

STUDIES IN OLD WORLD PROTEACEAE

by

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(*Flora Malesiana*, Leyden)

(Issued 31. XII. 1955)

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During a recent treatment of the Proteaceae for "Flora Malesiana" it has become evident that a revision of the generic status of all proteaceous taxa reported from S. Asia and Malaysia as well as from the adjacent regions of Micronesia, Melanesia, Polynesia and subtropical-tropical Australia had to be made to reach a satisfactory correlation of the genera and species concerned as a basis for the discussion of phytogeographical relations both within and outside the proper Malaysian area. During this work it appeared necessary to transfer some species to other genera. A revision of the genus *Helicia* showed that a group of species had to be segregated as a distinct new genus *Helciopsis*.

My studies are based on herbarium specimens borrowed from the following Institutions: Arnold Arboretum (A), Bot. Mus. Berlin-Dahlem (B, where the type-material of the family remained intact), Bogor (BO), Brisbane (BRI), Calcutta (CAL), Edinburgh (E), Florence (FI), Kepong (KEP), Lae (LAE), Leiden (L), Melbourne (MEL), München (M), New York (NY), Manila (PNH), Singapore (SING), Stockholm (S) and Utrecht (U). The material preserved in the British Museum (BM), at Kew (K), and Paris (P) has been studied during a stay at London and Paris.

I. THE GENUS GREVILLEA R. BR. IN CELEBES.

Grevillea elbertii Sleum. sp. nov. — Arbor 10—17 m. Ramuli teretes, apicibus adpresso ferrugineo-sericei. *Folia* simplicia, ovato-oblonga vel obovata vel oblonga-elliptica, apice ± rotundata glandulaque minuta terminata, interdum retusa, basi in petiolum cuneata, coriacea, supra glabra, in secco viridi-olivacea, subnitida, subtus juniora aureo-ferrugineo-sericea, matura partim glabrescentia et in secco brunnea, margine undulata, integra, (5—)6—12(—18) cm longa, 2.5—6(—7) cm lata, in medio vel parum supra medium latissima, costa utrinque imprimis subtus prominente, nervis laterilibus pinnatis 7—9(—10) primariis angulo acuto a costa abeuntibus inter

sese praeter marginem arcuato-conjunctis utrinque prominentibus, aliis minus distinctis intercalaribus, venis venuisque valde obliquis rete sat densum utrinque prominulum formantibus; petiolus sat crassus paullo appanatus 1—1.5(—2) cm longus, sericeus. *Paniculae* terminales breviter pedunculatae, c. 12—15 cm longae e racemis divaricatis compositae, racemis breviter pedunculatis inferioribus c. 6—8(—10) cm longis densifloris. *Rhachis* sat crassa ferrugineo-sericea. *Bractae* minutissimae, caducae. *Pedicelli* solitarii vel gemini, crassiusculi, 2—3 mm longi, apice parum incrassati. *Torus* parum obliquus. *Perianthium* dilute viride, extus cinereo-sericeum, intus papillosum, cum limbo 8 mm longum, infra limbum globosum arcte recurvatum. *Glandula hypogyna* semiannularis. *Gynophorum* 3 mm longum, sicut ovarium glabrum. *Stylus* subgracilis glaber, apice in discum stigmatiferum lateralem incrassatus. *Folliculi* maturi oblique ellipsoidei, compressi, c. 3 cm longi, 1.8—2 cm crassi, crasse et c. 3—5 mm longe stipitati, pedicello fructifero in crassato 4—5 mm longo.

CELEBES. S.E. Celebes, Isl. Kabaena, Mt Sangia-wita, 600—700 m: *J. Elbert* 3475 (A; L, typus; PNH, SING), fl. fr. Oct. 1909; *ibid.*, 700—900 m: *J. Elbert* 3491. E. Central Celebes, Mallili, Waru-waru: *G. Kjellberg* 2419, sea-shore, fl. fr. Oct. 1929; Paka (Lampla), 3 m: *NIFS* bb. 19710, fl. fr. June 1935.

II. A SURVEY OF THE GENUS MACADAMIA F. v. M.

Helicia heyana Bail. differs manifestly from all other Australian species of the genus by its numerous nerves joined in an intramarginal one and by its pyramidal-conical stigma. The investigation of the ovary (*Kajewski* 1290) has shown, that the 2 ovules are orthotropous, hanging from the top of the cell. *H. heyana* therefore cannot belong to *Helicia*, but fits very well in *Macadamia*.

Species similar to *Helicia heyana* in nervation are *Roupala francii* Guillaum. and *R. vieillardii* Brongn. & Gris from New Caledonia, which do not belong to *Roupala*, a purely South American genus, revised recently by myself (Bot. Jahrb. 76, 1954, 141). It is known since a long time, that both species and *Roupala rousselii* Vieill., also from New Caledonia, have orthotropous ovules, hanging from the top of the cavity, which points to *Macadamia*, though, unfortunately, the structure of the fruits of these 3 New Caledonian species is unknown. I assume they should be assigned to *Macadamia* with which they agree in floral characters.

In the new circumscription the genus comprises 9 spp., 5 of them in Australia, 3 in New Caledonia, and 1 in Celebes. I give here a key to the species and an enumeration of the material seen from various herbaria.

Clavis specierum

1. Racemi terminales numerosi, e verticillo foliorum orti, vel, foliis illis ad bracteas reductis, quasi in apice pedunculi crassi (re vera in apice internodii ultimi) dispositi 2
1. Racemi axillares rarius subterminales, plerumque solitarii, rarius bini 3
2. Pedicelli 2 mm longi. Perianthium c. 4 mm longum. — *NE. Queensland*
 1. *M. whelani* (Bail.) Bail.
 2. Pedicelli 5—6 mm longi. Perianthium 7—11 mm longum. — *Celebes*
 3. Folia 3—4-verticillata, vel, praecipue inferiora, sub-opposita (integra vel spinoso-dentata) 4

3. *Folia alterna (semper integra)* 5
 4. Inflorescentia sparse subadpresso puberula. Folia in specim. junior. spinoso-dentata (dentibus utroque latere usque ad 10), in specim. vetustior. integra, nervis lateralibus utroque latere 7—12; petiolus 4—15 mm longus. — *S. Queensland*; culta
 3. *M. ternifolia* F. v. M.
 4. Inflorescentia subvilloso-pubescentia. Folia semper regulariter spinoso-dentata (dentibus utroque latere 35—40), nervis lateralibus utroque latere 13—20, subsessilia vel usque ad 2 mm longe petiolata. — *N. New S. Wales*, *S. Queensland*; culta
 4. *M. tetraphylla* Johns.
 5. Inflorescentiae 40—60 cm longae. Folia sessilia, 60—75 cm longa, regulariter 3—5-loba. — *New Caledonia* 5. *M. rousselii* (Vieill.) Sleum.
 5. Inflorescentiae usque ad 30 cm longae. Folia petiolata, usque ad 45 cm longa, simplicia vel interdum breviter 3-loba 6
 6. Petioli elongati, 3—6 cm longi 7
 6. Petioli breves, raro usque ad 1.5 cm longi 8
 7. Folia subtus densissime prominulo-reticulata, margine valde manifeste cartilaginea. — *New Caledonia* 6. *M. vieillardii* (Brongn. & Gris) Sleum.
 7. Folia subtus subdense prominulo-reticulata, margine haud vel obscure cartilaginea. — *New Caledonia* 7. *M. francii* (Guillaum.) Sleum.
 8. Folia in sicco flavescentia vel dilute brunnescientia. Inflorescentiae sat dense appresse ferrugineo-pilosae. Perianthium c. 14 mm longum. — *N. New S. Wales*, *S. Queensland* 8. *M. praealta* (F. v. M.) Bail.
 8. Folia in sicco nigrescentia. Inflorescentiae glabrae. Perianthium c. 24 mm longum. — *NE. Queensland* 9. *heyana* (Bail.) Sleum.

1. *M. whelani* (Bail.) Bail., Queensl. Fl. 4, 1901, 1330, pl. 57, fig. 2; Compr. Catal. 1913, 440. — *Helicia whelani* Bail., Rep. Exp. Bellend.-Ker 1889, 55, diagn.; Syn. Queensl. Fl. Third Suppl. 1890, 61.

AUSTRALIA. N.E. Queensland. Bellenden-Ker: *Bailey* (K); ibid., 365 m: *Podenzana* (BM, fr.). Tringilburra Creek: *Bailey* (BM, K, fr.). Mossman River: *Brass 2155* (K), rain-forest.

2. *M. hildebrandii* Steen., Reinw. 1, 1952, 475.

CELEBES. For an enumeration of localities and collectors see reference.

3. *M. ternifolia* F. v. M., Trans. Phil. Inst. Viet. 2, 1858, 72, tab.

AUSTRALIA. S. Queensland, in lowland rain-forest. For an enumeration of localities and collectors see Johnson, L.A.S., Proc. Linn. Soc. New S. Wales 79, 1954, 15—18.

M. lowii Bail. (Queensl. Agric. J. 26, 1911, 127) and *M. minor* Bail. (Queensl. Agric. J. 25, 1910, 11) are, in most of their characters, especially in the subappressed, rather sparse tomentum of the inflorescence, very close to *M. ternifolia* and are better regarded as variants of it than as separate species; cf. Francis, Austr. Rain-forest Trees 1951, 94.

4. *M. tetraphylla* Johns., Proc. Linn. Soc. New S. Wales 79, 1954, 15.

AUSTRALIA. N. New S. Wales, S. Queensland, in lowland rain-forest or rain-forest margins. For an enumeration of localities and collectors see reference.

5. *M. rousselii* (Vieill.) Sleum. comb. nov. — *Roupala rousselii* Vieill., Bull. Soc. Linn. Normand. 9, 1865, 394; Guillaum., Bull. Soc. Bot. Fr. 82, 1935, 277; Fl. Anal. Nouv. Caléd. 1948, 103.

NEW CALEDONIA. Ad montes pr. Wagap: *Vieillard 2153* (BM, L; P, typus). Forêts situées au S de Kanala, vers 500 m: *Balansa 2293* (P). — Possibly a form of *M. vieillardii* with lobed leaves only.

6. *M. vieillardii* (Brongn. & Gris) Sleum. comb. nov. — *Roupala vieillardii* Brongn. & Gris, Bull. Soc. Bot. Fr. 10, 1863, 229 incl. var. *longifolia*

Brongn. & Gris, l. c.; Guillaum., Bull. Soc. Bot. Fr. 82, 1935, 277; Fl. Anal. Nouv. Caléd. 1948, 104.

NEW CALEDONIA. In montibus Poila: *Vieillard 1107* (P, typus *R. vieillardii*), *1108* (P, typus *R. vieillardii* var. *longifolia*). Loco haud ind.: *Panchoer & Vieillard 421* (P).

7. *M. francii* (Guillaum.) Sleum. comb. nov. — *Roupala francii* Guillaum., Bull. Mus. Nat. Hist. Nat. II, 5, 1933, 325; Fl. Anal. Nouv. Caléd. 1948, 104.

NEW CALEDONIA. Prony: *Franc 2023* (K; P, typus). Plaine des Lacs: *Compton 362* (BM). Conqui, 800 m: *Panchoer* (P). — Perhaps specifically not distinct from *M. vieillardii*.

8. *M. praealta* (F. v. M.) Bail., Queensl. Fl. 4, 1901, 1330, pl. 57, fig. 3; Compr. Cat. Queensl. Pl. 1913, 440. — *Helicia praealta* F. v. M., Fragn. 3, 1862, 37; Benth., Fl. Austr. 5, 1870, 404.

AUSTRALIA. N. New S. Wales. Clarence River: *Beckler* (BM; K, lecto-typus; P). Ballina, Richmond River: *Moore* (BM, K). Lismore: *Maiden 103* (A). S. Queensland. Moreton Bay, ad fl. Brisbane: *Hill* (K).

9. *M. heyana* (Bail.) Sleum. comb. nov. — *Helicia heyana* Bail., Queensl. Fl. 4, 1901, 1329; White, Contr. Arn. Arb. 4, 1933, 22.

AUSTRALIA. N.E. Queensland. Palm Camp, Bellenden-Ker: *Bailey* (prob. BRI, typus, haud vidi). Ghurka Pocket, Boonjie, Atherton Tableland, 700 m: *Kajewski 1290* (A, B), common in the rain-forest.

Species excludenda

Macadamia verticillata (F. v. M.) F. v. M. ex Benth., Fl. Austr. 5, 1870, 407. — *Helicia verticillata* F. v. M., Fragn. 6, 1868, 191.

According to F. v. Mueller (cf. Benth. & Hook. f. Gen. Pl. 3, 1880, 178) probably identical with *Brabeium stellatifolium* L., once cultivated in the Sydney Botanical Garden. No precise locality is given by the author; type not seen.

III. THE GENUS GEVUINA MOL. IN AUSTRALIA AND NEW GUINEA.

There has been repeated discussion about the systematic position of *Grevillea bleasdalei* F. v. M. which successively figured in the genera *Adenostephanus*, *Roupala*, *Kermadecia* and *Euplassa* and has also been treated as a distinct genus *Bleasdalea* F. v. M. As I have pointed out in 1954, *Grevillea bleasdalei* "cannot belong to *Euplassa*, and must be inserted between *Kermadecia* and *Gevuina*, in case the (not yet known) fruit is indehiscent". A close comparison of the flower-characters of *Kermadecia*, *Gevuina*, *Grevillea bleasdalei* and *Euplassa papuana* has shown, that the latter two species share the manifestly recurved perianth-limb and the strictly lateral stigma with *Gevuina*, whilst in *Kermadecia* the limb is straight (or slightly recurved in *K. austro-caledonica* (Brongn. & Gris) Benth. & Hook.f. and *K. pronyensis* (Guillaum.) Guillaum.!) and the stigma is apparently terminal as far this can be observed in dried material. The pedicels are completely connate in *Grevillea bleasdalei*, *Euplassa papuana*, *Gevuina avellana* Mol. and the three species of *Kermadecia* described from Fiji, Samoa and the New Hebrides, whilst they are completely or partially free in the New Caledonian species of that genus. It seems to me, that the two first characters mentioned above bring *Grevillea bleasdalei* and

Euplassa papuana so close to *Gevuina*, that I feel obliged to treat them as one genus.

Gevuina Mol. thus becomes the fourth case of a proteaceous genus represented both in South America and Australia respectively New Guinea, besides three other genera viz *Lomatia*, *Oreocallis* and *Orites* of which the Australian-American distribution is known since a long time.

After what is said above, the distinction between *Gevuina* Mol. and *Kermadecia* Brongn. & Gris is based on minor characters only. The fruit of *Kermadecia* with its ± dry, leathery, sometimes hard, not differentiated pericarp seems to coincide with the fruit of *Gevuina avellana* Mol., but *Kermadecia austro-caledonica* (Brongn. & Gris) Benth. & Hook.f. has a thick, fibrous, rather soft exocarp and a thick stone-hard endocarp, and thus may prove to represent a separate genus pending a complete revision of the *Grevilleoideae*.

G. bleasdalei (F. v. M.) Sleum. comb. nov. — *Grevillea bleasdalei* F. v. M., Fragm. 5, 1865, 90. — *Bleasdalea cupanioides* F. v. M., l. c., nom. event.; Domin, Bibl. Bot. 89, 1921, 586, fig. 125 (fol.) — *Adenostephanus bleasdalei* (F. v. M.) Benth., Fl. Austr. 5, 1870, 417. — *Roupala bleasdalei* (F. v. M.) F. v. M., Proc. R. Soc. N. S. Wales 1881, 28; First Syst. Census 1882, 68; Sec. Syst. Census 1889, 116. — *Kermadecia bleasdalei* (F. v. M.) Benth. & Hook.f. ex Bailey, Syn. Queensl. Fl. 1883, 434; Cat. Pl. Queensl. 1890, 40; Queensl. Fl. 4, 1901, 1333; Compr. Catal. 1913, 452; Francis, Austr. Rain-forest Trees 1951, 379, 389, 390. — *Euplassa bleasdalei* (F. v. M.) Diels, Bot. Jahrb. 54, 1916, 200, in texto.

AUSTRALIA. N.E. Queensland. In cacumine montis Mc Allister, Rockingham Bay: *Dallachy* (B, K; MEL, typus), yellow fl. July 1865. Mt Spec: *Francis* (K), rain-forest undergrowth. Bellenden-Ker, 1000 m: *Domin* l. c. 586. Eungella Range: *Francis* l. c. 390. Ravenshoe: *Francis* l. c.

G. papuana (Diels) Sleum. comb. nov. — *Euplassa papuana* Diels, Bot. Jahrb. 54, 1916, 200; Sleum., l. c. 70, 1939, 126, nota; Sleum., l. c. 76, 1954, 195. — *Bleasdalea papuana* (Diels) Domin, Bibl. Bot. 89, 1921, 586, in nota.

NEW GUINEA. N. New Guinea. Sepik Distr., Hunstein Mts, 1050 m: *Ledermann* 8412 (B, typus; BM, K).

IV. A SECOND SPECIES OF HICKSBEACHIA F. v. M.

H. diversifolia (White) Sleum. comb. nov. — *Helicia diversifolia* White, Queensl. Dep. Agr. Bot. Bull. 20, 1918, 18, fig.; l. c. 21, 1919, 16; Contr. Arn. Arb. 4, 1933, 22.

During my revision of the genus *Helicia* Lour. it has become evident, that *H. diversifolia* White from NE. Queensland differs from this genus in the following points:

1. The tree is heterophyllous, a character, which I do not accept to occur in *Helicia*.
2. The two ovules are orthotropous and hang from or nearly from the top of the cell, whilst in *Helicia* they are anatropous, basal or laterally attached to the wall.

3. The ripe fruit (Malanda, leg. White I-18, B) is broadly ovoid, laterally compressed, \pm 3.5 cm in length, c. 3 cm in width and c. 1.7 cm thick, exocarp rather soft, blackish, c. 5 mm, endocarp light, stone-hard, variously cleft, c. 4 mm; testa thin; seed 1, c. 1.7 by 0.6 cm. Such a thick endocarp does not occur in *Helicia*.

The species certainly does not belong to *Helicia* but fits well in *Hicksbeachia* F. v. M., an up till now monotypic genus known from NE. New S. Wales to NE. Queensland. *Hicksbeachia pinnatifolia* F. v. M. and *Helicia diversifolia* White have nearly the same type of deeply lobed or pinnate leaves with rigidly or nearly spiny toothed margins and they share the orthotropous pendent ovules and the well pronounced endocarp.

V. A REVISION OF THE GENUS HELICIA LOUR.

Helicia Lour., Fl. Cochinch. 1, 1790, 83; ed. Willd. 1793, 105; R. Br., Prot. Nov. Holl. Suppl. 1830, 32; Bl., Ann. Sc. Nat. II, 1, 1834, 214; Meisn., Gen. 1834, 333 (245); Endl., Gen. 1837, 342; Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 81, t. 18; Endl., Gen. Suppl. IV, 2, 1847, 87; Meisn. in DC., Prodr. 14, 1856, 438; Miq., Fl. Ind. Bat. I, 1, 1858, 983; Ann. Mus. Bot. Lugd. Bat. I, 2, 1864, 204; Benth. & Hook. f., Gen. Pl. 3, 1880, 179; Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 189; Engl. in E. P., Nat. Pfl. Fam. III, 1, 1889, 146; Gamble, J. As. Soc. Beng. 75, ii, 1914, 340; Ridl., Fl. Mal. Pen. 3, 1924, 140; Lemée, Dict. Gen. Pl. Phan. 3, 1931, 500, nec Pers., Syn. 1, 1805, 214 (= *Loranthus* L.). — *Helitophyllum* Bl., Bijdr. 1825, 652. — *Castronia* Noronha, Rel. Pl. Jav. in Verh. Bat. Genootsch. 5, 1827, 65, nom. nud., cf. Hassk., Cat. Pl. Hort. Bogor. 1844, 317, pro syn.; Miq., Fl. Ind. Bat. I, 1, 1858, 983, pro syn. — *Cyanocarpus* F. M. Bailey, Rep. Exp. Bellenden-Ker 1889, 55.

Arbores, rarius frutices. *Folia* plerumque spiralia, rarius subopposita vel 3—4-verticillata, simplicia, integra vel dentata, sessilia vel petiolata. *Flores* hermaphroditici, regulares. *Racemi* simplices, spiciformes, axillares vel e ligno vetere orti, rarissime subterminales. *Bracteae* parvulae, ovato-acuminatae usque subulatae, rarius foliaceae, subsessentes vel caducae. *Bracteolae* minutae. *Pedicelli* solitarii vel plerumque geminati, liberi vel \pm alte, rarius omnino connati. *Perianthium* rectum, rarissime levissime curvatum, tubo \pm tenui basique \pm dilatato, limbo recto clavato usque subgloboso, segmentis 4 per anthesin solutis et revolutis. *Stamina* 4, filamentis brevibus paullo infra limbi basin affixa vel subsessilia. *Antherae* oblongae, connectivo in appendiculum breve producto. *Exine* pollinis \pm laeve. *Glandulae hypogynae* 4, liberae vel approximatae, haud raro in cupulam cohaerentes vel connatae. *Ovarium* sessile, ovulis 2 anatropicis ascendentibus basi vel lateraliter (ad suturam ventralem interiorem) et fere semper infra medium affixis. *Stylus* elongatus gracilis, apice clavatus. *Stigma* terminale punctiforme. *Fructus* subglobosus vel ellipsoideus, indehiscentes vel valde tarde longitudinaliter (secus suturam ventralem) vel \pm irregulariter rumpens, sutura elevata vel impressa plerumque bene visibili, pericarpio coriaceo plerumque crasso, parte exteriore interdum \pm succulento, parte interiore plerumque coriaceo ceterum haud vel vix diverso, interdum duro et lignescente, itaque endocarpium verum praebente, ut drupa formatur.

Semina 1—2 subglobosa resp. hemisphaerica, in parte superiore rugulosa.
Testa membranacea. Cotyledones carnosae.

Type species: *H. cochinchinensis* Lour.

87 species in SE. Asia, Malaysia and E. Australia.

