The paratype (Kjellberg 2927) has leaflets up to 7 × 2.5 cm, the smallest being 2.5 × 0.75 cm; it is in flower, but the few flowers present seem to be abnormal.

SPECIMENS EXAMINED.—CELEBES. South-western Peninsula. Malino near Makassar, 1050 m alt., Oct., fl., *Rant, 461* (BO, *type*); Tadjambo, 800 m alt., Dec., fl., *Kjellberg 2927* (BO, *paratype*).

18. **Pithecellobium crateradenum** Kostermans, *sp. nov.* — Fig. 8

Pithecolobium minahassae (*non* Teijsm. & Binnend.) *sensu* Koord. *in* Meded. Lands PlTuin, Buitenz. No. 19: 443, 630. 1898; Suppl. Fl. N.O. Celebes **2**: *pl. 18*. 1922 & **3**: 10. 1922, p.p., quoad spec. cit. Koorders 17703*β* et *pl. 18 fig. 2*.

Arbor parva; foliis glabris, bipinnatis, pinnis 1-jugis, foliolis 6-jugis, amplis, papyraceis, ovalibus, superioribus 25 × 14 cm, inferioribus 11 × 7 cm, glandulis crateriformibus magnis ad basin petioluli, glandulis basalibus 2—3 cm supra basin petioli. Inflorescentia apicalis, tomentosa, ampla, paniculiformis. Legumen ignotum.

Small tree, according to Koorders 15 m high and bole 20 cm in diameter. Branchlets cylindrical, smooth. Leaves with 1 pair of rachillae and 1 unpaired proximal leaflet; petiole glabrous, with large, up to 5 mm high, nest- or dome-like gland with deep cavity inserted about 2—3 cm above base and a similar, smaller gland between bases of petiolules of distal leaflets; rachillae with 3 pairs of leaflets. Leaflets papery, glabrous, very large, elliptic, base rounded, top rather abruptly sharp-pointed, distal ones 25 × 14 cm, proximal one 11 × 7 cm or more; midrib prominent; lateral nerves 7—9 pairs (distal leaflets) or 5 (proximal one), prominent

FIG. 8. *Pithecellobium cruteradenum* Kosterm.: *a*, flowering branch (× 0.5); *b*, flower bud (× 5); *c*, flower (× 5); *d*, *e*, glands (× 5); *f*, reduced leaf of the inflorescence (× 5). — After Atje 206 (*type*).

on lower surface, hardly connected by loops along margin; reticulation prominulous on both surfaces, which are both green (lower surface somewhat paler); petiolules glabrous, about 10 mm long. Inflorescences few-flowered pseudo-umbels (flowers sessile), on filiform, villose, up to 2 cm long, 2—3 peduncles which are vertically superimposed above axils of bract-like leaves with large gland and small leaflets; the branches of lower order in axils, diminishing in length downwards, similarly compounded into terminal, lax, rusty-villose panicles, 30 cm long, 20 cm wide. Calyx campanulate, laxly silky, 2 mm long; teeth 0.5 mm long, acute. Corolla-tube funnel-shaped, 3 mm long; lobes narrow, acute, 4—5 mm long, laxly silky. Filaments 15—20 mm long; staminal tube 4 mm long. Ovary pilose, on 2—3 mm long stalk. Pod unknown.

TYPE.— Atje 206, Sula Islands (BO).

DISTRIBUTION. — North Celebes and Sula Islands.

The glands point to a relationship with *Pithecellobium merrillii* Macbr., *P. robinsonii* Gagn., and *P. havilandii* Ridl.

SPECIMENS EXAMINED. — CELEBES. Minahasa. Foot of Mt. Klabat, 500 m alt., Jan., fl., *Koorders 17703β* (BO, CAL, P). MOLUCCAS. Sula Is. Mangoli I., Djiko Kenari, fl., *Atje 206* (BO, *type*; L).

Archidendron F. Muell.

1. ARCHIDENDRON TENUIRACEMOSUM Kanehira & Hatusima

Archidendron affine Wit *in* Reinwardtia 2 : 74. 1952. — Kostermans 601, Morotai 1942. — Kanehira & Hatusima 13251, New Guinea.

