REINWARDTIA

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NOTES ON TWO LEGUMINOUS GENERA FROM EASTERN INDONESIA

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SUMMARY

1. A new monotypic genus, Kalappia Kostermans, is established for a tree of commercial importance from Celebes, K. celebica Kostermans. The genus is assigned to Caesalpiniaeae (Tribus Cassiae).

2. The Papilionaceous genus Desmofischera Holth. (only species: D. monosperma Holth.) is reduced to a synonym of Monarthrocarpus Merr. [only species: M. secundiformis (Benth.) Merr.]. Additional collections, from Morotai, are cited.

1. A NEW GENUS FROM CELEBES

Kalappia Kostermans, gen. nov.

Caesalpiniaeae, iribus Cassiaeae.—Sepala 5, subaequalia, lata, imbricata. Petala 5, unguiculata, erecto-patentia; 2 lateralia (exteriora) maiora. Stamina per duas coronas disposita cum sepalis et petalis alternant; stamen decimum probabiliter inter duo stamonia superiora deest. Stamina fertilia 5, plus minusve bilateraliter-symmetrice serta; staminum fertiliorum 2 sinistra et 2 dextra ab ovario postrita, 2 stamina superne postia longiora; stamen infimum brevissimum. Staminodia 4 (interdum 2), 2 maiora inter stamina fertilia lateralia; reliqua 2 (si adsunt) superne. Antherae basifixae, versatiles, poro apicali dehiscentes; apex minute productus. Ovarium sessile, compressum, 3—5-ovulatum; stylus incurvatus, stigmate parvo terminali. Legumen elongatum, planum, per suturam ventralem anguste alatum, per suturam dorsal sinuatum, aliquis tenuibus, interne leve. Semina 1—2 (raro 3), plano, disciformia, funiculo distintissimo, brevi; testa coriacea; cotyledones planae, latae, leve; radicula breves, recta. Albumen deest.

Arbores altae, inermes; foliis imparipinnatis, eglandulis et stipulis inconspicuis. Bracteae bracteolae ephemerae.

TYPE SPECIES.—Kalappia celebica Kostermans.

DISTRIBUTION.—Celebes, region around Malili (north of Gulf of Bone).

The polappi, nanakulahi, or kalappi tree, as it is called by the local tribes in the Malili region, is a forest giant yielding a valuable timber. Large-scale cutting has considerably diminished the number of these trees around Malili; in normal times an appreciable quantity of logs was ex-
ported yearly to Makassar, where it was sawn into boards and stiles. A variety with a beautiful grain pattern was much sought after for cabinet work. It is in high esteem for ship-building and for the construction of bridges.

Although it was known for years that this tree represented an undescribed genus in Leguminosae, no botanical description has been published so far. As sufficient flowering and fruiting material was at my disposal and as I had the opportunity to study the tree in situ, I feel now justified to describe it.

The nearest allies of Kalappia are undoubtedly Cassia L., Koompassia Maingay, and Uittienia Steenis, whereas Dialium L. is more remotely related. In flower characters it comes very near to Cassia in the broader sense and to the genus Chamaesenna Raf., as recognised by Britton & Rose (in N. Amer. Fl. 23: 250. 1930). From the former it differs by its oddly pinnate leaves and dehiscent pods; from the latter, moreover, by the number and position of the staminodes and the number of seeds. By the narrow wing, the pod vaguely resembles that of Pterocassia Britt. & Rose, and that of Koompassia, but in Kalappia the wing is unilaterally and hardly developed, whereas in the other two genera mentioned, the seed-part of the pod is surrounded by a well-developed wing and, in addition, the pod is indehiscent; the flower of Koompassia is quite different as to the shape and size of petals as well as to the number of staminodes. The genus Uittienia, although having the same number of sepals and petals, differs by the number of fertile stamens and, moreover, has unifoliolate leaves.

Storckiella Seem, from the Fiji Islands and New Caledonia, is related, but has an irregular number of calyx- and corolla-lobes (3—5, as a rule 4); 10 fertile stamens opening by pores contiguous in short slits; and the anthers do not possess an appendage. The fruit shows a striking resemblance but the wing in Storckiella is broader.

Kalappia celebica Kostermans, spec. nov.—Fig. 1.

Folia alternata, plerumque 5-foliolata, imparipinnata. Foliola alternata, lanceolata vel elliptica, chartacea, 4 x 10 cm, breviter acuminata, EXPLANATION OF FIGURE 1.