Conspectus sectionum

1. Inflorescentia perulata. Perianthium leviter curvatum, segmentis 3 inferioribus diutius cohaerentibus segmentoque superiore minus revolutis. Folia saepius 3—4-verticillata. Sect. 1. *Macadamiaopsis* Sleum. — Type sp.: *H. youngiana* Moore & F. v. M.
1. Inflorescentia eperulata. Perianthium rectum, segmentis eodum tempore segregatis et aequaliter revolutis. Folia plerumque spiralia, rarius subopposita.
2. Drupa. Pericarpium in strata 2 bene distincta segregatum. Exocarpium plerumque ± carnosum, rarissime fibrosum. Endocarpium manifestum, durum, pergamantaceum vel lignescens. Sect. 2. *Cyanocarpus* (Bail.) Sleum. stat. nov. — *Cyanocarpus* Bail., Rep. Exp. Bellend.-Ker 1889, 55 pro gen. — Type sp.: *H. nortoniana* (Bail.) Bail.
2. Fructus indehiscentes vel valde tarde longitudinaliter vel ± irregulariter rumpens. Pericarpium haud in strata 2 distincta segregatum, ± coriaceum vel satis durum, haud lignescens. Sect. 3. *Helicia*.

Clavis specierum

1. Inflorescentia perulata. Sect. <i>Macadamiaopsis</i>	2
1. Inflorescentia eperulata	4
2. Rhachis et pedicelli dense sat molliter pilis ± patentibus hirsuti vel tomentosi. Perulae ± dense pilosae	3
2. Rhachis et pedicelli subdense pilis brevibus ± adpressis vestiti. Perulae ciliatae, in facie glabrae. — <i>Subtrop. NE. Queensland</i>	
1a. <i>H. youngiana</i> Moore & F. v. M. var. <i>robusta</i> White	
3. Bracteae c. 5 mm longae. — <i>NE. New S. Wales, SE. (and NE.?) Queensland</i>	
1. <i>H. youngiana</i> Moore & F. v. M.	
3. Bracteae 8—10 mm longae. — <i>Trop. NE. Queensland</i>	
1b. <i>H. youngiana</i> Moore & F. v. M. var. <i>montana</i> White	
4. Endocarpium manifestum, durum, lignescens. Sect. <i>Cyanocarpus</i>	5
4. Endocarpium haud manifestum. Sect. <i>Helicia</i>	13
5. Folia subtus diutius rufo-ferrugineo-pilosa	10
5. Folia ab initio glabra	6
6. Ramulorum apices glabrae. (Fructus subglobosus 2.5—3 cm diam.) — <i>NE. Queensland</i>	
2. <i>H. cribbiana</i> (Bail.) Bail.	
6. Ramulorum apices diutius rufo-pilosae vel-tomentellae	7
7. Perianthium c. 15 mm longum. (Folia laxe reticulata, (10—)14—19 cm longa, (4—)4.5—6.5(—7) cm lata. Fructus ignotus.) — <i>N. Australia</i>	
3. <i>H. australasica</i> F. v. M.	
7. Perianthium 8—12 mm longum. (Fructus oblongus c. 1.2—1.3 cm longus, 0.7 cm diam.)	8
8. Folia laxe reticulata, (6—)8—12(—16) cm longa, (2.5—)3.5—6(—7) cm lata. — <i>NE. Queensland</i>	
4. <i>H. glabrescens</i> White	
8. Folia imprimis subtus subtiliter denseque reticulata, 5—7.5(—10) cm longa, 2—3(—3.5) cm lata	9
9. Ovarium ± dense adpresso pilosum. — <i>Central & SE. Queensland, NE. New S. Wales</i>	
5. <i>H. glabriflora</i> F. v. M.	
9. Ovarium omnino glabrum. — <i>SE. Queensland, NE. New S. Wales</i>	
5a. <i>H. glabriflora</i> F. v. M. var. <i>conjunctiflora</i> (F. v. M.) Domin	
10. Perianthium 14—16(—18) mm longum. — <i>NE. Queensland</i>	
6. <i>H. lamingtoniana</i> (Bail.) White	
10. Perianthium 5—7 mm longum	11
11. Folia integra (anguste oblonga vel lanceolata). — <i>New Ireland, New Britain</i>	
7. <i>H. ugandensis</i> Diels	

11.	Folia regulariter subargute serrata	12
12.	Perianthium limbo 1 mm diam. Rhachis basi 1 mm diam. Folia supra in sicco saturate olivaceo-brunnescentia, nervis lateralibus 6—8 (rarius usque ad 10) ± curvato-ascendentibus. — NE. Queensland	8. <i>H. nortoniana</i> (Bail.) Bail.
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73. Folia denticulata, elliptica vel oblongo-elliptica. — *New Guinea*
 59. *H. archboldiana* Sleum.
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78. Perianthii limbus sensim clavatus, 6—7 mm longus 79
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97. Folia in sicco saturate brunnea vel nigrescentia, nervis lateralibus 4—5. — *Mindanao* 80. *H. paucinervia* Merr.
97. Folia in sicco pallide olivaceo-virescentia, nervis lateralibus 7—8. — *New Guinea* 81. *H. pallescens* Diels
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 87. *H. cochinchinensis* Lour.
 105. Folia 13—22 cm longa, (6—)7—12 cm lata. — *Kwangtung*, *Kiangsi*
 87b. *H. cochinchinensis* Lour. var. *lungtauensis* Sleum.

1. *H. youngiana* Moore & F. v. M. in F. v. M., *Fragm.* 4, 1864, 84; *Bail.*, *Fl. Queensl.* 4, 1901, 1327; *White*, *Contr. Arn. Arb.* 4, 1933, 23. — *Macadamia youngiana* (Moore & F. v. M.) F. v. M. in *Benth.*, *Fl. Austr.* 5, 1870, 406; *Bail.*, *Queensl. Dep. Agr. Bull.* 18 (*Bot. Bull.* 5, 1892) 51.
 var. *youngiana* — *H. youngiana* Moore & F. v. M. var. *typica* White, *Contr. Arn. Arb.* 4, 1933, 23.

Frutex 2.5—3.5 m, cortice saturate cinereo lenticellis albidis numerosis pustulato, ramulis gracilibus teretibus, novellis dense breviter fusco-ferrugineo-tomentosis, ceterum glabris et in sicco nigrescentibus. *Folia* ternato-, rarius quaternato-verticillata, elliptico-oblonga usque oblongo-lanceolata, apice ± longe acuminata glandulaque terminali submucronata, basi ± late attenuata, subcordacea, in vivo laete viridia, in sicco saturate olivaceo-brunnecentia, subtus pallidiora, supra nitida et costa excepta glabra, subtus ad costam et nervos dense, per faciem laxe pilis rufescentibus sericeis induita, integra vel plerumque apicem versus ± profunde pauciserrata, (5—)6—12 (—14, rarius usque ad 17) cm longa, 2—3(—4) cm lata, costa supra leviter impressa, subtus prominente, nervis lateralibus utroque latere 8—10, supra planis vel impressis, subtus parum prominentibus, margine curvato-conjunctis, uno alteriore in dentem protractis, venis venulisque utrinque dense reticulato-prominulis; petiolus dense fusco-tomentosus vix 3—5 mm longus. *Racemi* terminales perulati, breviter pedunculati, 3—5(—7, rarius usque ad 10) cm longi, omnino dense tomento hirsutulo fusco-ferrugineo obtecti, perulis ovatis subacuminatis decrescentibus pluribus ± dense pilosis, pro parte cito caducis, pro parte diutius persistentibus, 2—4 mm longis. *Bracteae* perulis simillimae diu persistentes, dense ciliolatae, dorso parum pilosulae, usque ad 5 mm longae et latae. *Pedicelli* graciles 3—5(—7) mm longi. *Perianthium* in vivo albido vel rosaceum, suaveolens, cylindricum, leviter curvatum, (14—)16—18 mm longum, apice quam in tubo densius hirsutulum, segmentis 3 inferioribus segmento superiore diutius cohaerentibus et minus revolutis. *Antherae* 1 mm longae. *Glandulae hypogynae* oblongae, omnino liberae, distantes. *Ovarium* fusco-ferrugineo-hirsutulum, apice in stylum gracilem inferne patenti-pilosum apice glabrum sub anthesi incipiente curvatum et per perianthium unilateraliter scissum penetrantem, demum rectum abiens, ovulis 2 anatropicis in superiore cavitatis parte manifeste lateralibus superpositis. *Fructus* (drupaceus ?) globosus usque ovoideus, apice basique ± attenuatus, 2.5—4 cm longus et 2—3.5 cm diam., indehis-

cens, laxe pubescens, in vivo ruber, in sicco rugosus, sutura prominente. Pericarpium extus subcarnosum, intus pergamentaceum. Semen unicum globosum.

AUSTRALIA. N.E. New S. Wales. Duck Creek, Richmond River: *Moore* 4 (K; MEL, *typus*). Richmond River: *Henderson*, *Fawcett*. Lismore: *Bothwell*, cit. White. Alstonville: *Tomlinson*, cit. White. Mt. Warning: *Forsyth*, cit. White. Dorrigo: *Boorman*, *Maiden*; *White* 7490, cit. White; *ibid*, Dorrigo Brush For. Res., Head of Bellinger River: *Duff* 7. Bellinger River: *Slater*, cit. White. Murwillumbah: *Bauerlen*. Tweed River: *Forsyth*. Upper Eungella, Tweed River: *White* 3273. S.E. Queensland. Lamington National Park: *Shirley*. Macpherson Range: *White*. Upper Tallebudgera: *White*, cit. White. Springbrook: *White*, cit. White. Nerang Creek: *Schneider*, cit. White. N.E. Queensland, "Rockingham Bay": *F. v. Mueller* (K).

1a. var. **robusta** White, Contr. Arn. Arb. 4, 1933, 23.

Rhachis et pedicelli subdense pilis brevibus \pm adpressis induti. Perulae ciliatae, in facie glabrae. Folia usque ad 20 cm longa et 5.5 cm lata.

AUSTRALIA. N.E. Queensland. Maroochy: *Bailey*, *Low*, cit. White. Yandina, Eumundi: *Bailey*, *Simmonds*. East Malanda, Atherton Tableland, 700 m: *Kajewski* 1219 (A, B, K, NY; NSW, *lecto-typus*, haud vidi; S). Cook Distr., E. of Ravenshoe, c. 1000 m: *Blake* 9891.

1b. var. **montana** White, Contr. Arn. Arb. 4, 1933, 24.

A typo bracteis 8—10 mm longis differt.

AUSTRALIA. N.E. Queensland. Bellenden-Ker, Palm Camp: *Bailey*, cit. White. Bellenden-Ker, near the summit: *White* (NSW, *typus*, haud vidi); *ibid*, 1585 m: *Sayer*. Mt Bartle Frere: *Johnson*.

2. **H. cribbiana** (Bail.) Bail., Queensl. Fl. 4, 1901, 1327. — *Cyanocarpus cribbiana* Bail., Queensl. Agric. J. 1, 1897, 370.

Arbor glabra c. 6 m alta. Ramuli glabri, striati. Folia oblonga vel obovato-oblonga, rarius oblanceolata, apice brevissime sat abrupte obtuse acuminata, basi late in petiolum cuneata, in superiore parte petioli decurrentia, subcoriacea, in sicco dilute flavescenti-olivacea, glabra, utrinque nitidula, integra, margine parum revoluta, 11—17 cm longa, 4—8 cm lata, costa supra impressa, subtus bene prominente, nervis lateralibus utroque latere (6—)7—8 leviter curvatis, distantibus, \pm distincte anastomosantibus, supra parum impressis, subtus prominentibus, venis venulisque utrinque densissime reticulatis minuteque prominulis; petiolus (0.5—)1—1.5 cm longus. Racemi axillares 5—10 cm longi. Rhachis glabra, 1—1.5 mm diam. Flores desunt. Fructus drupaceus oboviedo-globosus, basi paullo contractus, in vivo ruber, c. 2.5—3 cm diam., exocarpio in vivo carnoso, in sicco lacunoso-rugoso, coriaceo, 2 mm crasso, endocarpio in fructu maturo bene distincto duro, lignescente, flavescente, 1—1.5 mm crasso.

AUSTRALIA. N.E. Queensland: Mourilyan Distr.: *Cowley* (K, *typus*), Sept. 1897. Johnstone River: *Ladbrook* 51 (B), fr. mat. 8-1917. Innisfail: *Michael* 243 (GH), in dense forest.

3. **H. australasica** F. v. M. in Hook., J. Bot. & Kew Gard. Misc. 9, 1857, 22; Meisn. in DC., Prodr. 14, 1857, 699; Benth., Fl. Austr. 5, 1870, 405; Ewart & Davies, Fl. North Terr. 1917, 87.

Arbor parva gracilis 5—10 m alta, ramulis teretibus sat gracilibus, apicibus breviter rufo-tomentellis, ceterum glabris griseo-corticatis. Folia oblongo-elliptica usque subovato-oblonga, apice breviter acuminata, subacuta vel obtusa, basi in petiolum attenuata rarius longius cuneata, subcoriacea, glabra, in sicco olivacea vel brunnescentia paulloque nitida, subtus palli-

diora, margine irregulariter sat grosse crenato-subserrata (dentibus nervis lateralibus protractis terminatis) vel passim integra, (10—)14—19 cm longa, (4—)4.5—6.5(—7) cm lata, costa subtus prominente, nervis lateralibus utroque latere c. 8—9 inter sese parum distincte arcuato-conjunctis, subtus prominentibus, venis venulisque sat laxe reticulatis et prominulis; petiolus 0.5—1 cm longus, in foliis junioribus sicut costa ferrugineo-pilosus, cito glabrescens. *Racemi* graciles, ± penduli, sat laxiflori, (7—)9—17 cm longi. *Rhachis* 1 mm diam., laxe pilis rufo-ferrugineis adspersa. *Bractae* ovato-acutae, minutae, vix 1 mm longae. *Pedicelli* plerumque geminati, liberi vel alte connati, 1—2 mm longi, quam rhachis densius pilosi. *Perianthium* pallide flavidum, gracile, c. 15 mm longum, tubo 0.5 mm diam., limbo 1.2 mm diam., basi et apice laxissime pilis rufescensibus adspersum ceterum glabrum. *Antherae* 1.5 mm longae. *Glandulae hypogynae* liberae, late truncatae, crenulatae, approximatae, ut cupula formata esse videtur. *Ovarium* dense rufo-pilosum, pilis sericeis elongatis erectis obtectum, stylo gracillimo glabro. *Fructus* ignotus, probabiliter drupaceus.

AUSTRALIA. N. Australia. Towards Macadam Range, ad rivulorum ripas: F. v. Mueller (K, typus). Arnhem Land, Port Darwin: Tennison-Woods & Holtze 233, Schultze 559 (B, K); 14 miles E Port Darwin, bank of fresh water hole: Bleeser 860 (B); ibid., Rapid Creek: Juam.

4. *H. glabrescens* White, Proc. R. Soc. Queensl. 55, 1944, 81. — *H. australasica* (non F. v. M.) Bail., Queensl. Fl. 4, 1901, 1328.

Arbor parva, ramulis apicibus tantum ferrugineo-tomentellis ceterum glabris, in partibus vetustioribus teretibus cinerascentibus. *Folia* lanceolata vel oblongo-lanceolata, apice acuminata, subacuta vel obtusa, basi gradatim in petiolum angustata, subcoriacea, in secco flavescenti-viridia, costa subtus laxissime pilosa excepta glabra, imprimis supra nitentia, sat regulariter serrato-dentata (dentibus glandula terminatis obtusiusculis parum protractis ± 1 mm altis) vel raro subintegra, (6—)8—12(—16) cm longa, (2.5—)3.5—6(—7) cm lata, costa supra parum, subtus distincte prominente, nervis lateralibus utroque latere c. 8 subrectis, praeter marginem inter sese curvato-conjunctis, utrinque, imprimis subtus prominulis, venis utrinque laxe reticulato-prominulis; petiolus vix 2—3 mm longus. *Racemi* graciles 7—12 cm longi. *Rhachis* sicut pedicelli glabra vel laxe usque laxissime pilis fuscis induita, c. 1 mm diam. *Bractae* ovato-lanceolatae, vix 1 mm longae, subsistentes. *Pedicelli* 2—3 mm longi, solitarii vel bini, usque ad medium connati. *Perianthium* 10—12 mm longum, glabrum, tubo c. 0.5 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* late oblongae usque subquadratae, liberae, approximatae, 1 mm altae. *Ovarium* dense rufo-subsericeo-pilosum, stylo gracillimo glabro. *Fructus* ellipsoideus, 1.3 cm longus, 0.7 cm diam., probabiliter drupaceus.

AUSTRALIA. N.E. Queensland. Cook Distr., Barron River: Cowley 74 B (BRI, typus, haud vidi); near Cairns: Blake 12415, cit. White; ibid., Freshwater Creek: Bailey, cit. White; Mt Surgeon: White 10648, cit. White; Julatten: Carr, cit. White; Malanda: Martin, cit. White; Atherton Tableland: Martin 26, cit. White; Big Tableland: Flecker, N. Queensl. Herb. Cairns 14253.

5. *H. glabriflora* F. v. M., Fragm. 2, 1860, 91; l.c. 3, 1862, 38; l.c. 5, 1866, 186; First Census 1889, 116; Benth., Fl. Austr. 5, 1870, 405; Bail., Syn. Queensl. Fl. 1883, 433; Catal. Pl. Queensl. 1890, 40; Moore, Handb. Fl. N. S. Wales 1893, 235; Bail., Queensl. Fl. 4, 1901, 1328; Compr.

Catal. 1913, 452; Domin, Bibl. Bot. 89, 1921, 30; Francis, Austr. Rain-Forest Trees 1951, 87. — *H. subrhombifolia* Domin, Bibl. Bot. 89, 1921, 31.

Arbor parva usque ad 10 m alta, interdum fruticiformis, cortice cinereo laeviusculo, ramulis apicibus laxe ferrugineo-pilosus, ceterum citissime glabrescentibus. *Folia* oblongo-lanceolata usque rhombo-elliptica, apice breviter ± obtuse acuminata, basi in petiolum brevissimum (2—3 mm) attenuata et ± decurrentia, subcoriacea usque coriacea, in vivo dilute viridia, in sicco olivacea vel flavid-virescentia, subtus pallidiora, subnitida vel opaca, glaberrima, integra vel rarius hic inde apicem versus dente brevi instructa, 5—7.5(—10) cm longa, 2—3(—3.5) cm lata, costa subtus prominente, nervis lateralibus utroque latere c. 10—12 angulo fere recto a costa abeuntibus, in inferiore parte ± rectis, marginem versus curvatis et inter sese conjunctis, supra vix, subtus parum prominulis, aliis minus distinctis intercalaribus, venis venulisque imprimis subtus dense reticulatis, minute sed bene visibiliter elevatis. *Racemi* axillares pedunculo 2—3 cm longo inclusi c. 7—9 cm longi, multiflori. *Rhachis* gracilis, in sicco viridescens, glabra. *Bracteae* ovato-lanceolatae, vix 1 mm longae, cito caducae. *Pedicelli* 2—3 mm longi, saepius gemini et usque ad medium connati, laxe pilis dilute rufescentibus obtecti, vel subglabri. *Perianthium* glabrum, 8—9 mm longum, tubo vix 1 mm diam., in vivo albido-flavescens. *Antherae* fere 2 mm longae. *Glandulae hypogynae* brevissimae, truncatae, in vivo flavae, liberae, anthesi ± in cupulam approximatae, post anthesin saepe disjunctae. *Ovarium* tenuiter adpresso pilosum, stylo filiformi glabro. *Fructus* drupaceus oblongus, c. 1.2 cm longus, exocarpio succulento caeruleo, endocarpio cartilagineo.

AUSTRALIA. C. Queensland. Montville, Blackall Range: *Longmon*. S.E. Queensland. Tambourine Mts: *Domin* (B, fragm.); PRC, typus *H. subrhombifol.*, haud vidi). Yandina: *Shirley*. Kin-Kin: *White*. N.E. New S. Wales. Leycester Creek, affl. Richmond River: *Beekler* (MEL, typus *H. glabriflor.*). Richmond River: *Carron* (FI). Camden Haven, near Port Macquarie: *Moore*.

5a. var. *conjunctiflora* (F. v. M.) Domin, Bibl. Bot. 89, 1921, 30, in texto. — *Helicia conjunctiflora* F. v. M., Fragm. 5, 1865, 38.

Ovario omnino glabro a typo recedit.

AUSTRALIA. S.E. Queensland. Beechmont, 600 m: *White*. Eumundi, S from Gympie: *Bailey & Simmonds*. N.E. New S. Wales: Richmond River: *Moore* (MEL, typus). Mullumbimby: *Baker*.

6. *H. lamingtoniana* (Bail.) White ex L. S. Smith, Proc. R. Soc. Queensl. 62, 1952, 79. — *Hollandaea lamingtoniana* Bail., Queensl. Agric. J. 5, 1899, 390; Queensl. Fl. 4, 1901, 1354.

Arbor parva vel medioeris, ramulis in vivo saturate ferrugineo-, in sicco rufo-tomentosis, demum glabrescentibus. *Folia* elliptica vel subrotundato-ovata, apice brevissime lateque acuminata, obtusa, interdum breviter retusa, basi late in petiolum cuneata et ± decurrentia, subcoriacea usque chartacea, supra in vivo intense viridia et lucida, in sicco flavescens-viridia et subnitida, costa nervisque diutius rufo-tomentosulis exceptis glabra, subtus in sicco rubro-castanea atque per totam faciem imprimis ad costam et nervos saturate molliter rufo-tomentosula, interdum cito glabrescentia, sat regulatiter venis super marginem prorumpentibus denticulata (denticulis prorsus versis vix 1 mm altis, glandulis terminatis itaque obtusis, 5—8 mm distan-

tibus), rarius fere integra, (8—)10—15 cm longa, 5—7.5(—8.5) cm lata, costa supra fere plana, subtus valde prominente, nervis lateralibus utroque latere 8—9 subarcuatis et ± distincte curvato-conjunctis, supra planis vel (in speciminibus siccis!) levissime immersis, subtus bene prominentibus, venis venulisque sat dense reticulatis, supra parum conspicuis, subtus manifestius prominulis; petiolus diutius rufo-tomentosus, 1—1.5 cm longus. *Racemi* ex avxillis summis orti, erecti, sat rigidi, pedunculo brevi inclusi 6—10 cm longi, ubique saturate rufo-tomentosi. *Rhachis* 1.5 mm diam. *Bractae* ovatae, minutissimae, tomento ± occultae. *Pedicelli* rigidiusculi, plerumque gemini et usque ad medium connati, c. 4 mm longi. *Perianthium* 14—16(—18) mm longum, tubo fere 1 mm diam., limbo clavato c. 2 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* ovato-oblongae, omnino liberae, 1.2 mm altae. *Ovarium* dense rufo-subsericeo-pilosum, stylo gracili glabro. *Fructus* ignotus, probabiliter drupaceus.