Archidendron affine Wit *in* Reinwardtia 2 : 74. 1952. — Kostermans 601, Morotai (L).

Teijsmann 7835HB and Ramos & Edaño B.Sci.49023 are provided with fruits which show unequivocally that this species belongs to *Archidendron*. *Archidendron affine* Wit is conspecific. The species is the only one, thus far known, which has a distribution as far as the Philippines. De Wit (*in* Reinwardtia 2: 96, 1952) has referred the species to *Pithecellobium* Mart.

SPECIMENS EXAMINED.—PHILIPPINES. Mindanao. Davao Prov., Onati, Apr., fr., *Ramos & Edaño B.Sci.49023* (BO, L). — NEW GUINEA. Netherlands New Guinea. Geelvink Bay, Dore (Manokwari), fr., *Teijsmann 7835HB* (BO, L).

2. ARCHIDENDRON SP.

Pithecellobium megaphyllum Kaneh. & Hatus. *in* Bot. Mag., Tokyo 56: 360 *f.* 4. 1942. — Kanehira & Hatusima 12980, New Guinea.

The species is represented in Herbarium Bogoriense by a portion of the type collection. Although according to Kanehira & Hatusima the flower

bears only one ovary, I believe the species to belong to *Archidendron* F. Muell. and likely to be conspecific with *A. calliandrum* Wit.

3. Archidendron ledermannii Harms

If one compares the descriptions of *Archidendron aruense* (Warb.) Wit and *A. ledermannii* Harms, as given by De Wit (*in* Reinwardtia 2: 75, 86. 1952), the main differences (which are also mentioned in the key) are in the length of the pedicel and the raceme. For *A. aruense* the length of the raceme is given as up to 18 cm long (in the specimen Beccari 3735-A, mentioned by De Wit, it is 7 cm long) and in *A. ledermannii* as up to 6 cm long. As is clear from the descriptions of other species of *Archidendron*, the length of the raceme varies considerably and hence this character by itself has little specific value. According to De Wit the pedicels in *A. aruense* are not over 2 mm long and in *A. ledermannii* they are 2—4 mm long. However, Pleyte 475 (indentified by De Wit as *A. ledermannii*) has pedicels of 1—2 mm long.

The rachillae of *A. aruense* of Zippel 262C (identified by De Wit) are 26 cm long (although in De Wit's description they should be up to no more than 17 cm long); in Djamhari 56 (indentified as *A. ledermannii*) they are 30 cm long. In Brass 13882, accepted by De Wit as the neotype, several folioles are ovate (the description says oblong to lanceolate).

The glands in both species are inconspicuous; hence Clemens 983, although identified by De Wit as *A. aruense*, does not belong here: it has conspicuous, protruding, rimmed glands.

The bracts and bracteoles (not mentioned by De Wit under *A. ledermannii*), which are also present in Brass 13882, are similar in both species. The length of the calyx in Beccari 3936-A of *A. aruense* is 4 mm (as stated by De Wit on the accompanying label), whereas in Pleyte 475 (*A. ledermannii*) it is 5 mm long.

Brass 13882 shows a remarkable likeness to Kostermans 2705 (*A. aruense*).

Therefore I would conclude that *A. ledermannii* is conspecific with *A. aruense*.

4. Archidendron effeminatum Wit

Archidendron effeminatum Wit (*in* Bull. bot. Gdn Buitenz. III 17: 265. 1942), based on Rutten 2119 from Ceram, is in my opinion conspecific with *A. beguinii* Wit (*op. cit.* p. 262). In his recent key De Wit (*in* Reinwardtia 2: 72. 1952) distinguishes the present species from *A. beguinii*

by the length of the inflorescence and the corolla. In the material of *A. effeminatum* at my disposal the racemes are 2—7 cm long; the corolla is indeed shorter, but this is due to its undeveloped condition. The raceme of the cited specimen is also very poorly developed and hardly branched (although traces of beginning branches are to be found). De Wit himself does not put much stress on this branching, as he keys out *A. beguinii* both under, raceme simple, and, raceme compound.