FIG. 1. Kalappia celebica Kosterm.; a, flowering branch, X 0.63; b, fruit, X 0.63; c, flower, X 1.25; d, diagram of flower; e, flower with calyx and corolla removed except for one adaxial sepal, the stamens and staminodes behind the ovary and one stamen at the abaxial end are removed, too (the adaxial fertile stamens are usually smaller than the abaxial one), X 3.75; f, petals, X 1.25; g, sepals, the lower one not drawn, X 1.25; h, top portion of anther showing pores and excrescence (connective), X 12.5; i, ovary, X 3.1. — Drawing after the collection Waturandang 19 (Cel./IV-87).
basí acuta, utrinque, areolata; supra glabra, nitentia costa canaliculata, nervis primariis 5–8 utrinque, gracillimis, vix elevatis subitus minute pilosa, costa prominentique usque ad apicem extremum folioli, nervis prima-riis paulum elevatis. Petiolus 8–10 mm longus. Petiolus teres, 3–5 cm longus; rachis glabrascens, 4–8 cm longa. Inflorescentiae axillares, 2–3 aggregatae, dense sericeae, pedunculo brevi communi et rachii 2–6 cm longa ramifica- tionsibus distabantis, paucis brevibus, dispositis per paria et quae gerunt vicissim ramulos brevissimos secundarios tertiarisque, com- positae. Bracteae ovatae, parvae, ephemerae. Pedicelli 4–6 mm longi, dense sericei, Torus brevis, obconicus, sericeus. Sepala 5, subaequalia, elliptica, 5–7 mm longa, sericea. Petala erecta, aurantiaco-flava, lamina elliptica, 5–7 mm longa, sensim in utrinque petalo, in utrinque petalo maximum 8–10 X 4–6 mm. Staminodium maximum filamenta 5 mm longa, glabra crassa, et antherae horizontales. Stamina radiata lateralia crassa; stamina radiata religiula graciliora et breviora. Ovarium sericeum, lateraliiter compressum; stylus glaber, brevis; stigma minutum. Legumen planissimum, glabrum basi excepta, apiculatum, sutura dorsali convexa, 2 mm late alata. Semina singula, raro bina vel terna, usque ad 13 X 11 mm, hilo 3 mm longo, gracili. Cotyle- dones planae, inconspicue venaeate; radicula cylindrata, brevissima.

Tree, up to 40 m high with clear bole of up to 20 m high and 90 cm in diameter; buttresses up to 2–3 m high, 20 cm thick, 2 m over the ground. Bark rusty-brown, fissured, rather rough, peeling off in small pieces; dead bark 2 mm thick; living bark 12 mm thick, pinkish red in cross-section, white inside. Sapwood 3–5 cm, light brown, abruptly differen- tiated from the brown heart wood. Branches terete, brown, lenticellate; primary branches distant, usually more or less ascending, more than 4 cm long, rather thick; secondary branches short, bearing in turn very short secondary and sometimes tertiary branches; all branchlets more or less ascending, broadened and flattened apically. Branchlets and pedicels subtended by ovate, 15–22 mm long bracts which are soon caducous. Bracts concave, silky outside, glabrous inside. Pedicels 4–6 mm long, densely silky, merg- ing into the obconical, 0.5–1 mm long torus. Flowers about 1 cm long and broad. Sepals concave, elliptical, erect-patent, 5–7 mm long, obtusish, densely silky outside, slightly pilose inside, leathery, up to 3 mm wide at base, slightly unequal. Petals erect, orange-yellow, the blade thin and transparent with a dark reddish margin and rather erect, numerous lateral veins which branch near margin; largest petal with broadly elliptic, 8–10 mm long, 4–6 mm wide blade, merging into a stout, leathery claw; other petals with narrower blade. Largest stamens with about 5 mm long, stout, glabrous filaments; anthers 2 mm, glabrous, almost horizontal in mature flower (erect in bud); apical excrescence horizontal, directed towards lower side of flower. Lateral staminodes stout, slightly shorter than the smaller pairs of 4 lateral fertile stamens; other staminodes shorter and more slender. Ovary densely silky, laterally compressed, with a short, but distinct, glabrous style and minute, pinhead-shaped stigma, hardly exceeding the largest stamens. Pod reddish brown, very flat, glabrous, base excepted, apiculatum; dorsal suture almost straight, slightly concave, ventral suture convex with a 2 mm broad wing; valves thin, smooth inside. Seeds united in pairs, 4–6 mm long, 4–6 mm wide, slightly concave, one side 3 mm long and 11 mm wide; testa leathery, smooth; hilus slender, about 3 mm long; cotyledons very flat with faint indication of midrib and lateral veins; radicle short and thick, cylin- drical.

TYPE.—Riman 1 = bb.33693.