AUSTRALIA. N.E. Queensland. Evelyn: Bailey (B; BRI, *typus*, haud vidi). Mt Spurgeon: White 10643a, glabrescent form.

7. *H. uganensis* Diels ex Sleum., Bot. Jahrb. 70, 1939, 145.

Arbor 5—8 m, ramulis teretibus, apieibus rufo-ferrugineo-tomentosis ceterum glabratis, vetustioribus defoliatis inflorescentias gerentibus crassis griseo-corticatis. *Folia* anguste oblonga vel lanceolata, apice sensim acuminate, subacuta, basi ± longe et gradatim in petiolum angustata, subsessilia, rigide chartacea usque subcoriacea, integra, supra in sicco saturate glauco-viridia vel brunnescentia paulloque nitentia, subtus dilute brunnea et subopaca, supra costa nervisque brevissime tomentellis exceptis glabra, subtus in facie laxissime, ad costam, nervos et venas densius usque dense brevissime fusco-pilosa, (13—)16—24 cm longa, (4—)5—7 cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere 10(—12) subarcuatis supra fere planis, subtus parum, sed distincte prominentibus, venis subtus laxe reticulato-prominulis; petiolus 2—3 mm diam., tomentosus, 3—6 mm longus. *Racemi* graciles, usque fere ad basin densiflori, 11—14 cm longi, ad rhachidem et pedicellos dense, ad perianthia subdense rufo-ferrugineo-tomentosi. *Rhachis* 1—1.5 mm diam. *Bractae* ovato-lanceolatae, 1—2 mm longae. *Pedicelli* crassiusculi, plerumque bini usque ad medium connati, 1—1.5 mm longi. *Perianthium* in vivo flavescenti-brunnescens, c. 7 mm longum, tubo 0.5 mm diam., limbo 1 mm diam. *Antherae* 1 mm longae. *Glandulae hypogynae* late oblongae, liberae. *Ovarium* rufo-villosum, stylo filiformi glabro. *Fructus* drupaceus, ellipsoideus, 5—7 cm longus, 3.5 cm diam., niger. *Pericarpium* in fructibus immaturis coriaceum 4—5 mm crassum, in fructibus maturis in parte exteriore primo succulentum, demum stratum spongiosum quasi suberosum fibris longitudinalibus et subreticulato-anastomosantibus instructum maturitate plena ± dissolutum praebens, in parte interiore 1—1.5 mm crassa satis durum sublignescens, endocarpium praebens. *Semen* unicum apice rugulosum.

NEW IRELAND. Ugana: Peekel 1209 (B, *typus*).

NEW BRITAIN. Talili Gap: Peekel (K), fr. juv. Oct. 1928. Galilo near Cape Hoskins, W. Nakanai: N.G.F. 6497 Floyd (LAE), fl., in secondary rain-forest close to the sea-shore. Kabakada, N. Coast of Gazelle Peninsula: Waterhouse 349 (NY), fr. mat.

Very similar in leaf-characters and tomentum of the rhachis, but determination not certain as flowers are not present:

NEW GUINEA. N.E. New Guinea. Morobe Distr., Wau Garden area, c. 1370 m: McAdam 229 (LAE).

Note. I have little doubt, that the ripe fruit of the Waterhouse specimen, on which the description was based, belongs to *H. uganensis* (the type-specimen of which bears only flowers); especially as Peekel in sched. says, that the full grown fruit reaches 5—7 cm in length, what coincides with the Waterhouse plant. The differentiation of the pericarp into an outer corky-spongious soft layer and an inner one, which is a hard endocarp, brings the species into the Sect. *Cyanocarpus* as the only one outside of Australia. The Australian species of the section, however, never show such fibres joined into a kind of net, nor such a corky or spongious exocarp; this peculiar layer makes us suspect, that the fruit of *H. uganensis* may be capable to drift.

8. *H. nortoniana* (Bail.) Bail., Queensl. Fl. 4, 1901, 1328; Compr. Cat. 1913, 452, fig. 436. — *Cyanocarpus nortoniana* Bail., Rep. Gov. Sci. Exp. Bell.-Ker 1889, 55; Third Suppl. Syn. Queensl. Fl. 1890, 61; Cat. Pl. Queensl. 1890, 40. — *H. ferruginea* F. v. M. ap. Benth., Fl. Austr. 5, 1870, 405 pr. p.; Domin, Bibl. Bot. 89, 1921, 30; White, Contr. Arn. Arb. 4, 1933, 22. — *H. ferruginea* F. v. M. var. — Bail., Cat. Queensl. Woods 1886, 69. — *H. ferruginea* F. v. M. var. *tropica* Bail., Compr. Cat. 1913, 452. — *H. tropica* (Bail.) Domin, Bibl. Bot. 89, 1921, 30.

Arbor parva vel mediocris usque ad 25 m alta, cortice tenui dilute brunneo, ramulis tortuosis ± pendentibus, intense fulvo-ferrugineo-tomentosis vel fere -villoso. Folia ovato-elliptica vel (ovato-)oblonga, rarius ovato-lanceolata, apice breviter acuminata, ± falcata et subacuta, basi late in petiolum cuneata usque subrotundata, parum inaequilateralia, subcoriacea vel firmule chartacea, in siccio ± saturate olivaceo-brunnescentia, novella utrinque rufo-ferrugineo-tomentosula, adulta supra costa nervisque diutius tomentellis exceptis glabra, opaca vel subnitentia, subtus initio per totam faciem, imprimis ad costam et nervos rufo-ferrugineo-tomentosa, demum ± glabrescentia, argute sat dense ± irregulariter serrata (dentibus prorsus versis glandula minuta terminatis obtusiusculis 1—3 mm altis et 3—8 mm distantibus), (7—)8—12(—17, rarius usque ad 20) cm longa, 3—6(—8) cm lata, costa supra fere plana, subtus bene prominente, nervis lateralibus utroque latere 6—8(—10) ± curvato-ascendentibus, prope marginem parum conspicue inter se venis ± transversis conjunctis, supra haud, subtus bene prominentibus, venis venuisque supra ± obscuris, subtus sat laxe reticulatis parum prominulis; petiolus dense rufo-pilosus, 0.6—1 cm longus. Racemi axillares et subterminales, densiflori, pedunculo 1—2 cm longo inclusi 5—10 cm longi, graciles, ascendentes, ubique rufo-ferrugineo-tomentosi. Rhachis vix 1 mm diam. Bracteae ovato-acuminatae, 1 mm longae. Pedicelli 1.5—2 mm longi, plerumque bini et usque fere ad apicem connati. Perianthium in vivo albido-brunnescentia vel rosaceum, 6—7 mm longum, tubo 0.5 mm diam., limbo 1 mm diam. Antherae 1.5 mm longae. Glandulae hypogynae ± late ovato-oblongae, irregulares, liberae, divergentes. Ovarium rufo-tomentosum, stylo pergracili glabro. Fructus drupaceus ovoideus, 10—13 cm longus, 8—10 mm diam., in vivo laete purpureus vel azureus, ± pilosus et nitidulus, exocarpio carnoso succulento, endocarpio cartilagineo.

AUSTRALIA. N.E. Queensland. Cook Distr., Tringilburra Creek and creeks of Russell River: *Bailey* (BRI, *typus H. norton.* f., haud vidi; K, fragm.). Lower Russell River: *Diels* 8486. Harveys Creek and Lower Russell River, cit. Domin, haud vidi. S. of Cairns, 40 m: *Diels* 8540. Daintree River: *Brass* 2219. Between Endeavour River and Port Douglas: *Lucas*. Mossmann River gorge: *Brass* 2105. Gadgarrah, Atherton, 800 m: *Kajewski* 1039. Bellenden-Ker: *White* 1290; *ibid.*, 1585 m: *Sayer* 110. Innisfail: *Michael*. Johnstone River (c. 17° 40'): *Johnson* (MEL, cit. *Bailey*, Cat. Queensl. Woods 1886, 69, *typus H. ferrug.* var. *tropica*). Rockingham Bay: *Dallaohy*.

9. *H. ferruginea* F. v. M., Fragm. 3, 1862, 37; l.c. 4, 1864, 174; l.c. 5, 1866, 186; l.c. 6, 1868, 191, 224; First Census 1882, 68; Sec. Census 1889, 116; Benth., Fl. Austr. 5, 1870, 405 pr. p.; Bail., Syn. Queensl. Fl. 1883, 433; Cat. Queensl. Woods 1886, 55; l.c. 1888, 100; Maid., Usef. Nat. Pl. Austr. 1889, 555; Bail., Cat. Queensl. Woods 1889, 115; Cat. Pl. Queensl. 1890, 40; Moore, Fl. N. S. Wales 1893, 235; Bail., Queensl. Fl. 4, 1901, 1328; Dean, Proc. Linn. Soc. N. S. Wales 25, 1901, 587, pl. 38 bis, fig. 11; Bail., Queensl. Agric. J. 28, 1912, 199; Compr. Cat. 1913, 452. — *H. bauerlenii* White, Proc. R. Soc. Queensl. 55, 1944, 80; Francis, Rain-forest Trees Austr. 1951, 91.

Frutex vel arbor parva 6—10 m alta, trunco c. 15 cm diam., ramulis robustis, junioribus dense, novellis densissime ferrugineo-pilosus vel -tomentosus. *Folia* lanceolata vel oblongo-lanceolata, sensim apice acuminata, acuta vel apice extremo glandula minuta obtusiuscula, superiora basi cuneata, inferiora basi obtusa vel subrotundata, saepius parum inaequilateralia, rigide subcoriacea, in sicco supra flavidoviridia et nitidula, subtus brunnescenti-olivacea et ± opaca, novella supra ad costam et nervos, subtus ultro per faciem molliter pilis rufo-ferrugineis ± patentibus pilosa vel -tomentosa, adulta supra glabra vel ad costam parum pubescentia, subtus diutius per faciem, imprimis ad costam et nervos rufo-ferrugineo-pubescentia, regulariter serrata (dentibus prorsus versis ± uncinatis 1—1.5 mm altis et 6—10 mm distantibus), 9—12(—18, interdum usque ad 26) cm longa, 3—6(—7.5) cm lata, costa supra minute impressa, subtus bene prominente, nervis lateraliibus utroque latere 12—20 a costa rectiuscule abeuntibus, inferne subrectis, ante marginem valde manifeste inter sese curvato-conjunctis, aliis intercalariibus pluribus minus distinctis, omnibus inter sese manifeste parallelis, supra planis vel levissime impressis, subtus prominentibus, venis venuisque dense reticulatis supra minute, subtus manifeste prominulis; petiolus 2—5(—8) mm longus, 2—2.5 mm crassus, ± persistenter rufo-tomentosus. *Racemi* axillares solitarii vel rarius bini, ubique rufo-ferrugineo-tomentosi, fere usque ad basin densiflori, 5—8 cm longi. *Rhachis* fere 2 mm crassa. *Bracteae* ovato-lanceolatae, c. 1.5 mm longae, glabrescentes. *Pedicelli* normaliter brevissimi, vix 1 mm longi, raro 2 mm aequantes, bini, fere omnino connati. *Perianthium* c. 5 mm longum, tubo c. 1 mm diam., limbo clavato 1.5 mm diam. *Antherae* c. 2 mm longae. *Glandulae hypogynae* late ovatae, liberae. *Ovarium* rufo-ferrugineo-hirsutum, stylo in parte inferiore pilis paucis obsito, superne glabro. *Fructus* drupaceus ovoideo-ellipsoideus, in vivo caeruleus, 1—1.3 cm longus, 1 cm diam., exocarpio succulento, endocarpio cartilagineo.

AUSTRALIA. N.E. New S. Wales. Clarence River: *Moore* 235 (MEL, *typus H. ferrugin.*; K); *ibid.*: *Moore* 115 (MEL, syntype); *ibid.*: *Camfield*. Richmond River: *Moore*. Uralba: *Bauerlen* (A; BRI, *typus H. bauerlenii*, haud vidi). Chillingham, Upper

Tweed River, and Mullumbimby: *Bauerlen*, *Dixon*, cit. White, haud vidi. Murwillumbah: *Bauerlen*. S.E. Queensland. Macpherson Range and Lamington National Park, cit. Francis, haud vidi.

10. *H. sellae-montis* Sleum., Bot. Jahrb. 70, 1939, 142.

Arbor parva, ramulis teretibus, recentissimis fulvo-tomentosis, vetustioribus glabris et griseo-corticatis. *Folia* ± anguste oblonga, apice sensim acuminata, apice ipso ± acuta, basi ± longe in petiolum subcrassum c. 3 mm longum rufo-tomentosum cuneata, subcoriacea, in sicco plerumque nigrescentia, subtus pallidiora, supra glabra et nitentia, subtus per totam faciem imprimis ad costam et nervos rufo-tomentosa, demum costa nervisque exceptis glabrescentia, integra, (11—)12.5—15 cm longa, 4.5—6 cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere 9—10 subarcuatis parum distincte inter sese conjunctis supra planis, sed colore dilutiore in sicco bene visilibus, subtus parum prominentibus, venis utrinque laxe reticulatis supra planis vel leviter immersis, subtus minute prominulis, venulis supra ± indistinctis. *Racemi* ex axillis foliorum delapsorum summorum orti, 9—11 cm longi, maturitate fructuum incipiente usque ad 18 cm elongati. *Rhachis* gracilis, rufo-tomentosa, floribus sessilibus vel subsessilibus, solitariis vel binis. *Bracteae* lanceolatae, minutae. *Perianthium* 5 (rarius usque ad 6) mm longum, in vivo albidum vel flavescentes, fusco-ferrugineo-hirsutum, limbo 1 mm diam. *Antherae* c. 1.5 mm longae. *Glandulae hypogynae* minutae, inferne connatae, superne liberae. *Ovarium* rufo-pilosum. stylo gracili glabro. *Fructus* matus ellipsoideus, forma pruni insititiae, extus brevissime dilute brunneo-velutinus, 5.5 cm longus, 2.5—3 cm diam., pericarpio suberustaceo 2 mm crasso; pedicelli fructiferi solitarii vel gemini, incrassati, 1—1.5 mm longi.

NEW GUINEA. N.E. New Guinea. Morobe Distr., Sattelberg, c. 900 m: *Clemens 1790* (B, typus); ibid., c. 1000 m: *Clemens 2248*. Kalassa, Cromwell Range, 1300—1500 m: *Clemens 7925, 7961A* (B †), fr.

11. *H. amplifolia* Sleum., Bot. Jahrb. 70, 1939, 143.

Arbor, trunco 15—20 cm diam., ramulis crassis subteretibus, novellis fusco-tomentosis, vetustioribus glabrescentibus. *Folia magna*, late oblonga vel elliptica, brevissime petiolata, apicem versus sensim acuminata, apice ipso brevi obtusiuscula, basi latissime in petiolum attenuata vel ± rotundata, rigide chartacea, juniora supra pilis brevibus dilute ferrugineis laxe adspersa, in costa densius pubescentia, subtus saturate fusco-, rarius fusco-ferrugineo-velutina vel -tomentosa, vetustiora matura supra omnino glabrescentia, subtus in costa nervisque ± conspicue fusco-velutina vel -pilosa, in sicco olivaceo-brunnea, integra, (20—)23—40 cm longa, (10—)14—19 cm lata, costa supra bene, subtus valde prominente, nervis lateralibus utroque latere 14—15 arcuatis et margine excurrentibus, aliis intercalaribus paucis minus distinctis intermixtis, venis venulisque supra vix, subtus parum elevatis laxeque reticulatis; petiolus rufo-tomentosus, 7—9 mm longus, 3—4 mm diam. *Racemi* e ramis validioribus supra cicatrices foliorum delapsorum orti, densiflori, omnino rufo-tomentosi, 7—8 cm longi. *Rhachis* fere villosa, 2 mm diam. *Bracteae* subulatae, 1 mm longa. *Pedicelli* liberi, c. 1 mm longi. *Perianthium* flavidum, 9 mm longum, limbo 1.5 mm diam. *Antherae* c. 2 mm longae. *Glandulae hypogynae* liberae, late oblongae. *Ovarium* rufo-hirsutum, stylo filiforme glabro. *Fructus* ellipsoideus, 4.5 cm longus, fere 3 cm diam., pericarpio crustaceo 4 mm crasso.

NEW GUINEA. N.E. New Guinea. Morobe Distr., Sattelberg, 900 m: *Clemens 1693* (A; B, *typus*; L); ibid., c. 1050 m: *Clemens 1845* (B †), fr.; Quembung Mission, c. 600 m: *Clemens 2264*.

12. *H. platyphylla* Sleum., Bot. Jahrb. 70, 1939, 144.

Arbor parva, ramulis apicibus rufo-tomentosis, ceterum glabris. *Folia ampla*, ad ramulorum apices pauca, late oblonga, pro magnitudine brevissime petiolata, apice sensim vel ± abrupte acuminata, apice ipso 3—4 cm longo subacuta, in petiolum cuneata, basi ipsa ± acuta, rigide chartacea vel subcoriacea, in siccio saturate rubro-brunnea, supra glabra et nitidula, subtus per totam faciem, imprimis ad costam nervosque saturate rufo-tomentosa, integra, (30)—40—45 cm longa, (13)—16—20 cm lata, costa supra bene, subtus crasse prominente, nervis lateralibus utroque latere 15—17, ceteris intercalaribus haud usque ad marginem productis numerosis, omnibus curvatis et supra fere planis, rarius subimmersis, subtus prominentibus, venis venuisque laxis supra minutissime sed visibiliter, subtus distincae reticulato-elevatis; petiolus rufo-tomentosus, c. 1 cm longus, 3—4 mm crassus. *Racemi* ex axillis foliorum delapsorum orti, ubique rufo-tomentosi, densiflori, 8—11 cm longi. *Rhachis* 2 mm crassa, fere usque ad basin florigera. *Bracteae* minutae. *Pedicelli* plerumque bini, 1—2 mm longi, usque ad medium connati; crassiusculi. *Perianthium* 11(—12) mm longum, in vivo pallide roseum, limbo 1.5 mm diam. *Antherae* c. 3 mm longae. *Glandulae hypogynae* fere quadratae, liberae. *Ovarium* rufo-hirsutum, stylo glabro filiformi. *Fructus* adhuc ignotus.

NEW GUINEA. Papua. Western Distr., Lower Fly River, east bank opp. Sturt Island: *Brass 8013* (A; B, *typus*; L).

13. *H. loranthoides* Presl, Epim. 1851, 247; Walp., Ann. 3, 1852/53, 332; Meisn. in DC., Prodr. 14, 1856, 438; Miq., Fl. Ind. Bat. I, 1, 1858, 984; F.-Vill., Nov. App. 1880, 182; Vid., Phan. Cuming. Philip. 1885, 140; Rev. Pl. Vasc. Filip. 1886, 229; Merr., En. Philip. 2, 1923, 99 pr. p.

Arbor gracilis, 3—10 m alta, trunco 10—25 cm diam., cortice saturate brunneo lenticellis dense obteeto. *Ramuli* teretes, novelli diutius saturate ferrugineo- vel griseo-flavescenti-tomentosi, tarde (tempore fructuum) glabri. *Folia* obovata vel oblongo-obovata, rarius oblonga, apice ± late attenuata, apice ipso subrotundato-obtusa, rarius obtuse acuminata, basi in petiolum cuneata et ± decurrentia, satis coriacea, rigida, in vivo supra dilute viridia, subtus glauco-viridia, in siccio supra plerumque flavo-viridia et initio ferrugineo-sericeo-tomentella, sed citissime glabrata et subnitentia, subtus pallidiora, opaca, initio ± dense ferrugineo-tomentosa, cito omnino glabrescentia et cinerascenti-glaucescientia, integra rarius subdentata, (5—) 6—8(—10, rarius ad 14) cm longa, (2.5—)2.8—4(—5.5) cm lata, costa supra fere plana, subtus ± distincae elevata, nervis lateralibus utroque latere 5—7 in parte basali subrectis, superne arcuatis interque sese conjunctis, utrinque parum sed distincae prominulis, venis venuisque utrinque laete denseque reticulatis et prominulis; petiolus applanatus, primo tomentellus, cito glabrescens, 0.8—1.5(—2) cm longus. *Racemi* solitarii rarius gemini, erecti, ex axillis summis orti, initio in omnibus partibus rufo-ferrugineo-tomentosi, tomento in perianthiorum apicibus saepius ± rarescente, 8—17 cm longi, fere ad basin densiflori. *Rhachis* 1.5—2 mm crassa. *Bracteae* anguste

ovatae, acutiusculae, 1—2 mm longae. *Pedicelli* plerumque gemini, liberi vel usque ad medium connati, sub anthesi 2—3 mm longi, ± crassiusculi, sub fructu paullo accrescentes. *Perianthium* (7—)8—9 mm longum, in vivo albidum vel flavidum, tubo 0.6—1 (raro usque ad 1.5) mm diam., limbo ± 1.5 mm diam. *Antherae* 1.6 mm longae. *Glandulae hypogynae* parvae, liberae, approximatae. *Ovarium* ferrugineo-villosum, stylo gracili glabro. *Fructus* ovoideo-ellipsoideus, in sicco nigrescens, glaber, minute verruculosus, c. 1 (rarius usque ad 1.5) em longus, (0.6—)0.8—1 cm diam., pericarpio ± 0.6 mm crasso.

PHILIPPINES. Luzon. Cagayan, Cagua Volcano: *B. S. 78389 Edaño*; Mt Tabuan, c. 1850 m: *B. S. 77089 Ramos*. Nueva Vizcaya: *B. S. 8203 Ramos*. Tayabas, Lucban: *Elmer 9223*. Bataan, Lamao River, Mt Mariveles: *Whitford 171, 460*. Rizal, Montalban: *B. S. 12371 Loher*. Laguna, Dahican River: *B. S. 1128 Ramos* (glabrescent form); Banahao, *Loher 6747*. Albay: *Cuming 858* (B, BM, K, L, MEL, NY, P; PR, typus *H. loranth.*, haud vidi). Sorsogon, Mt Bulusan: *P. N. H. 2643 Sulit*, *B. S. 25660 Ramos*. Catanduanes. Loco spec. haud ind.: *B. S. 30202 Ramos*; Mt Abucay, c. 1500 m: *B. S. 75239, 75253 Ramos & Edaño*. Leyte. Cabalian: *B. S. 41485 Ramos*. Mindanao. Bukidnon, Mt Candoon: *B. S. 38879 Ramos & Edaño*, Mt Dumaluepihan: *B. S. 38969 Ramos & Edaño*. Davao, Todaya, Mt Apo: *Elmer 11840*. Palawan. Mt Balagbag, c. 1150 m: *B. S. 77817 Edaño*.

14. *H. celebica* Sleum. sp. nov. — *H. excelsa* (Roxb.) Bl. var. Koord., Dienstr. Minah., Meded. 's Lands Plantent. 19, 1899, 576. — *H. excelsa* (Roxb.) Bl. var. *celebica* Koord. in Koord.-Schumach., Syst. Verz. 3. Abt. 1914, 38, nom. nud.. — *Finschia excelsa* (Roxb.) Bl. ex Boerl., Handl. 3, 1, 1900, 151, errore pro *H. excelsa* var. (Celebes); de Clercq, Nieuw Plantk. Woordenb. 1909, 242.

Arbor usque ad 24 m alta, trunco 30 cm diam., ramulis in partibus recentissimis et annotinis florigeris fusco-ferrugineo-tomentosis, demum glabratis. *Folia* oblongo-lanceolata, apicem versus sensim acuminata, subacuta, basi in petiolum brevissimum cuneata et decurrentia itaque subsessilia, novella tenuiora utrinque tomento rufo-ferrugineo obtecta cito glabrescentia, adulta subcoriacea costaque diutius tomentella excepta glabra, in sicco flavidio-viridia et supra nitentia, subtus opaca, integra, 8—15 cm longa, 2.5—4 cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere 6—8 areuato-ascendentibus, inter sese curvato-conjunctis, supra pallidioribus fere planis, subtus elevatis, venis venulisque utrinque dense reticulato-prominulis; petiolus crassus, applanatus, vix 2—3 mm longus, in foliis basi minus distincte decurrentibus paullo longior. *Racemi* ex axillis summis singuli rarius bini, erecti, fere usque ad basin sat densiflori, in omnibus partibus aequaliter fusco-ferrugineo-tomentosi, 8—15 cm longi. *Rhachis* 1.5—2 mm diam. *Bracteae* ovato-acuminatae, c. 1.2 mm longae, sicut bracteolae diutius persistentes. *Pedicelli* plerumque bini, liberi vel usque ad medium connati, crassiusculi, sub anthesi 3—4 mm longi, postea paullo accrescentes. *Perianthium* in vivo dilute viride, c. 8 mm longum, apice basique subgloboso-inflatum, tubo 1 mm diam. *Antherae* c. 1.5 mm longae. *Glandulae hypogynae* truncatae, brevissimae, liberae. *Ovarium* subglobosum, rufo-ferrugineo-villosum, stylo gracili glabro. *Fructus* ± oblique ovoideo-ellipsoideus, basi brevissime contractus, in vivo viridis vel demum (sicut in sicco) nigrescens, minute verruculosus, 1.5—1.8 cm longus, 1.2—1.5 cm diam., uniseminatus, pericarpio ± 0.6 mm crasso.

NE. CELEBES. Minahasa. Biv. Lolombulan, near Paku-urd, 700 m: *Koorders 18529* (BO, *typus*; L), fl. fr. 13-IV-95, rare; *ibid.*, 450 m: *Koorders 17516*, fr. immat. 4-IV-95; G. Klabat, 800—1600 m: *Koorders 18513*, 19582.

15. *H. rigidiflora* Sleum. sp. nov. — *H. loranthoides* (non Presl) Merr., En. Philip. 2, 1923, 99, pr. p.

Arbor. *Ramuli* diutius rufo- vel rufo-cinerascenti-tomentosi, teretes, sat crassi. *Folia* obovata usque oblongo-obovata, apice breviter acuminata et sub-acuta, basi in petiolum cuneata, in superiore petioli tertio tantum decurrentia, firmule subcoriacea, in sicco viridescenti- vel brunnescenti-flavescentia, supra nitida, subtus opaca et paullo pallidiora, subtus ad costam et ad petiolum diutius rufo-tomentella, ceterum glabra, integra, (5—)6—10 (—12) cm longa, 3—5(—6.5) cm lata, costa supra parum, subtus sat crasse prominente, nervis lateralibus utroque latere 6—8 curvato-ascendentibus, nonnullis intercalaribus brevioribus intermixtis, omnibus utrinque prominentibus, venis venuisque utrinque dense prominulo-reticulatis; petiolus paullo applanatus, 1—1.5(—2) cm longus. *Racemi* axillares, e ramulis annotinis rufo-tomentosis orti, fere usque ad basin sat laxiflori, 8—10 cm longi, ubique rufo-tomentosi. *Rhachis* crassiuscula, 2 mm diam. *Bracteae* ovatae, fere 2 mm longae, tomento erispulo fere occultae. *Pedicelli* plerumque bini et ± usque ad medium connati, crassiusculi, 3—5 mm longi. *Perianthium* sat crassum, rigidulum, 10—11 mm longum, tubo 1.5 mm diam., limbo breviter clavato 2 mm diam. *Antherae* c. 1.5 mm longae. *Glandulae hypogynae* oblongo-ovatae, liberae, distantes. *Ovarium* globosum, rufo-vilosum, stylo glabro gracili. *Fructus* subovoideo-globosus, in sicco nigrescens, glaber, dense minuteque verruculosus, 1.8—2.2 cm diam., pericarpio coriaceo c. 2 mm crasso.

PHILIPPINES. Mindoro. Paluan: B. S. 39591 Ramos. Mindanao. Misamis, Mt Malindang: F. B. 4549 Mearns & Hutchinson. Bukidnon, Mt Candoon: B. S. 38715 Ramos & Edano (A, *typus*; NY), fl. VI/VII-20.

16. *H. fuscotomentosa* Suesseng. Mitt. Bot. Staatssamml. München 2, 1950, 61; in Heine, Fedde Rep. 54, 1951, 225.

Arbor 10—15 m alta, ramulis junioribus teretibus sat crassis diutius saturate rufo- (vel demum griseo-flavescenti-)tomentosis, vetustioribus glabratibus brunnescentibus. *Folia* elliptica usque oblongo-elliptica, apicem versus sensim vel subabrupte acuminata, subacuta, basin versus in petiolum cuneata, novella rufo-tomentosa sed citissime glabrescentia, sub anthesi costa excepta glabra, adulta omnino glabra, subcoriacea, utrinque nitentia, in sicco flavidoviridia usque olivacea, integra, (5—)8—12(—18, rarissime usque ad 26) cm longa, (3.5—)4—6(—8, rarissime usque ad 11) cm lata, costa supra vix, subtus ± distinctae prominente, nervis lateralibus utroque latere (5—)6—8 (—9), curvatis, ± manifeste arcuato-conjunctis, utrinque prominentibus, venis venuisque utrinque dense laeteque reticulato-prominulis; petiolus 1.5—2(—2.5) mm crassus, 1—2 cm longus, initio tomentellus, deinde glabrescens. *Racemi* axillares solitarii, subdensi, 6—8 cm longi, fere usque ad basin floriferi, in omnibus partibus pilis rufis erispulis tomentosi vel subvillosi. *Rhachis* 1.5—2 mm diam. *Bracteae* ovato-acuminatae 1—1.5 mm longae, sicut bracteolae subpersistentes. *Pedicelli* crassiusculi, sub plena anthesi 1—2 (infimi raro usque ad 3) mm longi, plerumque gemini et ± connati. *Perianthium* 11—12 mm longum, tubo c. 1.5 mm diam., limbo clavato 2—2.5 mm

diam. *Antherae* fere 2 mm longae. *Glandulae hypogynae* late deltoideae, obtusae, liberae, distantes. *Ovarium* globosum, rufo-villosum, stylo gracili glabro. *Fructus* fere maturus oblique elongato-ellipsoideus vel ovoideus, apiculatus, basi breviter attenuatus, rufo-tomentosus, 2.5—3 cm longus, c. 2 cm crassus, pericarpia 2 mm crasso, pedicello 2—3 mm longo.

BORNEO. B.r. N. Borneo. Mt Kinabalu, Tenompok, E of Lodge, c. 1500 m: J. & M. Clemens 28724 (A, B, BM, L; M, *typus*; NY); ibid., Menetendok, Kinataki divide, c. 1050 m: Carr SF 26710. Sandakan, Kabilor For. Res.: For. Dep. F.M.S. 49006 (S.H. 10232). Sarawak. Mt. Poi, c. 1350 m: J. & M. Clemens 20386. S.E. Borneo. W. Kutei, near Mt Kemul: Endert 3890. W. Borneo. Melawi, B. Badak buruk, 350 m: NIFS bb. 28336.

17. *H. rufescens* Prain, Kew Bull. 1912, 342; Gamble, J. As. Soc. Beng. 75, ii, 1914, 435; Ridl., Fl. Mal. Pen. 3, 1924, 142; Burk. & Henders., Gard. Bull. Str. S. 3, 1925, 417; Burk., Dict. 1935, 1134.

Arbor 10—24 m alta, trunco usque ad 60 cm diam., ramis patulis, ramulis crassis, novellis subteretibus diutius rufo-tomentosis, demum glabratiss, fusco-cinereis. *Folia* obovata vel obovato-oblonga, rarius late oblanceolata (in regionibus editis minora et angustiora), apice breviter attenuata, subacuta, usque subrotundato-obtusa, basi ± longe cuneata et in petiolum ± decurrentia, subcoriacea, supra in vivo saturate viridia, subtus rubescens-brunnescens, in sicco supra olivacea usque nigrescentia, subtus paullo pallidiora et ± saturate castanea, novella utrinque rufo-tomentosa, matura supra costa pilosa excepta glabrata et nitidula, subtus diutius per faciem saturate pilis ± crispulis rufo-tomentosa, demum costa nervis exceptis glabrescentia, *integra* (sed in turionibus interdum uncinato-serrata), normaliter 13—23(—30) cm longa et (5—)6—11 cm lata, in turionibus usque ad 40 cm longa et usque ad 13 cm lata, costa utrinque elevata, nervis lateralibus utroque latere 9—12 (in turionibus raro numerosioribus) inferioribus approximatis, rectiusculis, interque sese ± parallelis, superioribus ± distantibus, leviter curvatis et distinctius arcuato-conjunctis, omnibus subtus tantum prominulis, venis irregulariter areolatis, cum venulis reticulatis utrinque parum distinctis; petiolus rufo-tomentosus, in foliis inferioribus 3—4 (rarius usque ad 5) cm longus, basi 2—3 mm crassus, in foliis summis gracilior, 1.5—1 cm longus, in turionibus usque ad 7 cm elongatus. *Racemi* axillares vel plerumque e nodis defoliatis singuli vel bini, (10—)15—20 cm longi, densiflori, omnino rufo-tomentosi. *Rhachis* 1.5—2 mm crassa. *Bracteae* ovatae, minutae. *Pedicelli* crassiusculi plerumque gemini, usque ad medium connati, 1—2(—3) cm longi. *Perianthium* 12 mm longum, tubo 0.8 mm diam., limbo clavato 1.5 mm diam. *Antherae* fere 2 mm longae. *Glandulae hypogynae* liberae, obtusae. *Ovarium* rufo-villosum, stylo gracili glabro. *Fructus* subglobosus, utrinque complanatus, apice basique late attenuatus, basi saepius breviter in pedem crassum contractus, in vivo flavido-brunneus, initio breviter rufo-tomentosus, demum ± glabrescens, 2.5—3 cm longus, 2—2.5 cm latus, 1.5—1.8 cm crassus. *Pericarpium* coriaceum, 1 mm crassum. *Pedicelli* fructiferi alte connati, 6—7 mm longi, basi c. 2 mm crassi.

MALAY PENINSULA. Perak. Larut: *Kunstler* 4213 (cit. Prain, haud vidi), 4939, 5096. Thaiping waterfall: *Kunstler* 8504 (K, *lecto-typus*), fr.; Waterfall Hill and Tapai: Wray 2033 (cit. Prain, haud vidi), 3084 (cit. Prain, haud vidi). Gunung Babu: *Scortechni* 774. Kedah. Ulu Sira, Gunung Bintang: Haniff SF 21033. Pahang. Cameron Highlands, Gunong Berembun, c. 1500 m: Henderson SF 23388; ibid., Boh Plantations,

c. 1200 m: Nur SF 32562. Johore. Endau-Mersing road: Corner. Sungai Kayu: Kiah SF 32065, 32327, Corner SF 30856.

18. *H. longespicata* Sleum., Bot. Jahrb. 70, 1939, 143.

Arbor c. 8 m alta, ramulis novellis fusco-tomentosis serius ± glabrescentibus. Folia ampla, oblonga, apice rotundata vel late obtuse attenuata, basi late cuneata, parum inaequilateralia, tenuiter subcoriacea vel chartacea, in sicco saturate brunnea, supra costa fusco-tomentosa excepta vel omnino glabra, subtus initio per faciem laxe brevissime fusco-tomentella, mox costa nervisque exceptis glabrescentia, integra, (18—)21—26(—33) cm longa, (6.5—)9—12(—13) cm lata, costa utrinque prominente, nervis lateralibus utroque latere c. 10 curvatis, supra vix, subtus parum sed distincte prominentibus, venis venulisque utrinque subdense reticulato-prominulis; petiolus fusco-tomentosus, basi 4 mm, in medio 2.5 mm crassus, 1.2—1.8 cm longus. *Racemi* spicaeformes, pedunculo 4—5 cm longo inclusi (17—)22—27 cm longi, fusco-tomentosi. *Rhachis* gracilis, 1 mm diam. *Bracteae* minuta. *Pedicelli* gemini, ± connati, 1—1.5 mm longi. *Perianthium* pallide viride, 8 mm longum, apice 1 mm diam., in specimine fere plane maturum. *Antherae* c. 1.5 mm longae. *Glandulae hypogynae* basi connatae. *Ovarium* dense ferrugineo-pilosum, stylo gracillimo glabro. *Fructus* adhuc ignotus.

NEW GUINEA. Papua. Centr. Distr., Isuarava, c. 1500 m: Carr 15579 (A; B, typus; BM, K, L, SING).

19. *H. kjellbergii* Sleum. sp. nov.

Arbor 4—8 (interdum usque ad 20) m alta, ramulis novellis subangustatis in sicco rubescens, glabris, vetustioribus teretibus cinerascentibus. *Folia* oblonga, apice breviter (1—1.5 cm longe) obtuse acuminata, basi in petiolum ± alatum cuneata et decurrentia, subsessilia, subcoriacea, etiam novella glabra vel hic inde subtus pilo solitario induta, in sicco supra viridicastanea valdeque lucida, subtus dilutius castanea et opaca, integra, (—9) 10—18 cm longa, 4.5—6.5 cm lata, costa supra parum, subtus manifeste prominente, nervis lateralibus utroque latere 8—10(—12) arcuato-ascendentibus obscure inter sese curvato-conjunctis supra minute, subtus parum elevatis, venis venulisque utrinque ± inconspicuis; petiolus 2—3 mm longus, basi ipsa valde incrassatus, glaber. *Racemi* ex axillis summis orti, solitarii vel haud raro bini, ascendententes demum inclinati, fere usque ad basin sat dense florigeri; 7—10 cm longi, sub fructu usque ad 13 cm accrescentes. *Rhachis* 1—1.5 mm crassa, sicut pedicelli bracteaeque dense saturate ferrugineo-tomentosa. *Bracteae* subovato-lanceolatae, 1.5 mm longae. *Pedicelli* sub anthesi 2—3 mm longi, saepius gemini et usque ad medium fere connati, in superiore tertio glabrescentes. *Perianthium* in vivo albido, 7—8 mm longum, extus laxe usque subdense pilis ferrugineis ± adpressis indutum, tubo 0.5 mm diam., limbo clavato 1 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* suberassae, late obovatae, truncatae, 0.5 mm altae, liberae, approximatae. *Ovarium* obovoideo-globosum, laxe pilis dilute ferrugineis longis crispulis indutum, eito ± glabrescens, stylo gracili glabro. *Fructus*, ut videtur nondum plane maturus, ellipsoideus, glaber, in vivo et in sicco nigrescens, minutissime verriculosus, 9—11 mm longus, 7—9 mm diam., pericarpio 0.7 mm crasso.

CELEBES. S.E. Celebes. Kendari, Puhara, 100 m: Kjellberg 744 (BO, typus; S), in sec. thicket, fl. fr. imm.

Similar in leaf-characters, but determination not certain, as no flowers are present:

CELEBES. S E. Celebes. Lepo-lepo: Beccari anno 1874 (FI).

FLORES. Ende, Ndona, 750 m: NIFS bb. 8917.

19a. var. *calva* Sleum., var. nov. — A typo ovario ab initio glabro, inflorescentia minus dense ferrugineo-pilosa, foliis lanceolato-oblongis 3.5—4.5 cm latis diversa. Fructus maturus ellipsoideus, basi brevissime contractus, 1.5 cm longus, 1—1.2 cm in diam., pericarpio 1 mm crasso.

CELEBES. C. Celebes. Masamba, Kaluku, 200 m: NIFS bb. 20047 (BO, *typus*), rare in primary forest, hilly clayey ground.

20. *H. carrii* Sleum., Bot. Jahrb. 70, 1939, 145. — *H. brassii* Sleum., l. c. 146. — *H. divaricata* Sleum., l. c. 146.

Arbor 5—10 m alta, ramulis teretibus, novellis fusco-ferrugineo-tomentosis, vetustioribus glabrescentibus et griseo- vel brunneo-corticatis. *Folia* oblonga vel lanceolato-oblonga, rarius subelliptico-oblonga, apice sensim sat breviter acuminata, acutiuscula vel obtusa, basi in petiolum attenuata, ± firmule chartacea, in sicco flavescenti-viridia vel dilute olivacea, integra vel apices versus remote subdenticulata, supra costa diutius tomentella excepta glabra et nitentia, subtus ± opaca atque ad costam et nervos ± dense et diutius, in facie laxe fusco-ferrugineo pilosa, serius ± glabrescentia, (4.5—)5—9(—14) cm longa, (1.8—)2.5—4(—5.5) cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere (6—)7—8(—10) subcurvatis, margine inter sese ± manifeste conjunctis, subtus parum prominentibus, venis venuisque supra obscure vel parum, subtus distincte et ± dense reticulato-prominulis; petiolus crassiusculus diutius fusco-ferrugineo-tomentellus (0.7—)1—1.5 cm longus. *Racemi* axillares vel saepius ex axillis foliorum delapsorum orti, densiflori, in omnibus partibus ferrugineo-tomentosi, 8—11 cm longi. *Rhachis* in medio 1.5—2 mm crassa, basi crassior. *Bracteae* ovato-subacuminatae, 1—1.5 mm longae, saepius tomento crispulo ± occultae. *Pedicelli* crassiusculi 3—5 mm longi, plerumque bini et usque ad medium connati. *Perianthium* (16—)17—20 mm longum, extus in vivo castaneum, intus flavescens, tubo in medio 1.2—1.5 mm diam., limbo sensim clavato 5—6 mm longo et ± 2.5 mm diam. *Antherae* 3—4 mm longae. *Glandulae hypogynae* brevissimae, vix 1 mm altae, ± connatae itaque anulum formantes. *Ovarium* dense fusco-ferrugineo-pilosum, stylo gracili glabro. *Fructus* immaturus subglobosus, laxe rufopilosus, in sicco nigrescens.

NEW GUINEA. Papua. Central Distr., Alola, c. 1600 m: Carr 14148 (A; B, *typus* *H. carrii*; BM, K, L, NY, SING). Boridi, c. 1500 m: Carr 13508 (B, *typus* *H. divaricata*; BM, K, L, NY, SING), 14378. Mt Tafa, 2400 m: Brass 5063 (A; NY, *typus* *H. brassii*). Lala River, c. 1500 m: Carr 15817.

There exist small differences between the holotype-specimens of the 3 species originally kept apart, but additional material has more or less broken down these. It seems therefore desirable to recognize only one species.

21. *H. purpurascens* Sleum. sp. nov.

Arbor usque ad 12 m alta, ramulis recentissimis cum foliis novellis dense adpresso fusco-ferrugineo-pilosis, vetustioribus compressis, glabrescentibus, griseo-corticatis lenticellisque numerosis ellipticis obsitis. *Folia* oblonga vel lanceolato-oblonga, apice breviter (1—1.5 cm longe) subabrupte acuminata, subacuta, basi in petiolum attenuata et ± manifeste decurrentia,

matura firmule subcoriacea, glabra, in vivo saturate viridia, in sicco supra dilute viridescenti-flavida et nitentia, subtus castaneo-olivacea et opaca, integra, (9—)10—15 cm longa, 4—5 cm lata, costa supra parum, subtus crasse prominente, nervis lateralibus utroque latere 10—11(—12) a costa angulo magno abientibus, inferne subrectis, in superiore parte demum curvatis et praeter marginem manifeste curvato-conjunctis, supra parum, subtus manifestius prominulis et discoloribus, venis cum venuis irregulariter areolatis utrinque dense prominulo-reticulatis; petiolus crassus, 0.5—1(—1.3) cm longus, basi incrassatus. *Racemi* ex axillis foliorum delapsorum orti, pedunculo c. 10 cm longo inclusu c. 30 cm longi, densiflori, ubique sat dense pilis longis rufo-ferrugineis adpressis ornati. *Rhachis* 2—2.5 mm diam. *Bracteae* ovato-lanceolatae, acutae, interdum cito glabrescentes, 2—3 mm longa, plerumque cito caducae. *Pedicelli* sat graciles, plerumque gemini, 5—8 mm longi, liberi vel usque ad medium connati. *Perianthium* in vivo purpurascens, 20—23 mm longum, tubo 0.7 mm diam., limbo ellipsoideo 2—2.5 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae* crassae, 1 mm altae, superne liberae, inferne connatae, minute punctatae. *Ovarium* dense rufo-pilosum, stylo gracili glabro. *Fructus* adhuc ignotus.