SPECIMENS EXAMINED.—CELEBES. Malili region: near Malili, alt. 25 m, tree of 20 m with 8 cm clear bole of 40 cm diam., in bud, April, L. polapi wasu (Koronsie language), Waturandang 8 = Cel/IV-87, tree of 25 m with 6 cm clear bole of 70 cm diam., ster., May, L. nanakulahi (Koronsie and Padoe languages), Waturandang 38 = Cel/IV-108, in bud, May, L. polapi wasu (Padoe and Koronsie languages), Waturandang 48 = Cel/IV-87, fr., Feb., tree of 30 m with 15 cm clear bole of 50 cm diam., Waturandang 137 = Cel/IV-132, tree of 25 m with 10 cm clear bole of 43 cm diam., ster., Feb., L. polapi wasu (Padoe and Koronsie languages), Waturandang 138 = Cel/IV-183, flowers yellow, April, L. nanakulahi (Padoe language), Waturandang 168 = Cel/IV-108, ster., Feb., tree of 30 m with 10 cm clear bole of 30 cm diam., L. polapi wasu (Padoe language), Reppie 139 = Cel/IV-13h, ster., Feb., tree of 25 m with 10 cm clear bole of 30 cm diam., L. polapi wasu (Padoe language), Reppie 171 = Cel/IV-59, fr., May, L. polapi wasu (Padoe language), Reppie HO = Cel/IV-135, fr., May, local name nanakulahi (Padoe language), Reppie 171 = Cel/IV-108, near Usu, alt. 10 m, in bud, Dec., tree of 30 m with 20 cm clear bole of 50 cm diam., L. polapi puhe (Padoe and Tambee languages), Waturandang 109 = Cel/IV-59, ster., Dec., tree of 30 m with 20 cm clear bole of 70 cm diam., L. polapi tauro or polapi maeto (Padoe and Tambee languages), Watu-
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*Randang 121 = Cel.1111-67, flowers orange-yellow, aromatic, Jan., l.n. polapi tauro (Padoe and Koronsie languages), Waturandang H.5 = Cel.1111-67, fruits red, March, l.n. polapi tauro (Padoe language), Reppie S91 = Cel.1111-67, fr., Dec, Reppie 369 = Cel.III-67, near Lampea, alt. 50 m, ster., April, tree of 23 m with 14 m clear bole of 26 cm diam., Hoornstra 7 = bb.13572; near Matompi, alt. 300 m, ster., Jan., tree of 37 m with 12 m clear bole of 40 cm diam., Hoornstra 5 = bb.8557; near Pasi Manangui, alt. 25 m, ster., Sept., l.n. kalapi (in Luwu district), tree of 30 m with 25 m clear bole of 40 cm diam., Burki 10 = bb.23260; near Margosuko ster., Sept., tree of 30 m with 15 m clear bole of 65 cm diam., Reppie 16 = bb.321.56; near Kalaena, fl., Dec, tree of 30 m with 12 m clear bole of 53 cm diam., Riman 1 = bb.33693 (type).

The commercial timber is generally known as kalapi. The local name polapi is a variant of the same name. The suffix puteh or maeto means white and refers to the colour of the trunk, when the latter is reddish the suffix is wasu. The name nanakulahi is composed of nana and kulahi (kalapi). The tree grows from an area behind the seacoast to rather high up in the hills. The soil is usually rocky and contains iron. The tree was found scattered; the number of seedlings was always small. In this region the kalapi is one of the largest trees. It flowers rather irregularly, flowerless years being common. The crown, which is far from dense in medium-sized trees, is thin in large specimens.

The timber belongs to the durability class 2. Its minimum specific gravity is 0.59, its maximum 0.66, with an average (estimation of 7 samples) of 0.63.

**2. ON DESMOFISCHERA HOLTH.**

The only species of this genus, *D. monosperma* Holth., was described after a specimen, collected by Lam (no. 2637) on Karakelong Island, Talaud Islands, East Indonesia. Besides the type, Holthuis enumerated several other specimens from Karakelong, Salebabu, and Morotai.

Comparison of these specimens with *Monarthrocarpus securiformis* (Benth.) Merr. from the Philippines, showed the two to be conspecific. Contrary to Holthuis' material, the specimens collected by myself on the island of Morotai, where the species is common (although scattered) up to 500 m altitude, have always three-foliolate leaves, whereas Holthuis' plants were mostly one-foliolate and consequently belong to variety *monophylla* Merr.

The pod of these plants from Morotai is rather more scabrous-puberulent, as stated by Merrill, than minutely pubescent, as indicated by Holthuis. In other respects the descriptions of Merrill and Holthuis agree closely.