NEW GUINEA. Papua. Western Highland, Nondugl: N.G.F. 4386 Womersley (A, K; L, *typus*; LAE), fl. deep plum red, Apr. 51.

22. H. torricellensis Lauterb. in Schum. & Lauterb., Nachtr. Fl. Deut. Schutzgeb. Südsee 1905, 257; Lauterb., Bot. Jahrb. 50, 1913, 331.

Arbor humilis, ramulis teretibus, novellis fusco-tomentosis, mox glabratibus, vetustioribus brunnescenti- vel cinereo-corticatis, rugosis. *Folia* lanceolata, apicem versus ± longe sensim acuminata, obtusiuscula, basin versus in petiolum cuneata et ± manifeste decurrentia, tenuiter subcoriacea, in sicco olivaceo-virentia, supra subnitida costa diutius pilosula excepta glabra, subtus pallidiora, novella subtus passim pilis solitariis dilute ferrugineis adpressis induita, matura costa laxe pilosula excepta glabra, demum glaberrima, integra, 7—14 cm longa, 2—3.5 cm lata, costa supra parum, subtus manifeste elevata, nervis lateralibus utroque latere c. 10 subrectis interque sese ± parallelis, marginem versus curvatis et conjunctis, supra vix, subtus bene prominentibus, venis venulisque utrinque densissime prominulo-reticulatis; petiolus paullo appланatus et subalatus, glaber, 2—10 mm longus. *Racemi* ex axillis foliorum delapsorum orti, densiflori, 12—14 cm longi, ubique sat dense rufo-ferrugineo-pilosi. *Rhachis* 1—1.5 mm diam. *Bracteae* ovato-lanceolatae, subglabrae, c. 2 mm longae. *Pedicelli* c. 2 mm longi, plerumque bini et usque ad medium connati. *Perianthium* in vivo albidum, subdense pilis longis rufis adpressis ornatum, gracile, (13—)14—15 mm longum, tubo 0.5 mm diam., limbo ellipsoideo 1.5 mm diam. *Antherae* c. 2 mm longae. *Glandulae hypogynae* crassiusculae, subquadratae, liberae, approximatae itaque annulum formantes. *Ovarium* rufo-tomentosum, stylo gracili glabro. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Sepik Distr., Torricelli Mts, 1000 m; Schlechter 14351 (B, *typus*; BM, BO, K, P).

23. H. schlechteri Lauterb. in Schum. & Lauterb., Nachtr. Fl. Deut. Schutzgeb. Südsee 1905, 256; Lauterb., Bot. Jahrb. 50, 1913, 333, fig. 2.

Arbuscula, ramulis gracilibus teretibus, recentissimis adpresso rufo-ferrugineo-tomentosis, vetustioribus glabris cinereo-corticatis. *Folia* lanceo-

lata, apicem versus sensim longe acuminata, saepius subfalcata, subacuta, basi in petiolum attenuata et \pm decurrentia, tenuiter subcoriacea, vel chartacea, glabra, supra nitidula, subtus opaca, in secco utrinque dilute olivaceo-virescentia, integra, 10—18 cm longa, 2.3—5(—4) cm lata, costa utrinque prominente, nervis lateralibus utroque latere 8—10 \pm arcuatatis praeter marginem \pm distinete anastomosantibus, utrinque prominulis vel supra leviter impressis, venis venuisque utrinque densissime prominulo-reticulatis; petiolus crassiusculus, applanatus, 2—8 mm longus. *Racemi* axillares, fere usque ad basin laxiflori, graciles, 13—30 cm longi, ubique subdense pilis rufis adpressis gracillimis obtecti. *Rhachis* 1 mm diam. *Bracteae* ovato-lanceolatae, acutae, 1—1.5 mm longae, cito caducae. *Pedicelli* 2 mm longi, plerumque gemini, \pm liberi usque omnino connati. *Perianthium* albidum, tenui, c. 25 mm longum, tubo 0.6 mm diam., limbo 1.5 mm diam. *Antherae* 1.8 mm longae. *Glandulae hypogynae* liberae, minutae, truncatae. *Ovarium* dense adpresso rufo-pilosum, stylo gracillimo glabro. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Sepik Distr., Torricelli Mts, 600 m: Schlechter 14511 (B, *typus*; BM, BO, K, P).

24. *H. lauterbachiana* Sleum., Bot. Jahrb. 70, 1939, 147. — *H. grandifolia* Lauterb., Nova Guinea 8, Sept. 1910, 285; Bot. Jahrb. 50, 1913, 332, nec Lecomte (May 1910).

Arbuscula 3—4 m alta, ramulis teretibus glabris, innovationibus haud visis. *Folia* lanceolata vel subovato-lanceolata, apicem versus sensim acuminata, apice ipso obtusa, basi in petiolum brevissimum cuneata et decurrentia, subsessilia, coriacea, in secco dilute castanea et paullo nitentia, glabra, integra, margine minute revoluta, 20—32 cm longa, 7—11 cm lata, costa crassa utrinque prominente, nervis lateralibus utroque latere 9—10(—11) curvato-ascendentibus, prope marginem arcuato-conjunctis, supra plerumque in secco manifeste impressis, subtus prominentibus, venis venuisque densissime reticulatis utrinque parum sed bene visibiliter prominulis; petiolus rugosus, 4—6 mm longus, 2.5—4 mm crassus. *Racemi*, ut videtur, ex axillis foliorum delapsorum orti, graciles, 25—43 cm longi, valde laxiflori, ubique pilis rufi-ferrugineis longis adpressis subdense obtecti. *Rhachis* c. 1 mm diam. *Bracteae* minutae, lanceolatae, vix 1 mm longae, plerumque cito caducae. *Pedicelli* 2—3 mm longi, singuli vel bini, liberi vel ima basi connati. *Perianthium* in vivo album, 22—25 mm longum, tubo 0.5 mm diam., limbo ellipsoideo 1.5—2 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* late ovatae, liberae. *Ovarium* subglobosum, rufo-pilosum, stylo pergracili glabro. *Fructus* ignotus.

NEW GUINEA. S. New Guinea. Lorentz River (= Noord R.), Alkmaar: Versteeg 1471 (B; BO, *typus*; K, L).

25. *H. oreadum* Diels, Bot. Jahrb. 54, 1916, 203. — *H. phaeotricha* Diels, l. c. 203. — *H. validinervis* White, Proc. R. Soc. Queensl. 34, 1922, 26; Sleum., Bot. Jahrb. 70, 1939, 147.

Arbuscula 3—6 m alta, ramulis novellis fusco-pilosis, vetustioribus cito glabrescentibus. *Folia* lanceolata vel anguste obovato-oblonga, apice sensim sat breviter (2—3 cm longe) acuminata, apice ipso subacuta, basi \pm late in petiolum attenuata, paullo inaequilateralia, subcoriacea, in secco pallide viridia, utrinque nitentia, supra glabra, subtus initio in facie passim, ad costam, nervos et petiolos densius subadpresso fusco-ferrugineo-pilosa, demum

fere omnino glabrescentia, integra, (10—)12—22(—29) cm longa, (4.5—)5—7(—9) cm lata, costa valida utrinque imprimis subtus prominente, nervis lateralibus utroque latere 9—11 subarcuatis inter sese \pm parallelis et in nervum intramarginalem plerumque valde distinctum curvato-collectis, nervis intercalaribus minus manifestis pluribus, omnibus supra in sicco \pm manifeste insculptis, subtus prominentibus, venis venulisque utrinque dense reticulatis et conspicue prominulis; petiolus 1.5—2(—2.5) cm longus, basi 1.5—2 mm crassus. *Racemi* ex axillis foliorum interdum delapsorum orti, breviter pedunculati, ubique fusco-tomentosi, 18—28 cm longi, sat densiflori. *Rhachis* \pm 1.5 mm diam. *Bractae* ovato-lanceolatae, subpersistentes, saepius pedicellos longitudine fere aequantes. *Pedicelli* 1.5—2 mm longi, plerumque bini, liberi vel usque ad medium connati. *Perianthium* in vivo rosaceum usque purpurascens, gracile, c. 1.8 cm longum, tubo 0.6 mm diam., limbo ellipsoideo 1.5 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae carnosulae*, liberae, dilatatae. *Ovarium* rufo-tomentosum, stylo gracili glabro. *Fructus* deest.

NEW GUINEA. N.E. New Guinea. Sepik Distr., "Felsspitze", 1400—1500 m: Ledermann 12491 (B, *typus H. oread*). April River, c. 60 m: Ledermann 8894 (B, *typus H. phaeotricha*; K). Papua. Centr. Distr., Mekeo (between Ononge and Deva-Deva): White 801 (BRI, *typus H. validinerv.*, haud vidi; K). Dieni, Ononge road, 500 m: Brass 3891.

Note. I unite *H. oreadum* and *H. validinervis*, both found at 500—1500 m on rain-forest ridges or slopes, with *H. phaeotricha*, described from lowland country, as no constant good characters are found in the leaves and flowers hitherto known, besides slight differences in the nervation and in the density of the tomentum of the inflorescences. The fruits, however, may yield characters, which might oblige to keep the three species separately again.

26. *H. stelechantha* Diels, Bot. Jahrb. 54, 1916, 202.

Arbuscula 4—5 m, trunco cortice griseo, ramulis teretibus, apicibus tantum dense adpresso ferrugineo-pilosis, in partibus vetustioribus glabris, in sicco dilute brunneis. *Folia* elliptica vel subobovato-elliptica, apice breviter acuminata, subacuta, basin versus in petiolum cuneata, paulo inaequilateralia, in vivo intense viridia et lucida, in sicco supra dilute olivaceo-viridia, subtus sublivida, utrinque subnitentia, glabra, remote serrata (dentibus prorsus versis in utroque latere 5—6, 1.5—3 mm altis et 1—3 cm distantibus), margine paulo revoluta, 10—24 cm longa, 5—10 cm lata, costa utrinque imprimis subtus prominente, nervis lateralibus utroque latere 8—10 inferne satis rectis, superne curvatis, inter sese \pm parallelis atque prope marginem curvato-conjunctis, in sicco supra valde manifeste insculptis, subtus arcte prominentibus, venis venulisque utrinque dense reticulatis et prominulis, venis subtus quam venulae plerumque magis elevatis; petiolus (1.5—)2—3 cm longus, basi valde incrassatus. *Racemi* graciles usque ad 25 cm longi, e caule enascentes, in omnibus partibus subdense adpresso rufo-ferrugineo-pilosii. *Bractae* lineares, 2—2.5 cm longae. *Pedicelli* plerumque bini, paulo supra basin connati, sat graciles, 3—4.5 mm longi. *Perianthium* in vivo pallide rosaceum, 14—15 mm longum, tubo 0.5 mm diam., limbo 1.5 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* crassae, late obovatae, liberae. *Ovarium* rufo-tomentosum, stylo gracili glabro. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Sepik Distr., Schraderberg, 2070 m: *Ledermann 11882* (B, *typus*).

27. *H. vestita* W. W. Smith, Notes Bot. Gard. Edinb. 10, 1918, 181.
Arbor 8—10 m, trunco saepius tortuoso. *Ramuli* subteretes, novelli fusco-ferrugineo-tomentosi, tarde glabrescentes, vetustiores glabri et brunnei. *Folia* oblanceolata vel subovato-oblonga, apice saepius paullo curvato sensim acuminata, apice ipso subacuta vel plerumque obtusa, basin versus ± longe in petiolum cuneata, coriacea vel firmule subcoriacea, in siccio supra flavo-viridia et costa diutius tomentella excepta glabra, lucida, subtus initio per totam faciem tomento detersili rufo sat denso e pilis crispulis formato obiecta, tomento serius costa nervisque exceptis evanescente, interdum tarde omnino glabrata, integra vel undulata vel imprimis antice sat grosse obtuse serrata, 15—22(—28) cm longa, (5—)6—8(—10) cm lata, costa supra vix eminente, subtus prominente, nervis lateralibus utroque latere 9—12 supra prominulis, subtus manifestius elevatis, subarcuatis praeter marginem ± distincte venis transversis conjunctis, venis venulisque utrinque sat dense et conspicue reticulatis et prominulis; petiolus diutius rufo-tomentosus, (1—)1.5—2.5(—3) cm longus, c. 2 mm diam. *Racemi* axillares et subterminales erecti, fere usque ad basin densiflori, 8—14 cm longi, ubique rufo-ferrugineo-tomentosi. *Rhachis* c. 2 mm diam. *Bracteae* ovato-acuminatae, usque ad 2 mm longae, adpressae, saepius tomento ± occultae. *Pedicelli* crassi 1—2 mm longi, plerumque gemini et ± connati. *Perianthium* in vivo rubescens, 16—18(—20) mm longum, in tubo medio 0.8—1.2 mm diam., limbo clavato c. 2.5 mm diam. *Antherae* 3—4 mm longae. *Glandulae hypogynae* subquadratae, liberae, brevissimae. *Ovarium* rufo-tomentosum, stylo pergracili glabro. *Fructus* adhuc ignotus.

CHINA. Yunnan. S of Szemao, c. 1370 m: *Henry 12159* (B; E, *typus*; K, NY, US).

SIAM. N.E. Siam. Loie, Phu Kradang, 1300 m: *Thail. Roy. For. Dep. 3686* (Dee 83).

28. *H. obovatifolia* Merr. & Chun, Sunyatsenia 5, 1940, 45. — *H. vestita* W. W. Smith var. *mixta* Li, J. Arn. Arb. 24, 1943, 444 quoad pl. hainan. et kwangtung.

Arbor 9—20 m, cortice griseo-brunneo. *Ramuli* juniores rufo-ferrugineo-tomentosi, tarde glabrescentes, vetustiores glabri. *Folia* (late) obovata vel elliptico-obovata, apice late attenuata, valde obtusa usque rotundata, basi late sat breviter in petiolum cuneata parum decurrentia, novella subtus per faciem pilis rufo-ferrugineis crispulis tomentosa, adulta costa nervisque imprimis subtus diutius tomentellis exceptis glabra, subcoriacea vel coriacea, in siccio flavo-viridia, supra nitentia, integra vel plerumque imprimis antice sat grosse et obtuse (pauci-) serrata, (5—)8—15 (interdum usque ad 26) cm longa, (3—)4—8 (rarius usque ad 14) cm lata, costa supra fere plana, subtus prominente, nervis lateralibus utroque latere 8—10(—12) in parte inferiore subrectis, superne curvatis interque sese venis transversis ± arcuato-conjunctis, supra parum, subtus bene prominentibus, venis venulisque utrinque subdense reticulatis laeteque prominulis; petiolus diutius rufo-tomentosus, (1—)1.5—2(—3) cm longus. *Racemi* axillares solitarii, sat densiflori, 8—15 cm longi, ubique rufo-ferrugineo-tomentosi. *Rhachis* c. 2 mm diam. *Bracteae* ovato-acuminatae, obtusae, diu persistentes, 2 mm longae.

Pedicelli crassiusculi, 1—2 mm longi, ± liberi. *Perianthium* albidum vel flavidum, ± intense odoratum, 10—12 mm longum, tubo 0.6—0.8 mm diam., limbo 2 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* latae, truncatae, c. 0.7 mm altae. *Ovarium* rufo-villosum, stylo gracili glabro. *Fructus* ovoideus vel oblongo-ovoideus, obliquus et lateraliter compressus, subrostrato-acuminatus, rufo-pilosus vel glabrescens, *in vivo* initio viridis, demum purpureo-nigrescens, 4—4.5 cm longus, c. 2.5 cm latus, c. 2 cm crassus, pericarpio coriaceo 2 mm crasso.

CHINA. Hainan. Po-ting, 350 m: *How 73089* (A, *typus*; BM, P). Ling-shui distr.: *How 73795*. Manning: *Lau 28252*. Kwantung. Shih Wan Tai Shan: *Liang 69341*.

INDOCHINA. Annam. Quang-tri, massif de Dong-tri, 1000 m: *Poilane 11032*; massif de Dong Che, 400—500 m: *Poilane 10555*; massif de Hon-ba, 1000—1500 m: *Chevalier 38898*. Ba-na, près Tourane, 1500 m: *Poilane 6923, 7086* (→ var. *mixta*).

28a. var. *mixta* (Li) Sleum. comb. nov. — *H. vestita* W. W. Smith var. *mixta* Li, J. Arn. Arb. 24, 1943, 444 quoad typ. — *H. vestita* (non W. W. Smith) Li, J. Arn. Arb. 24, 1943, 363.

A typo foliis late oblanceolatis vel oblongo-ovatatis apicem versus gradatim ± late attenuatis et obtusis diversa. Ut videtur, inter *H. vestit.* et *H. obovatifol.* intermedia, perianthio interdum usque ad 14 mm longo.

CHINA. Kwangsi. Shangtze distr., Shih Wan Tai Shan: *Tsang 22450*; Tseung yuen, Liow Shiang: *Wang 39624* (A, *typus*).

INDOCHINA. Tonkin. Dam-ha, Sai Wong Mo Shan: *Tsang 30083*. Annam. Col Mangiang, Qui Nhon, 1000—1200 m: *Poilane 18031*.

29. *H. microneura* White, J. Arn. Arb. 10, 1929, 209.

Arbor parva, gracilis, virgata. *Ramuli* in partibus junioribus adpresso ferrugineo-tomentosuli, ceterum glabri, teretes, griseo-corticati, graciles. *Folia* lanceolata vel oblongo-lanceolata, apice 0.5—1 cm longe subacute acuminata, basi in petiolum cuneata et decurrentia, firmule subcoriacea, supra in sicco saturate olivaceo-brunnea, subnitida et glabra, subtus dilutius brunnescens, in facie et costa hic inde pilis adpressis obsita, cito omnino glabrescens, antice utroque latere dentibus 2—4 vix 1 mm altis prorsus versis instructa, basin versus integra, (4—)5—7 cm longa, 2—2.5 cm lata, costa supra fere plana, subtus prominente, nervis lateralibus utrinsecus c. 8 distincte inter sese curvato-conjunctis, utrinque minute, sed visibiliter prominentibus, venis venulisque utrinque densissime reticulatis minuteque prominulis; petiolus 2—3 mm longus, basi valde incrassatus. *Racemi* axillares vel e nodis defoliatis solitarii, gracillimi, dense ± adpresso rufo-pilosii, 3—4.5 cm longi, fere usque ad basin satis laxiflori. *Rhachis* 0.5 mm diam. *Bracteae* haud visae. *Pedicelli* 0.5—1 mm longi, plerumque bini et ± usque ad apicem connati. *Perianthium* *in vivo* albidum, sat dense adpresso rufo-pilosum, serius glabrescens, c. 6 mm longum, tubo 0.5 mm diam., limbo 0.8 mm diam. *Antherae* 0.7 mm longae. *Glandulae hypogynae* sat crassae, late ovatae et truncatae, liberae, approximatae. *Ovarium* rufo-tomentosum, stylo gracili glabro. *Fructus* deest.

NEW GUINEA. Papua. Centr. Distr., Owen Stanley Range, between Mts Brown and Clarence, 900—1200 m: *Brass 1490* (B; BRI, *typus*, haud vidi; P).

30. *H. dentellata* Sleum., Bot. Jahrb. 70, 1939, 147.

Arbuscula 3—4 m alta, ramulis teretibus, recentissimis laxe usque subdense adpresso rufo-pilosulis, vetustioribus glabris et brunneis, deinde griseo-

corticatis. *Folia* oblonga vel elliptico-oblonga, apicem versus sensim breviter attenuata, apice ipso obtusa, basi late in petiolum angustata et \pm decurrentia, in sicco olivaceo-brunnea, subtus saepe pallidiiora, rigide chartacea, utrinque subnitida, costa utrinque laxissime adpresse rufo-pilosula excepta glabra, margine plerumque manifeste subserrato-dentata (dentibus obtusis glandula terminatis 1 mm altis et 5—7 mm distantibus), interdum in superiore laminae parte paucidentata, rarissime subintegra, 7—14(—16) cm longa, 3.5—5.5(—6.5) cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere 6—7 inter sese \pm distinete curvato-con junctis subtus parum prominentibus, venis venulisque utrinque sat dense reticulatis parum prominulis; petiolus initio pilosus, demum glabrescens, basi incrassatus, 3—6(—9) mm longus. *Racemi* axillares densiflori 7—10 cm longi, ad rhachidem et pedicellos sat dense breviter rufo-pilosoi. *Rhachis* sub anthesi gracilis, c. 0.6 mm diam. *Bracteae* ovato-acutae, 1 mm longae. *Pedicelli* saepe bini et connati, 1.5—2 mm longi, graciles. *Perianthium* flavidum vel virescens, laxe rufo-pilosum, 7—8 mm longum. *Antherae* 1.2 mm longae. *Glandulae hypogynae* subquadratae, liberae, approximatae. *Ovarium* rufo-tomentosum, stylo gracili glabro. *Fructus* immaturus ellipsoideus, apiculatus, verruculosus, laxe rufo-pilosus, 8 mm longus, 6 mm diam.

NEW GUINEA. Papua. Western Distr., Lake Daviumbu, Middle Fly River: Brass 7919 (A, typus; B), 7704. Tarara, Wassi Kussa River: Brass 8494, 8554. Merauke Distr., Tamarike, 15 m: Anta 229.

31. *H. ledermannii* Diels, Bot. Jahrb. 54, 1916, 204.

Frutex 1—1.5 m, cortice griseo. *Ramuli* graciles, ad innovationes fusco-ferrugineo-holosericei. *Folia* lanceolato-ovata vel oblongo-ovata, apice 2—3 cm longe subcaudato-acuminata, \pm falcata et subacuta, basi in petiolum attenuata vix decurrentia, firme chartacea, novella utrinque fusco-ferrugineo-holosericea, adulta in vivo dilute viridia, in sicco pallide olivaceo-virescentia, supra glabra et nitidula, subtus diutius per faciem sat dense, ad costam densius pilis longis sericeis fusco-ferrugineis obiecta, demum omnino glabrescentia, antice \pm irregulariter remote pauciserrata (dentibus prorsus versis c. 1 mm altis et 3—8 mm distantibus), basin versus integra, 8—13 cm longa, 3.5—5 cm lata, costa supra leviter, subtus magis prominente, nervis lateralibus utroque latere 6—8 curvato-erectis, praeter marginem obscure anastomosantibus, utrinque parum elevatis, venis venulisque utrinque dense reticulatis et prominulis; petiolus sat gracilis, 1—2 cm longus, initio rufo-tomentosus, denique glabrescens. *Racemi* ex axillis foliorum delapsorum orti, fere usque ad basin densiflori, graciles, c. 5 cm longi, ubique tomento rufo-ferrugineo adpresso obiecti. *Rhachis* 0.5 mm diam. *Bracteae* anguste lanceolatae, 1—1.5 mm longae. *Pedicelli* sub anthesi 1.5 mm longi, plerumque bini et fere usque ad apicem connati. *Perianthium* in vivo dilute purpurascens, c. 6 mm longum, tubo vix 0.5 mm diam., limbo 1 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* crassae, pulvinares, minutae, liberae, approximatae. *Ovarium* dense rufo-pilosum, stylo gracili glabro. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Sepik Distr., Etappenberg, 850 m: Ledermann 9128 (B, typus).

32. *H. arguta* Sleum., Bot. Jahrb. 70, 1939, 147.

Frutex c. 3.5 m altus, ramulis teretibus sat dense adpresse rufo-

pilosus, mox glabrat. *Folia* elliptico-oblonga, apice ± abrupte fere 2 cm longe acuminata, acuta, basi in petiolum angustata, subcoriacea, supra in siccō atroviridia vel nigrescenti-brunnea, subtus pallidiora, supra lucida, subtus opaca, initio utrinque ad costam rufo-ferrugineo-pilosa, in facie glabra, demum omnino glabrata, margine ± regulariter subargute serrata (dentibus manifeste prorsus versis, glandula terminatis itaque obtusiusculis, 4—8 mm distantibus et c. 1.5 mm altis), 7—9 cm longa, 3.5—4 cm lata, costa supra parum, subtus manifestius prominente, nervis lateralibus utroque latere 6—7 arcuato-ascendentibus, parum inter sese conjunctis, utrinque parum, sed distincte prominentibus, venis venuisque supra laxius, subtus densius prominulo-reticulatis; petiolus c. 0.5 cm longus. *Racemi* ex axillis foliorum delapsorum orti, gracillimi, sat dense fusco-pilos, 7—8.5 cm longi. *Rhachis* c. 0.6 mm diam. *Bractae* ovato-acuminatae c. 1 mm longae. *Pedicelli* plerumque bini et usque ad medium connati, tenues, fusco-pilos, 2 mm longi. *Perianthium* in vivo flavescens, c. 6 mm longum, laxe fusco-pilosum, vel antice ± glabrescens. *Antherae* 1.2 mm longae. *Glandulae hypogynae* subovato-oblongae, basi connatae. *Ovarium* ferrugineo-hirsutum, stylo glabro. *Fructus* ignotus.

NEW GUINEA. Papua. Centr. Distr., Boridi, c. 1200 m: *Carr 13436* (B, typus; BM, L, SING).

33. *H. serrata* (R. Br.) Bl., Ann. Sci. Nat. II, 1, 1834, 215; Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 84; Meisn. in DC., Prodr. 14, 1856, 441; Miq., Fl. Ind. Bat. I, 1, 1858, 987; K. & V., Bijdr. Booms. Java 5, 1900, 314 incl. var. *subintegra* K. & V. l. e. 315, 317; Koord., Exk. Fl. Java 2, 1912, 154; Koord.-Schum., Syst. Verz. 1913, fam. 66, p. 3, incl. var. *subintegra* Koord. & Val. p. 4; Merr., Rumph. Herb. Amboin. 1917, 205; Koord., Fl. Tjib. 1923, 47 incl. var. *subintegra* K. & V.; Bak. f., J. Bot. 63, 1925, Suppl. 89; Heyne, Nutt. Pl. 1927, 588; Ochse & Bakh. v. d. Br., Ind. Groent. 1931, 621, fig. 380; Baek., Bekn. Fl. Java em. ed. IV A, 1942, fam. 79, p. 4. — *H. serrata* (R. Br.) Bl. var. *petiolata* K. & V., Bull. Inst. Bot. Btzg 2, 1899, 10; Koord., Nat. Tijd. Ned. Ind. 60, 1901, 389. — *Roupala serrata* R. Br., Trans. Linn. Soc. 10, 1810, 192 (*Rhopala*); R. & S., Syst. Veg. 3, 1818, 429; Spreng., Syst. Veg. 1, 1825, 482; R. & S., Mant. 3, 1827, 285; R. Br., Prot. Nov. Holl. Suppl. 1830, 32; Roxb., Fl. Ind. ed. Carey 1, 1832, 365. — *H. curtisii* Gamble, Kew Bull. 1913, 116; J. As. Soc. Beng. 75, ii, 1914, 348; Ridl., Fl. Mal. Pen. 3, 1924, 142. — *H. scortechinii* Gamble, Kew Bull. 1913, 117; J. As. Soc. Beng. 75, ii, 1914, 348; Ridl., Fl. Mal. Pen. 3, 1924, 143. — *H. brachyantha* Merr., Pap. Mich. Acad. Sci. 24, 1939, 66.

Arbor vespertilionum Rumph., Herb. Amboin. 7, 1755, 17, excl. t. 10. var. *serrata*.

Arbor 10—30 m alta, trunco 30—100 cm diam., cortice griseo minute fissio. *Ramuli* in partibus novellis ± dense rufo-ferrugineo-sericei, ceterum cito glabrescentes, teretes. *Folia* oblonga vel elliptico-oblonga, rarius lanceolato-oblonga, apice sat breviter acuminata, acutiuscula vel obtusa, rarius subrotundata, basi attenuata et in petiolum subalatum basi incrassatum decurrentia, subcoriacea, firma, supra glabra et lucidula, in vivo intense viridia, in siccō flavido- vel fusco-olivacea, subtus pallidiora, in vivo opaca, in siccō saepe brunnescentia, initio subtus per totam faciem ± dense pilis

minutis adpressis puberula, postea ± glabrescentia, tarde omnino deglabrata, per totam marginem nunc aequaliter, nunc inaequaliter et distanter uncinato-serrata, rarius obsolete serrata vel integra (omnia in eadem arbore occur-
runt), (10—)12—20(—22) cm longa, (4—)5—8.5(—12) cm lata, costa supra
parum vel vix, subtus bene prominente, nervis lateralibus curvatis utroque
latere 8—10 margine ± obsolete anastomosantibus supra fere planis, subtus
prominulis, venis venuisque supra subinconspicuis, subtus laxe reticulatis
et parum prominulis; petiolus (1—)1.5—2 cm longus, initio rufo-sericeus,
serius glabrescens. *Racemi* et axillares et in axillis defoliatis, graciles,
fere usque ad basin densiflori, 9—15 cm longi, ubique ± dense rufo-sericeo-
tomentelli, rarius aetate glabrescentes. *Rhachis* c. 1 mm diam. *Bracteae*
ovato-acuminatae, minutae. *Pedicelli* graciles, plerumque bini et fere usque
ad medium connati, sub anthesi 2—3 (raro usque ad 4) mm longi. *Perian-*
thium in vivo albidum, demum flavescentia, olore mellis nauseabundo, 7—8
(raro usque ad 10) mm longum, tubo vix 1 mm diam., limbo c. 1.5 mm diam.
Antherae 1.5—2 mm longae. *Glandulae hypogynae* oblongae usque ovato-
oblongae, apice truncatae, subcrassae, liberae et ± segregatae. *Ovarium*
plerumque dense, raro laxe rufo-sericeum, stylo gracili glabro. *Fructus*
± late ellipsoideus, parum obliquus, utrinque breviter attenuatus, interdum
basi distinctius contractus, apice obtusus vel apiculatus, laevis, in vivo
sordide viridis, uno latere costa plerumque bene incrassata instructus,
(2.5—)3—4(—5) cm longus, 1.5—2(—2.5) cm diam., pericarpio 1—2 mm
crasso; pedicellus fructiferus 4—6 mm longus, 2 mm crassus.

SUMATRA. East coast. Asahan, near Lumban Ria: *Rahmah* 7655 (S; UC, *typus*
H. brachyantha, haud vidi), 7543, 7694, 8056, 7812. Near Aek Munte, NE of Tomuan
Dolok: *Rahmat Si Boeea* 9289. W. Coast. Pajacombo, Muaro Padang Si Baladung,
1300 m: NIFS bb. 6608.

MALAY PENINSULA. Penang. Penara Bukit, 450 m: *Curtis* 3020 (K, *typus* *H. curtisiae*; SING). Perak: *Scortechni* 467b (CAL, *holotypus* *H. scortechni*).

JAVA. Bantam. Nirmala, 1100 m: *Baeker* 11081, a glabrescent form. Tjiringin: *Koorders* 6252. Genteng, Kosala, c. 800 m: *Forbes* 508. Batavia. G. Salak: *Koorders* 24314, 24364, 33251. Preanger. Takoka: *Koorders* 6233, 6234, 6253, 11820, 12095,
15311, 25600, 25715, 32731, 32817, 37275, 39660. Foot of Mt Gedeh: *Ridley*. Gedeh:
Junghuhn. Pr. Tjampaka: *Zollinger* 1482. Puntjak, G. Limo, 1400 m: v. *Steenis* 5611.
Tjibodas, 1400—1600 m: *Bruggeman* 3434, *Koorders* 6237 (BO, *lecto-typus* var. *sub-*
integr.), 6238—42, 6255, 12596, 12616, 13007, 22216, 25924, 32177, 32187, 41765, 41824.
Bandung: *FRI Ja.* 2383. Pangentjongan: *Koorders* 6250, 26556; ibid., G. Galunggung:
Koorders 13973, 26537. Tegal. G. Slamat, 1400 m: *Koorders* 6268, 6269. Kedua.
G. Sendoro: *Koorders* 11337. Semarang. G. Telemojo: *Koorders* 6263, 6264, 7659.
Madiun. Ngobel: *Koorders* 6261, 29353, 29354. Besuki. Tjuramanis: *Koorders*
2103 (BO, *lecto-typus* var. *petiol.*), 20841, 21727, 21737.

BORNEO. Br. N. Borneo. Kinabatangan: *Br. N.B. For. Dep. (SAN)* A 4651.
Sandakan Distr.: *Br. N.B. For. Dep.* 2529. W. Borneo. Sungai Sambas: *Hallier*
1051. S. Borneo. Barito River: *Korthals*. SE. Borneo. W. Kutei, 800 m: *Endert*
3211; ibid., near Bikam Batu Beng, 80 m: *Endert* 2255. Peak of Baliapapan (G. Beratu),
700 m: *Kostermans* 7597. Karimata Isl.: *Teysmann* 11388.

MOLUCAS. Amboin. Nusalaut: *Chr. Smith* (BM, *typus* *H. serrat.*). Loco indicato: *Zippelius* ("*Helittophyllum parviflorum*", L.). — Not retraced on Amboin up to
the present.

The description of the fruit has been based exclusively on materials from Java. No fruits from specimens collected in Amboin seem to exist up to now, which could affirm the identity of both the Javanese and Amboinese gatherings, which are very similar in the characters of the leaves and flowers. The description of the fruit by Rumphius is too vague ("Fructus

magnitudinem lansiorum obtinent, sed superius obtuso apice constant") to allow a safe conclusion.

The fruits of *Kostermans* 7597 and *Teysmann* 11388 from Borneo respectively Karimata Isl. differ from the Javanese ones remarkably, being depressed-ovoid, smaller in size (2.5—3 cm) and blue-black when fresh, the pericarp apparently thinner, whilst the leaf-characters are more or less the same as observed in the Javanese and Amboinese material. It is possible, that these fruits from Borneo in the future render to be identical with those occurring on Ambon, and the true *H. serrata* then becomes restricted to Borneo and Ambon, and possibly is found in Celebes. What here is regarded as *H. serrata* from the Malay Peninsula, Sumatra and Java then would have to be named *H. curtisii*, which indeed is a glabrescent form, but has the same fruit as the Javanese plant. *H. scortechinii*, published by Gamble together with *H. curtisii* has the flowers in a very early bud stage, but the ovary with its scattered hairs and the characters of the leaf indicate clearly its identity with the Javanese *H. serrata*.

33a. var. *oreophila* Sleum. var. nov.

Arbor parva 3—8 m alta, corona densa. Folia magis coriacea, integra vel subintegra, elliptica vel ovato-elliptica. Inflorescentiae saepius glabrescentes. Ovarium laxe pilosum, rarissime glabrum.

SUMATRA. W. Coast. Ophir Distr. NW. slope G. Talamau, 2100 m: *Bünne-meyer* 915a.

JAVA. Preanger. G. Papandajan W., 2100 m: *Doct. v. Leeuwen* 13306 (BO, typus), among alang-alang in scrubs, fr. juv. V-30; *ibid.*, boven Tjileutleug, 2000 m: *v. Steenis* 6777, subalpine brushwood; *ibid.*, Tegal Paku, 2100 m: *v. Steenis* 6801; *ibid.*, G. Saroni, c. 2500 m: *v. Steenis* 4125; *ibid.*, above Pondok, c. 2650 m: *c. Steenis* 11668. G. Galunggung, forest on summit, 2229 m: *Koorders* 8061, 10259. Kediri. Ngandjuk, Ngliman, 0220 m: *FRI Ja.* 3596. Madiun. G. Lawu, SE. slope, 2000—2300 m: *Elbert* 282; *ibid.*, edge of rain-forest, 2300 m: *Dorgelo* 2049, *Coert* 1000, 1035.

34. *H. excelsa* (Roxb.) Bl., Ann. Sc. Nat. II, 1, 1834, 219: Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 84 incl. var. α & β ; Meisn. in DC., Prodr. 14, 1856, 441 incl. var. *edentata* Meisn. l.c.; Miq., Fl. Ind. Bat. I, 1, 1858, 987; Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 191; Ridl., J. Str. Br. R. As. Soc. 33, 1900, 132; Agr. Bull. Str. and F. M. S. 1, 1902, 248; Lec., Not. Syst. 1, 1909, 191; Ridl., J. Str. Br. R. As. Soc. 59, 1911, 163; Lec., Fl. Gén. I.C. 5, 1914, 162, fig. 14(5); Gamble, J. As. Soc. Beng. 75, ii, 1914, 346 incl. var. *salicifolia* (Presl) Gamble, var. *forbesii* Gamble p. 347; Ridl., J. Fed. Mal. Stat. Mus. 10 (1920) 113; Merr., J. Str. Br. Roy. As. Soc. 85, 1922, 168; Parkins., Flor. Fl. Andam. Isl. 1923, 228; Ridl., Fl. Mal. Pen. 3, 1924, 143 incl. var.; Bak. f., J. Bot. 63, 1925, Suppl. 89; Burk. & Henders., Gard. Bull. Str. S. 3, 1925, 417; Burk., Diet. 1935, 1133; Kanj., Kanj., De & Das, Fl. Assam 4, 1940, 107; Suesseng. in Heine, Fedde Rep. 54, 1951, 226 pr. p.: — *Roupala excelsa* Roxb., Hort. Beng. 1814, 83, nom. nud.; Fl. Ind. 1, 1820, 363 (*Rhopala*); l. c. ed. Carey 1, 1832, 365 (Wallich Cat. 1038); Spreng., Syst. Veg. 1, 1925, 482; R. & S., Mant. 3, 1827, 285; Wight, Ic. 1839, t. 190. — *H. salicifolia* Presl, Epim. 1851, 247; Walp., Ann. 3, 1852/53, 333; Meisn. in DC., Prodr. 14, 1856, 439; Miq., Fl. Ind. Bat. I, 1, 1858, 985; Kurz, For. Fl. Burma 2, 1877, 312. — *Alseodaphne crassipes* Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 146; Ridl., Fl. Mal. Pen. 3, 1924, 100, cf. Symington, Kew Bull. 1937, 319. — *H. ob lanceolata* Merr., Pap. Mich. Acad. Sci. 24, 1939, 67.

Arbor mediocris vel alta, 15—28 m' alta, trunco 30—50 cm diam. saepius torquato, cortice brunnescens vel griseo, scabro, verruculoso. *Innovationes* vel ramuli recentissimi ferrugineo-tomentosi cito glabri, hornotini iam glabri et cito brunneo- vel griseo-corticati. *Folia* ± anguste oblonga vel oblanceolata vel obovato-oblonga, apice breviter ± abrupte subacute vel obtuse acuminata, basi in petiolum cuneata paulloqué decurrentia, plerumque suboriacea usque chartacea, rarius coriacea, novella utrinque ferrugineo-velutina, maturitate citissime glabrescentia et omnino glabra, in vivo laete viridia, in sicco flavidio-viridia, supra plerumque manifeste, subtus minus distincte nitida, integra vel antice sat grosse et obtuse pauciserrata, (8—) 10—15 (raro usque ad 24) cm longa, (3—)3.5—5 (raro usque ad 8) cm lata, costa supra parum, subtus manifestius prominente, nervis lateralibus utroque latere (6—)7—8 (interdum usque ad 10) in inferiore parte rectiusculis, marginem versus curvatis et inter sese conjunctis, supra subtusque parum prominentibus, venis venulisque utrinque rete laetum sat densum et bene prominulum formantibus; petiolus glaber, 0.6—1(—1.5) cm longus. *Racemi* ex axillis summis orti, interdum subterminales, solitarii vel 2—3, sat gracieles, erecti, fere ad basin densiflori, plerumque (certe initio) ± dense ferrugineo-tomentosi, interdum ± glabrescentes, rarius fere glabri, (5—)7—12(—15) cm longi. *Rhachis* 1—1.5 mm diam. *Bracteae* ovato-lanceolatae, sat tenues, 2—3 mm longae, saepius pedicellos longit. aequantes, sicut bracteolae minutae ± persistentes. *Pedicelli* subgracieles, sub plena anthesi 2—3 (rarius usque ad 4) mm longi, saepius gemini, subliberi vel plerumque usque ad medium connati. *Perianthium* gracile, in vivo flavovirens, fragrans, ± dense ferrugineo-pilosum usque -tomentosum, rarius ± glabrescens, sed certe passim pilosulum, (6—)7—8 mm longum, tubo 0.5 mm diam., limbo 1 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* subrotundatae liberae. *Ovarium* rufescenti-villosum, stylo gracili glabro. *Fructus* ellipsoideus vel oblique ovoideus, obtusus, laevis, glaber, caeruleo-nigreseens, 1—1.2(—1.5) cm longus, 0.8—1.2 cm diam., pedicello 7—8 mm longo, pericarpio 0.8—1 mm crasso.

INDIA. E. Bengal. Chittagong: *Roxburgh* (BM, *typus H. excels.*); ibid.: *Hooker f. & Thomson, Kunstler* 32, 221, 245, 267, 269, 400, 612, *Cowan* 2268, 2391. Calcutta: *Helfer* 50, 99, 224. Assam. Khasia, 900—1500 m: *Hooker f. & Thomson*. N. C. Hills, e. 1500 m, cit. Kanjilal etc. p. 107.

BURMA. Lower Burma. Insein Distr.: *Khant* 66. Martaban coast: *Wallich* 1038 (B, BM, K; NY, *typus fragm. H. excels.* var. *edentat.*). Mergui: *Griffith*. Tenasserim: *Helfer* 4366 (B; PR, *typus H. salicifol.*, haud vidi), *Packman*. Tavoy, Tenasserim circle: *Manson* 31.

ANDAMANS. Port Blair: *Kunstler* 82, 479. Mt. Harriett: *Kunstler*. Hopetown: *Parkinson* 818. Bumlitan: *Kunstler*.

NEOBARS. Car; *Kunstler*.

INDOCHINA. Cambodge. Phnom Penh, Lout Chom: *Béjard* 839, Sélamphao: *Harmand* 184 pr. p. Cochinchina. Ile Phu-quoc: *Pierre* 1441. Mts Dinh, près Baria: *Pierre* 2855. Laos. Mékong à Ouban: *Thorel* 2793. Bassin du Sémorn: *Harmand* 184 pr. p.

SIAM. Chantaburi, Krat: *Kerr* 17911. Mamo Namehok: *For. Dep. F. M. S.* 3762. Surat, Chimpawn: *Kerr* 16251. Puket, Trang: *Vanpruk* 815; Satul: *Ridley* 15105. W. coast and Isl., Mamoh: B. *Kloss* 6719.

MALAY PENINSULA. Kedah. P. Langkawi: *Batten Pooll* K 2. S. Batu: *Ridley* 15537. S. Lugong: *Kiah SF* 55088. For. Res. Padang Terop: *Wyatt-Smith KEP* 71158. Perak. Goping: *Kunstler* 691, 5928, 6096, 6100, 10836. Simpang: *Wray* 2310, cit. Gamble, haud vidi. G. Haram Parah: *Scortechini* 687, cit. Gamble, haud vidi. Larut:

Kunstler 3392. *Selangor.* S. Buloh Res.: *For. Dep. F.M.S.* 13920. *Malacea:* *Maingay* 1261 (K, *typus Alsod. crassip.*), *Maingay Kew Distr.* 1310 (S138). S. Udang: *Derry* 456, 530, 1202, *Goodenough* 1388, 1760. *Singapore:* *Bidley* 6428, *Goodenough* 2759, *Sinclair SF* 40049; *ibid.*, *Bukit Timah:* *Langlassé* 196.

SUMATRA. *Tapanuli.* Lumban Lobu, Toba: *Bahmat Si Boeea* 9798 (A, *typus H. oblancoel.*). W. Coast. Sawahlunto: *Bossaha*. E. Coast. Bandar baru, 1100 m: *Lörzing* 4606. *Palembang.* S. Muara Mengkulem, 150 m: *Forbes* 3097a (A; BM, *typus H. excels.* var. *forbesii* ("3047a, 3079a")); FI, L, P). Banjuasin, 15—20 m: *Thorenaar* P 86, *Grashoff* 718, 912. *Lampung.* Talangbatu, 30 m: *Idenburg* 45. *Simalur:* *Achmad* 936, 962, 1090, 1192, 1555. *Riouw.* Tandjungpinang: *Teysmann*. *Banka:* *Teysmann*. *Billiton:* *Teysmann*.

BORNEO. Br. N. *Borneo.* Mt Kinabalu, Gurulau ridge, 1000 m: *J. & M. Clemens* 50759; *ibid.*, Tenompok, c. 1500 m: *J. & M. Clemens* 26172, 28130, 28292, *Carr SF* 27885. Sandakan: *Ramos* 1653, *Br. N.B. For. Dep.* 10345. Bettutan: *B. Kloss SF* 18979, *Br. N.B. For. Dep.* 4586. Tawao: *Elmer* 21946. Sarawak. Marop: *Beccari* 3216. C. & S.E. *Borneo:* *Teysmann* 11530. G. Kenepai: *Hallier* 1677. G. Klam: *Hallier* 2385. W. Kutei: *NIFS bb.* 15623. Sampit: *NIFS bb.* 7917.

35. *H. peltata* White, J. Arn. Arb. 10, 1929, 210.

Arbor 18—24 m, cortice dilute brunneo. *Ramuli* saturate rufo-tomentosi. *Folia* ovata vel elliptico-ovata vel elliptica, 1 cm supra basin rotundatam peltata, apice late obtuse et c. 1—2 cm longe acuminata, ± coriacea, in sicco intense olivacea usque nigrescenti-brunnea, novella utrinque ± dense rufo-pilosa vel -tomentosa, matura supra costa nervisque pubescentibus exceptis glabra et nitentia, subtus imprimis ad costam et nervos dense rufo-pilosa usque -tomentosa, integra vel undulata, (10—)12—24(—34) cm longa, 6—12(—17) cm lata, costa utrinque prominente, nervis lateralibus utroque latere 12—18, subrectis, interque sese ± parallelis, prope marginem curvatis et parum distincte conjunctis, supra fere planis, subtus prominentibus, venis laxe reticulatis subtus tantum prominulis, venulis subinconspicuis; petiolus rufo-tomentosus, 3—4 cm longus, c. 3 mm crassus. *Racemi* e ligno vetere prodeentes, densiflori, 12—22 cm longi, ad rhachidem 2 mm crassam et ad pedicellos rufo-tomentosos. *Bracteae* ovato-acutae, minutae. *Pedicelli* crassiusculi, gemini, liberi vel usque ad medium connati, 3—5 mm longi. *Perianthium* in vivo flavescens, 2.5 cm longum, subdense rufo-pilosum, basi inflatum (2.5 mm diam.), in tubo medio 1 mm tantum diam., limbo dilatato 2.5 mm diam. *Antherae* 3 mm longae. *Glandulae hypogynae carnosae*, truncatae, 1 mm altae, liberae, approximatae itaque cupulam aemulantes. *Ovarium* ovoideum, stylo gracili. *Fructus* ignotus.

NEW GUINEA. *Papua.* Centr. Distr., Bisiatabu, 450 m: *Brass* 574 (A, B; BRI, *typus*; K; P).

36. *H. cameronii* F. v. M., Trans. Roy. Soc. Vict. N. S. I, 2, 1889, 7; Lauterb., Bot. Jahrb. 50, 1913, 330, fig. 1.

Arbuscula, ut videtur. *Ramuli* novelli pilis crispulis ferrugineis demum griseis tomentosi, in partibus florigeris iam glabri. *Folia* elliptica vel oblongo-elliptica, apice breviter subobtuse acuminata, basi cuneata, subsesilia vel usque ad 2 mm petiolata, juniora utrinque imprimis subtus ad costam adpresso rufo-pilosa, cito omnino glabra, subcoriacea, in sicco olivaceo-flavescens, opaca, integra vel hic inde breviter dentata, subcoriacea, margine paulo recurvata, 1.8—2.4 cm longa, 0.8—1.2 cm lata, costa supra leviter impressa, subtus prominente, nervis lateralibus utroque latere c. 5 inferne subrectis, marginem versus curvato-conjunctis, supra levissime immersis, subtus prominulis, venis venuisque parum conspicuis. *Racemi* solitarii e

ramulis defoliatis orti, 5—6.5 cm longi, fere usque ad basin densiflori. *Rhachis* sicut pedicelli laxe usque laxissime adpresso rufescens-pilosa, c. 1.5 mm diam. *Bracteae* lanceolatae minutissimae, caducae. *Pedicelli* crassiusculi plerumque bini, basi connati, 4—6 mm longi. *Perianthium* c. 3 mm longum, pilis solitariis ad basin obviis exceptis glabrum, tubo c. 0.7 mm diam., limbo sensim clavato 4 mm longo, 1.8 mm diam. *Antherae* c. 4 mm longae. *Glandulae hypogynae* ovatae, liberae, approximatae, vel basi tantum connatae. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. Papua. Centr. Distr., Mt Knutsford: *McGregor* anno 1889 (B, K; MEL, *typus*).

37 H. microphylla Diels. Bot. Jahrb. 54, 1916, 201.

Arbor vel arbuseula, dense ramosa. *Ramuli* novelli ferrugineo-tomentosi, vetustiores teretiuseculi, glabrescentes. *Folia* ovata usque oblongo-ovata, apice breviter obtuse acuminata, basi attenuata, coriacea, novella utrinque ferrugineo-tomentosa, citissime glabrescentia, juniora subtus tantum dense pilis crispulis obsita, adulta utrinque glabra, in secco dilute brunnescens, supra nitentia, subtus opaca, integra, 1.5—3 cm longa, 1—1.6 cm lata, costa supra per totam longitudinem leviter impressa, subtus prominente, nervis lateraliibus utroque latere 4—5(—6) a costa angulo subrecto abeuntibus, rectiuseculis, marginem versus inter sese curvato-conjunctis, cum venis venuisque dense reticulatis supra parum sed distincte impressis, subtus prominulis; petiolus gracilis, diutius tomentellus demum glabrescens, 3—5(—7) mm longus. *Racemi* axillares solitarii, stricti, subgraciles fere usque ad basin ± densiflori, 4—7 cm longi, ubique ferrugineo-tomentosi. *Rhachis* 1 mm diam. *Bracteae* ovato-acuminatae, vix 1 mm longae, pilis crispulis fere occultae. *Pedicelli* graciles, plerumque bini, basi paullo connati, 4—5 mm longi. *Perianthium* in vivo flavum, c. 14—17 mm longum, tubo 1 mm diam., limbo clavato 1.5 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae* ovatae, tenues, apice manifeste longeque rufo-pilosae vel -ciliatae, approximatae, marginibus sese tegentes. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Madang Distr., Bismarck Mts, 2400 m: *Schlechter* 18715 (B, *typus*; P).

38. H. elephanti Sleum. sp. nov.

Arbor 4—5 m, glaberrima, cortice tenui brunneo. *Ramuli* petiolis decurrentibus breviter alati, subquadrangulares. *Folia* lanceolata, apice late attenuata vel subacuminata, subacuta vel obtusa, interdum rotundata, glandula instructa, basi late cuneata et in petiolum brevissimum decurrentia, valde coriacea, in secco supra sordide olivaceo-vel flavidо-atrescentia, nitida, subtus brunnea et opaca, integra, 9—20 cm longa, (2—)2.5—4 cm lata, costa valida utrinque valde prominente, nervis lateralibus utroque latere 7—12 rectiuseculis, praeter marginem arcte curvato-conjunctis et quasi in nervum intramarginalem collectis, supra parum vel vix elevatis, subtus distinctioribus, venis utrinque parum prominulis laxeque reticulatis, venuis subobscuris; petiolus 2—3 mm longus et crassus, rugosulus. *Racemi* axillares laxiflori, 14—20 cm longi, omnino glabri. *Rhachis* varie angulata 2 mm diam. *Bracteae* deltoideae acutae vix 1 mm longae. *Pedicelli* crassiusculi, 6—7 mm longi, plerumque bini, in 1/2 long. connati. *Perianthium* haud visum. *Glandulae hypogynae* ovatae, truncatae, liberae, approximatae, primo cupulam aemu-

lantes, demum divergentes. *Ovarium* glabrum, anguste ovoideum, basi attenuatum, stylo c. 19 mm longo. *Fructus* ignotus.

INDOCHINA. Cambodge. Mont de l'Eléphant, 1000 m, sol argileux: *Poilane* 321 (P, *typus*), defl. 11-VIII-19; *ibid.*, nouvelle route à la Cascade, 800 m: *Poilane* 23166, forêt, fr. juv. 5-XII-33.

39. *H. pterygota* Sleum. sp. nov. — *H. erratica* (non Hook. f.) Stapf, Trans. Linn. Soc. Bot. 4, 1894, 220; Merr., En. Botn. Pl. 1921, 235.

Frutex 1.5—2 m, vel arbor parva 3—7 m alta, glabra. *Ramuli* graciles dilute brunnei. *Folia* lanceolata vel oblongo-lanceolata, apice acute acuminate, basi in petiolum acute attenuata et paullo decurrentia, chartacea usque subcoricea, in sicco olivaceo-viridia vel pallide flavescenti-viridia, glabra, supra subtusque nitidula, integra vel plerumque antice pauceserrata (dentibus subsinuatis prorsus versis glandula terminali obtusatis 1—2 m altis, plerumque valde remotis), (7—)8—11(—14, rarissime usque ad 17) cm longa, 2—3.5(—5) cm lata, costa supra parum, subtus valde prominente, nervis lateralibus utroque latere 8—9 inferne saepius rectiusculis, superne curvatis et ± distincte inter sese anastomosantibus, utrinque parum prominentibus, venis venulisque sat dense reticulatis utrinque prominulis; petiolus gracilis, 1—1.5 cm longus, basi parum incrassatus. *Racemi* axillares vel subterminales, graciles, fere usque ad basin sat laxiflori, 7—12 cm longi, omnino glabri. *Rhachis* angulata 0.5—1 mm diam. *Bracteae* ovato-acuminatae, acutae, membranaceae, viridescentes, c. 1 mm longae. *Pedicelli* subgraciles, in utroque latere manifeste viridescenti-membranaceo-alati, plerumque bini et $\frac{1}{3}$ — $\frac{1}{2}$ long. connati, sub anthesi 4—5(—6) mm longi. *Perianthium* in vivo flavidо-albescens vel pallide flavescenti-virescens, interdum colore lavandulae tinctum vel citrinum, gracillum, 11—12 mm longum, tubo 0.4—0.5 mm diam., limbo elongato-ellipsoideo subacuto 1 mm diam. *Antherae* 1.6 mm longae. *Glandulae hypogynae* ovato-oblungaе, truncatae, ± retusae, liberae, approximatae. *Ovarium* glabrum, stylo filiformi. *Fructus* adhuc incognitus.

BORNEO. Br. N. Borneo. Mt Kinabalu, Tenompok jungle, c. 1500 m: J. & M. Clemens 28070 (A, BM, BO, K; L, *typus*; NY), fl. 27-I-32, 29874. Tenompok ridge, c. 1200 m: J. & M. Clemens 27536. Tenompok-Dallas path, c. 1280 m: Carr SF 27146. Dallas, c. 900 m: J. & M. Clemens 30080. Upper Kinunut valley, c. 1200 m: Carr SF 27155. Penataran River basin, c. 1200 m: J. & M. Clemens 32607. Mt Nunkok, 900—1200 m: J. & M. Clemens 32711, 35111. Above Kinataki River: J. & M. Clemens 50417. Mt Kinabalu, loco speciali haud ind.: Haviland 1197 ("H. erratica" ap. Stapf), Haslam.

40. *H. shweliensis* W. W. Smith, Not. Bot. Gard. Edinb. 10, 1918, 180.

Frutex vel arbor parva 5—10 m alta. *Ramuli* novelli laxissime adpresso rufescents-pilosuli, mox omnino glabrescentes, in sicco flavidо-viridescentes, vetustiores subteretes nigricantes. *Folia* obovato-oblonga vel oblonga rarius oblanceolata, apice breviter sat abrupte acuminata, acutiuscula, basi in petiolum attenuata, in superiore petioli parte decurrentia, novella papyracea, matura chartacea usque subcoriacea, in sicco flavidо-virescentia, utrinque ± opaca, glaberrima, sat regulariter et praesertim antice serrata (dentibus prorsus versis, glandula crassiuscula terminatis, 0.5 mm altis, 4—8(—10) mm distantibus), (6—)7—10(—13) cm longa, 2.5—3.5(—4, rarius usque ad 5) cm lata, costa supra parum, subtus manifeste prominente, nervis lateralibus utroque latere 6—8 inferne rectiusculis vel leviter curvatis, inter sese ± parallelis, ante marginem distinctius curvatis et anastomosantibus, nervis

aliis intercalaribus brevioribus intermixtis, omnibus utrinque parum eminentibus, venis venuisque supra subobscurus vel in foliis maturis levissime impressis, subtus sat dense reticulatis minuteque elevatis; petiolus 2—5(—7) mm longus, paulo applanatus, basi incrassatus et rugulosus. *Racemi* axillares vel plerumque ex axillis defoliatis orti, undique floriferi, ascendententes, 8—12 cm longi. *Rhachis* parum angulata, ad basin infimam rufo-tomentosula ceterum sicut pedicelli glabra, ± 2 mm diam. *Bracteae* conspicuae, foliaceae, lanceolatae usque lanceolato-oblongae, ± obtusae, glabrae, virides, ad flores inferiores maiores, versus flores superiores decrescentes, 5—10 (rarius usque ad 20) mm longae, 1.5—3 (rarius usque ad 5) mm latae, acutiusculae, demum caducae; bracteolae lanceolatae 2 mm longae, 0.5 mm latae. *Pedicelli* 3—4 mm longi, crassiusculi. *Perianthium* 11—13 mm longum, in vivo viridi-aurantiacum vel flavidum, fragrans, glabrum, tubo 0.8 mm diam., limbo breviter clavato c. 3 mm longo, 1.5 mm diam. *Antherae* c. 3 mm longae. *Glandulae hypogynae* rotundae, liberae. *Ovarium* glabrum. *Fructus* juvenilis obovoides vel subglobosus, verruculosus, sulcatus.

CHINA. Yunnan. Shweli (Lung Chiang) valley, lat. 25° N, c. 1800 m: *Forrest 7852* (A; E, *typus*; K); ibid., c. 2100 m: *Forrest 9455*. Between Shweli and Tengyueh valleys, c. 2130 m: *Forrest 8766*. Shweli-Salween divide, 25° 30': *Forrest 17639*; ibid., 25° 40'—26° 40': *Forrest 24354*. Mid. W. Yunnan: *Forrest 26107*.

41. *H. microcarpa* Sleum. sp. nov.

Arbor parva, ramulis subteretibus sat gracilibus, novellis saturate rufo-tomentosis, vetustioribus glabrescentibus demum cinerascentibus. *Folia* elliptica, apice late breviter subabrupte acuminata, subacuminata vel obtusiuscula, basi late attenuata usque subrotundata, paulo inaequilateralia, subcoriacea vel rigide chartacea, in secco virescenti-flavescentia, supra subtusque opaca, matura supra glabra, subtus in facie passim, ad costam et nervos densius pilis ± crispulis rufo-ferrugineis induita, integra, 4—6.5 cm longa, 2—3 cm lata, costa supra fere plana, subtus valde prominente, nervis lateralibus utroque latere c. 6 subarcuatis ante marginem curvato-conjunctis supra fere obscuris, subtus prominulis, venis venuisque supra inconspicuis vel levissime impressis, subtus dense prominulo-reticulatis; petiolus sat gracilis, 7—10 mm longus, diutius rufo-tomentosus. *Racemi* ex axillis summis orti, solitarii, ascendententes, rigidiusculi, pedunculo 1—2 em longo incl. 7—11 cm longi, ubique pilis densissimis ± patentibus saturate ferrugineis tomentosi. *Rhachis* 1—1.5 mm diam. *Bracteae* lanceolatae c. 1.5 mm longae. *Pedicelli* crassiusculi, plerumque bini, basi vel usque ad medium connati, sub anthesi 3 mm longi. *Perianthium* in vivo brunnescens, nondum plane evolutum 11 mm, sub anthesi probabiliter c. 18 mm longum, tubo 0.8 mm diam., limbo clavato 1.5 mm diam. *Antherae* 1.7 mm longae. *Glandulae hypogynae* ovato-oblongae, liberae, distantes. *Ovarium* glabrum. *Fructus* nondum matus subgloboso-ellipsoideus, stylo 18—19 mm longo gracillimo coronatus.

NEW GUINEA. Papua. West. Highl., Waghi-Jimmi div.; *Womersley 5319* (K; L, *typus*; LAE).

42. *H. grandis* Hemsl., Hook. Ic. Pl. 27, 1900, t. 2631.

Frutex vel arbor parva, 3—8 m alta, trunco usque ad 20 cm diam. *Ramuli* crassi teretes, diutius tomento rufo velutini, tarde glabratii, brunnescenti-cinerascenti-corticati, longitudinaliter striati. *Folia* ampla, ad apices

ramulorum conferta, saepius subopposita, oblanceolata vel oblongo-obovata, apice breviter acuminata, ± acuta, basin versus longe cuneata, basi ipsa rotundato-obtusa, subsessilia vel pro rat. longit. laminae brevissime petiolata, subcordacea, in sicco supra atrescenti-viridia, subnitida, subtus brunnea et opaca, dense ± irregulariter serrata (dentibus glandula terminatis argutis prorsus versis 1—2, rarius usque ad 8 mm distantibus), initio ± dense longe adpresso pilosa, maturitate costa diutius tomentosa excepta glabrescentia, demum omnino glabra, subtus ad costam et nervos dense, per faciem laxe persistenter atrescenti-rufo-tomentosa vel -tomentosula, (16—)20—30(—35) cm longa, (5—)6—10(—12) cm lata, supra medium latissima, costa crassa utrinque elevata, nervis lateralibus numerosis (20 vel pluribus) a costa rectiuscula abeuntibus interque sese ± parallelis, marginem versus curvatis et obsolete anastomosantibus, aliis brevioribus intermixtis pluribus, omnibus supra parum, subtus manifeste prominentibus, venis venuisque utrinque aequaliter dense prominulo-reticulatis. *Racemi* e nodis defoliatis solitarii, pedunculo c. 2 cm longo incl. 20—30 cm longi, densiflori, aseen-dentes, ubique pilis ± patentibus densissimis rufo-tomentosi. *Rhachis* 2.5—3.5 mm crassa. *Bracteae* anguste ovato-acuminatae, fere subulatae, 2 mm longae. *Pedicelli* plerumque bini, sub plena anthesi 3—4 mm longi, basi tantum connati. *Perianthium* in vivo dilute brunneum vel rubescens, bene evolutum 22—26 mm longum, tubo gracili in medio 0.7 mm diam., limbo ellipsoideo acutiusculo 2 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae* crenulatae, in cupulam connatae. *Ovarium* glabrum. *Fructus* in vivo purpurascenti-vividis, subglobosus vel lateraliter compressus, glaber, tarde dehiscens, usque ad 5 cm diam., saepius monospermus.

CHINA. Yunnan. Mts to the SW of Mengtze, c. 1500 m: Henry 10704 (A; K, typus; NY). Ping Pien Hsien, 1350 m: Tsai 55092, 55309, 62264. Ma Kwan Hsien 1800 m: Tsai 51914. Tsing-pien, 1800 m: Tsai 52441.

INDOCHINA. Tonkin. Entre Tsinh Ho et Chinh Nua, prov. de Lai Chau, 1200—1300 m: Poilane 25694.

43. *H. maxwelliana* Gibbs. J. Linn. Soc. Bot. 42, 1914, 131; Merr., En. Bot. Pl. 1921, 235.

Arbor parva c. 3 m alta. *Ramuli* crassiusculi, novelli subangulati laxe-que pilis minutis adpressis rufescentibus adspersi, annotini teretes glabri, in sicco saturate brunnei, demum griseo-corticati, cortice fissuris longitudinalibus numerosissimis instructo. *Folia* late elliptico- vel obovato-oblonga, apice late attenuata, valde obtusa usque rotundata, glandula crassa in sicco nigrescenti terminata, basi rotundata vel plerumque cordata fere auriculata, subsessilia, crasse coriacea, in sicco olivacea usque intense castanea, supra ± nitida, subtus opaca, integra vel hic inde denticulo brevissimo glanduloso crasso obsita, glabra, 15—23 cm longa, (7—)8—11 cm lata, margine parum revoluta, costa supra parum elevata, subtus maxime incrassata, nervis lateralibus utroque latere (8—)9—10 rectiusculis, marginem versus bipartitis vel in venas dissolutis interque sese curvato-conjunctis, aliis brevioribus vel minus distinctis a costa irregulariter abeuntibus intermixtis, omnibus utrinque laete prominentibus, venis venuisque sat densis prominulo-reticulatis; petiolus basi c. 4 mm crassus, 3—5 mm longus, rugosulus. *Racemi axillares* vel e ramis vetustioribus orti, vel caulinii, solitarii, c. 10—14 cm longi, in rhachide et pedicellis sat dense, in perianthiis laxe adpresso rufes-

centi-pilosi, densiflori. *Rhachis* teres, c. 2 mm diam. *Bracteae* ovato-acuminatae, 1—1.5 mm longae, pilosae. *Pedicelli* crassiusculi 3—4(—5) mm longi, plerumque bini vel quaterni, liberi vel basi tantum connati. *Perianthium* in vivo albidum, fragrans, c. 12—13 mm longum, tubo 0.5—0.6 mm diam., limbo clavato 1.5 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* ovatae, basi connatae. *Ovarium* glabrum. *Fructus* immaturus oblique subglobosus, basi vix contractus.

BORNEO. Br. N. Borneo. Mt Kinabalu, Marai Parai spur, 1500—1800 m: Gibbs 3137 (BM, *typus*); ibid.: J. & M. Clemens 11082, 31898.

A sterile specimen, very similar in leaf-characters, perhaps conspecific:

MALAY PENINSULA. Trengganu. G. Padang S, c. 1200 m: Moysey & Kiah SF 33362.

44. *H. olivacea* Sleum., Bot. Jahrb. 70, 1939, 136.

Arbor gracilis c. 16 m alta. *Ramuli* graciles, juniores rubescens-brunnei, glabri, vetustiores griseo-corticati. *Folia* oblonga, apice c. 1 mm longe acuminata, obtusa, basi in petiolum attenuata et ± decurrentia, paulo inaequilateralia, chartacea usque subcoriacea, in seco supra olivaceo-viridia, subtus brunnescentia, utrinque opaca, glabra, integra vel valde remote subdenticulata, 11—14 cm longa, 4—5.5 cm lata, costa utrinque sat distincte prominente, nervis lateralibus utroque latere 8—10(—12) inferne rectiusculis et inter sese ± parallelis, ante marginem demum curvato-conjunctis, aliis intercalaribus brevioribus pluribus, omnibus utrinque parum, sed visibiliter prominulis, venis venulisque utrinque subdense prominulo-reticulatis; petiolus 3—5 mm longus, basi incrassatus et rugosus. *Racemi* ex axillis superioribus defoliatis orti, densiflori, c. 11 cm longi, ad rhachidem et pedicellos laxe, ad perianthia laxissime adpresso fusco-pilosae. *Rhachis* subgracilis, c. 1 mm diam. *Bracteae* ovato-acutae, minutae. *Pedicelli* 1.5—2 mm longi, plerumque bini basique connati. *Perianthium* in vivo flavescent, 5(—6) mm longum, tubo 0.4 mm diam., limbo late ellipsoideo 1 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* late oblongae, retusae, liberae vel ad basin tantum connatae. *Ovarium* glabrum. *Fructus* ellipsoideus vel subglobosus, c. 3.5 cm longus, laevis, in seco castaneus, punctis pallidioribus laxe adspersus, pericarpio subduro 4 mm crasso.

NEW GUINEA. N.E. New Guinea. Morobe Distr., Quembung Mission (Sattelberg), c. 600 m: Clemens (B, *typus*).

45. *H. commutata* Sleum., Bot. Jahrb. 70, 1939, 137.

Arbor, ut videtur, parva. *Ramuli* teretes glabri, rubescens-brunnei, laxe lenticellis rotundis pallidioribus instructi. *Folia* lanceolato-oblonga, apicem versus sensim longe angustata, ± acuta, basi breviter in petiolum cuneata et decurrentia, chartacea, in seco brunnea, subnitida, integra vel obscure valde remote denticulata, glabra, 15—22 cm longa, 4—6 cm lata, costa utrinque prominente, nervis lateralibus utroque latere 16—20 rectiusculis et inter sese subparallelis ante marginem ± distincte curvato-conjunctis, aliis brevioribus pluribus intermixtis, omnibus utrinque prominulis, venis venulisque utrinque dense reticulatis minuteque sed bene visibiliter prominulis; petiolus c. 1 cm longus, incrassatus, ad 3—5 mm supra basin haud alatus. *Racemi* ex axillis summis orti, graciles, rectiusculi, subdensiflori, 9—15 cm longi. *Rhachis* subteres, c. 1 mm diam., sicut pedicelli glabra vel sparse pilis adpressis fuseis induita. *Bracteae* minutae, cito

caducae. *Pedicelli* graciles, plerumque bini et basi connati, 2(—3) mm longi. *Perianthium* gracile, glabrum, c. 9 mm longum, tubo 0.5 mm diam., limbo elongato-ellipsoideo c. 1 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* subquadratae, liberae vel basi connatae. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Madang Distr., West. Highlands, Bismarck Mts, c. 1100 m: Schlechter 18547 (B, *typus*; P).

Similar, perhaps conspecific:

NEW GUINEA. N.E. New Guinea. Morobe Distr., Sattelberg-Junzaing, 800—1500 m: Mayr 757 (B, t).

46. *H. odorata* Diels, Bot. Jahrb. 54, 1916, 201.

Arbor 5—15(—20) m alta, trunco fusco-corticato. *Ramuli* subteretes, in sicco brunnei, omnino glabri, in partibus vetustioribus cortice nigrescenti transverse et longitudinaliter fisso obtecti. *Folio* obovato-elliptica rarius obovata, apice breviter sat abrupte obtuseque acuminata, basi in petiolum attenuata plerumque fere ad petioli basin decurrentia, subcoriacea, in sicco supra saturate cinerascenti-brunnescentia, nitentia, subtus brunnea pallidiora, novella laxissime adpresso pilosula, cito omnino glabra, integra, (4—)5—8 cm longa, (2—)2.5—3.5 cm lata, costa supra subtusque aequaliter prominente, nervis lateralibus utroque latere 4—5(—6) inferne rectiusculis, superne curvatis obscureque anastomosantibus, supra minute vel haud, subtus parum elevatis, venis venulisque utrinque densissime subtiliter prominulo-reticulatis, vel subtus manifestioribus; petiolus pro parte vel omnino fere alatus, 0.5—1 (rarius usque ad 1.5) cm longus, basi incrassatus. *Racemi* axillares sat densiflori, graciles, ascendentes, 6—10 cm longi. *Rhachis* teretiuscula, c. 1—1.2 mm diam., laxissime pilis rufescensibus adpressis obsita, vel glabra. *Bracteae* ovato-lanceolatae vel setaceae, ± 0.5 mm longae, subpersistentes. *Pedicelli* plerumque bini, basi connati, (3—)4—5 mm longi, graciles, glabri. *Perianthium* in vivo albido, odoratum, c. 12 mm longum, glabrum, tubo 0.5 mm diam., limbo ellipsoideo 2 mm longo, c. 1.5 mm diam. *Antherae* fere 2 mm longae. *Glandulae hypogynae* liberae, ± approximatae. *Ovarium* glabrum. *Fructus* (*Brass* 10768) obovoideus, basi leviter attenuatus, c. 5 cm longus, 4—4.5 cm diam., pericarpio coriaceo c. 4 mm crasso extus lenticellato-pustulato, semen unicum magnum continens, pedicello c. 1 cm longo, 3—4 mm crasso.

NEW GUINEA. N.E. New Guinea. Sepik Distr., "Hunsteinspitze", 1300—1350 m: Ledermann 10954 (B, *typus*), 11211 (B, t), 11474 (B, t). W. NEW GUINEA. Wessel Lake region, Enarotali, 1750 m: Eyma 4946; ibid., 1800 m: Bw. 3102 Versteegh. 9 km NE of Lake Habbema, 2800 m: Brass 10768.

47. *H. teysmanniana* Sleum. sp. nov.

Arbor, ut videtur, parva. *Ramuli* subteretes glabri, in sicco brunnei, in partibus vetustioribus cito griseo-corticati lenticellisque lanceolatis laxe instructi. *Folia* obovata vel plerumque oblongo-obovata, apicem versus sensim attenuata, apice ipso obtusa et subtus glandula terminali obsita, basin versus in petiolum cuneata et fere usque ad petioli basin decurrentia, subcoriacea, in sicco flavidoo-brunnescentia, utrinque sublucida, glaberrima, integra, 4—7 cm longa, (2—)2.5—3(—3.5) cm lata, costa in sicco rubescente, supra parum, subtus bene prominente, nervis lateralibus utroque latere 4—5 inferne rectiusculis antice curvatis et inter sese ± distincte anastomosanti-

bus, supra parum, subtus manifeste prominentibus, venis venulisque supra plerumque parum visibilibus (rarius prominulis), subtus semper dense reticulatis et prominulis; pétiolus subincrassatus 0.5—1 cm longus, saepe fere usque ad basin alatus, glaber, basi ipsa incrassatus ibique cito corticatus. *Racemi* axillares, erecti, subdensiflori, 6—14 cm longi. *Rhachis* angulata, in sicco dilute brunnea, in inferiore parte laxe breviter adpresso rufescenti-pilosula, superne ± glabra, 1.5—2 mm diam. *Bracteae* anguste ovatae vel lanceolatae, acutae, fere 2 mm longae, subpersistentes. *Pedicelli* apicem versus inerassati, bini, basi brevissime connati, ad basin pilosuli ceterum glabri, 5—6 mm longi. *Perianthium* 12—13 mm longum, in vivo flavidum, haud raro rubescens vel violascenti-tinetum, glabrum, tubo 0.5 mm diam., limbo sensim clavato 3 mm longo, 1.2—1.5 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae* oblongae, liberae, distantes. *Ovarium* glabrum. *Fructus* deest.

CELEBES. S. Celebes. Peak of Bonthain, 2600 m: *Binnemeijer* 12320 (BO; L, *typus*), fl. 19-VI-21; *ibid.*, 1900 m: *Binnemeijer* 12152; *ibid.*, 2400—2500 m: *Binnemeijer* 11934, 12391; *ibid.*, Lanjienga: *Teysmann* 14117.

Sterile, but very similar and probably conspecific:

CELEBES. S. Celebes. Gowa, Lembaja, 1700 m: *NIFS* bb. 20428.

48. *H. acutifolia* Sleum., Bot. Jahrb. 70, 1939, 140.

Arbor parva c. 6 m alta. *Ramuli* graciles, in partibus junioribus dilute brunnei, ad apices adpresso rufo-pilosi, ceterum cito glabrescentes et cinerascentes, lenticellis rotundis pallidioribus numerosis obtecti. *Folia* lanceolata vel oblongo-lanceolata, apice sensim subcaudato-acuminata, acuta, basi in petiolum attenuata et interdum usque fere ad basin ipsam petioli decurrentia, in sicco saturate castanea et opaca, chartacea, glabra, integra vel imprimis antice obscure paucidenticulata, 5—7(—10) cm longa, 2—3 cm lata, costa supra parum, subtus manifestius prominente, nervis lateralibus utroque latere c. 8 utrinque obscure prominentibus, leviter curvatis, inconspectue anastomosantibus, venis venulisque dense reticulatis minute elevatis; petiolus gracilis 4—5 mm longus. *Racemi* ex axillis foliorum terminalium orti, graciles, ascendentibus, subdensiflori, 7—12 cm longi, ubique sparse adpresso rufo-pilosi. *Rhachis* 0.5—0.8 mm diam. *Bracteae* minutae, cito caducae. *Pedicelli* saepius bini, liberi vel basi connati, graciles, 2—3 mm longi. *Perianthium* in vivo flavescenti-albidum, fere plane evolutum 9 mm longum, tubo 0.5 mm diam., limbo subacuto c. 1 mm diam. *Antherae* 1.2 mm longi. *Glandulae hypogynae* subquadratae, basi tantum connatae. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. Papua. Centr. Distr., Mt Victoria, below "The Gap", c. 2040 m: *Carr* 15210 (A; B, *typus*; BM, K, L, SING).

49. *H. saruwagedica* Sleum., Bot. Jahrb. 70, 1939, 138.

Arbor parva fruticosa, c. 5 m alta, cortice griseo-brunneo fissuris minutissimis instructo. *Ramuli* glabri, novelli subangulati atrescentes, vetustiores teretes cortice saturate griseo obtecti, lenticellis rotundis alboscentibus laxe adspersi. *Folia* lanceolato-oblonga usque late oblonga, apice breviter obtuse attenuata, basi late cuneata vel subrotundata, firmule subcoriacea, novella in sicco nigrescenti-brunnea, adulta supra flavidio-olivacea, subtus brunnea, utrinque, imprimis supra, sublucida, integra, (8—)10—15(—19) cm longa, (3.5—)4—6(—8, raro usque ad 10) cm lata, costa supra

parum, subtus valde prominente, nervis lateralibus utroque latere 7—8 utrinque parum prominentibus et leviter curvatis vel rectiusculis, utrinque parum prominentibus, venis venulisque laxe reticulatis minuteque elevatis, sed subtus saepius bene visibilibus; petiolus 2—7 mm longus, incrassatus, rugosus. *Racemi* axillares, ± penduli, sat densiflori, 8—14(—18) cm longi, glabri vel subglabri. *Rhachis* subteres, c. 1—1.5 mm diam. *Bracteae* minutae, acutae, fere scariosae. *Pedicelli* 3—4 mm longi, plerumque bini, basi tantum connati. *Perianthium* 10—12(—13) mm longum, in vivo pallide flavidum, interdum flavidovirescens vel rubescens, glabrum, tubo 0.6 mm diam., limbo ellipsoideo 1.5 mm diam. *Antherae* c. 1.5 mm longae. *Glandulae hypogynae* subquadratae, liberae, approximatae. *Ovarium* glabrum, stylo apice incrasato. *Fructus* fere maturus (*Womersley & Hoogland* 4952) oblique anguste ellipsoideus, subfusiformis apice in rostrum curvatum attenuatus, basi subtruncatus, laevis 3—3.5 cm longus, 1.5—1.7 cm diam., in vivo viridis, demum nigrescens.

NEW GUINEA. N.E. New Guinea. Morobe Distr., Abe, Sarawaket, 1200—1800 m: *Clemens* 8343a (B, *typus*). Wantoot (Wantot), 1050—1800 m: *Clemens* 11003a. Matap, 1500—1800 m: *Clemens* 11235a. Western Highl., Nondugl. c. 1600 m: N.G.F. 4952, 4962 *Womersley & Hoogland*, N.G.F. 4423 *Womersley*, *Gyldenstolpe*.

50. *H. saurauioides* Sleum. sp. nov.

Arbor? *Ramuli* novelli dense pilis rufis brevibus adpresso tomentelli, vetustiores cito glabratii et corticati lenticellisque rotundis pallidioribus laxe adspersi. *Folia* oblonga vel subobovato-oblonga, apice brevissime obtuse acuminata vel subrotundato-obtusata, basi breviter in petiolum cuneata et secus petiolum ± decurrentia, subcoriacea, in sicco saturate castanea, supra nitidula, subtus opaca, integra vel antice remote glandulosodenticulata (denticulis minutissimis vix 0.5 mm altis et irregulariter 5—20 mm distantibus), novella utrinque sat dense adpresso rufo-pilosa, maturitate supra omnino glabra, subtus ad costam et nervos subdense, per faciem laxe brevissime adpresso diutius rufo-pilosa, (13)—15—26 cm longa, (5.5)—6.5—11 cm lata, costa utrinque bene prominente, nervis lateralibus utroque latere 18—20 leviter curvatis, inter sese ± parallelis, praeter marginem excurrentibus, haud vel obscure arcuato-conjunctis, aliis minus distinctis paucis intermixtis, omnibus supra parum, subtus arcte prominentibus, venis venulisque utrinque densissime reticulatis et parum, sed visibiliter prominulis; petiolus 0.5—1 cm longus, pubescens, inferne valde crassus et rugosus. *Racemi* axillares, subdensiflori, 10—16 cm longi, erecti, in omnibus partibus breviter sat dense adpresso rufo-pilosii. *Rhachis* teretiusecula c. 1.5 mm diam. *Bracteae* subovato-lanceolatae, 1 mm longae, ± cadueae. *Pedicelli* 4(—5) mm longi, bini, basi tantum connati. *Perianthium* nondum plane maturum c. 9 mm longum, tubo 0.5 mm diam., limbo breviter clavato c. 1 mm diam. *Antherae* c. 1.2 mm longae. *Glandulae hypogynae* ovatae, liberae, approximatae. *Ovarium* glabrum, stylo post anthesin 8—9 mm longo. *Fructus* ignotus.

NEW GUINEA. N.W. New Guinea. Wessel Lake region, from the river to Kebon biv. Perai: *Eyma* 5262 (A; BO, *typus*, K, L), fl. X-39.

51. *H. latifolia* White, Proc. Roy. Soc. Queensl. 34, 1922, 26.

Arbor 18—24 m, trunco 10—15 m alto, cortice brunneo vel griseobrunnescente longitudinaliter minute fisso et pustulato. *Ramuli* glabri, in partibus vetustioribus subdense lenticellis rotundis pallidis obtecti. *Folia*

late elliptico-oblonga, brevissime acuminata, apice ipso obtusa, basi in petiolum brevissimum cuneata, coriacea, in secco saturate olivaceo-brunnea, imprimis supra nitida, glabra, integra, (13—)15—22 cm longa, (6.5—)7—11 cm lata, costa crassa supra bene, subtus valde manifeste prominente, nervis lateralibus utroque latere 6—7 curvato-ascendentibus margine indistincte inter sese conjunctis, supra ± manifeste prominentibus, subtus semper distincte elevatis, venis venulisque utrinque, imprimis subtus densissime prominulo-reticulatis; petiolus 2—4 (raro usque ad 6) mm longus, 2—3 mm crassus. *Racemi* graciles, ut videtur, axillares, c. 16 cm longi, laxiflori. *Rhachis* c. 1.3 mm diam., teres, sicut pedicelli pilis brevissime adpressis laxe induita. *Pedicelli* singuli vel bini, basi infima connati, subgraciles, 3—4 mm longi. *Perianthium* haud visum, ex descr. origin. 9 mm longum pilisque sparsis exceptis glabrum. *Glandulae hypogynae* late ovatae, liberae, approximatae. *Ovarium* glabrum. *Fructus* immaturus (N. G. F. 1284) oblique oboviedo-ellipsoideus, haud rostratus, iam 2 cm longus, 1.2 cm diam., matrus haud visus, ex coll. "ovoideus, c. 1.8 cm diam."

NEW GUINEA. Papua. Centr. Distr., Deva-Deva, c. 147°—8° 30': *White* 626 (BRI, typus). Milne Bay area, about $\frac{1}{2}$ mile N of Waigani Plantation, 25 m: *N. G. F.* 1284 *L. S. Smith*.

NEW BRITAIN. Jacquinot Bay: *N. G. F.* 1866 *Mair*, rain-forest on coral limestone outcrops. Nantambu, Open Bay, 460 m: *N. G. F.* 1895 *Mair*, rain-forest on deep volcanic soil, fr. juv.

A specimen very similar in leaf-characters, but the inflorescence 9 cm, the pedicels 2 mm, the yellow perianth 7 mm long, seen from

NEW GUINEA. NW. New Guinea. Hollandia, c. 100 m: *Bw.* 1110 *Koster*, rain-forest, rather common.

H. latifolia is similar to *H. saruwagedica* Sleum. in leaf-characters, but the fruits, as far as can be concluded from immature ones, are not beaked.

52. *H. moluccana* (R. Br.) Bl., Ann. Sci. Nat. II, 1, 1834, 216 quoad pl. molucca.; Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 83; Meisn. in DC., Prodr. 14, 1856, 438; Miq., Fl. Ind. Bat. I, 1, 1858, 983; Ann. Mus. Bot. Lugd. Bat. 1, 1864, 204; Merr., Philip. J. Sc. 11, 1916, 267. — *Roupalia moluccana* R. Br., Trans. Linn. Soc. 10, 1810, 191 (*Rhopala*), nec Jack 1820 (= *H. petiolaris*), nec Roxb. 1820 (= *H. attenuata*); R. & S., Syst. Veg. 3, 1818, 429; Spreng., Syst. Veg. 1, 1825, 482. — *H. amboinensis* Miq., Ann. Mus. Bot. Lugd. Bat. 1, 1864, 204. — *H. obtusidens* Miq., l. c. 204.

Arbor (6—)15—25 m alta, cortice griseo vel brunnescente tenui, laevi, radicibus tabularibus usque ad 1.4 m altis. *Ramuli* apicibus dense pilis brevibus arete adpressis rufescentibus obtecti, ceterum cito glabrescentes, subangulati vel subcompressi, laeves, in partibus vetustioribus corticati lenticellisque manifestis subrotundis pallidis obtecti. *Folia* oblonga vel elliptico-oblonga vel obovato-oblonga, interdum lanceolato-oblonga, rarius obovata, breviter obtuse acuminata, basi in petiolum cuneata et ± decurrentia, glabra, subcoriacea, supra in secco flavescentia vel plerumque saturate olivacea vel castanea, nitidula, subtus plerumque castanea, opaca, integra vel rarius antice dentibus uncinatis ± obtusis paucis (rarius pluribus) serrata, (9—)12—23(—27) cm longa, (4—)5—8(—11) cm lata, costa supra subtusque prominente, nervis lateralibus utroque latere 8—10(—12) leviter arcuatis, haud vel obsolete inter sese curvato-conjunctis, utrinque parum

prominentibus, aliis intercalaribus plerumque paucis minus distinctis, venis venuisque utrinque conspicue densissime prominulo-reticulatis; petiolus 0.2—0.5 (interdum usque ad 1) cm longus, ± alatus, basi valde incrassatus et rugosus, demum glabrescens. *Racemi* plerumque solitarii, ex axillis summis interdum iam defoliatis enascentes, ascendentis, sat graciles, usque ad basin densiflori, 7—15 cm longi, ubique laxe usque subdense pilis ferrugineis adpressis induiti. *Rhachis* 1—1.5 mm diam. *Bracteae* ovato-acutae, c. 1 mm longae, ± caducae. *Pedicelli* sub anthesi 2—4 (raro usque ad 5) mm longi, graciles, plerumque bini, basi tantum connati. *Perianthium* in vivo albidum, flavescens vel viridescens, odoratum, gracile, 7—8(—9 mm longum, plerumque sparse adpresso pilosum, tubo 0.5 mm diam., limbo ellipsoideo c. 1.5 mm diam. *Antherae* 1.8—2.5 mm longae. *Glandulae hypogynae* late ovatae usque subrotundatae, apice truncatae et ± crenulatae vel retusae, glabrae, liberae, in vivo aurantiaceae, valde approximate. *Ovarium* glabrum, stylo gracilimo. *Fructus* oblique et subcompresse ellipsoideus vel ovoideus, apice breviter apiculatus, basi subrotundatus vel late attenuatus, maturus 2.5—3 (—3.5) cm longus, 2—2.5(—3) cm diam., pericarpio firmule coriaceo 2—3 mm crasso, sulco laterali valde manifesto, pedicello 5—6 mm longo.

MOLUCCAS. Ambon: Chr. Smith (BM, *typus H. moluccan.*), *Zippelius*, *Binnen-dijk*, de Fretes 5761 (BO, K; U, *typus H. amboin.*), Robinson Pl. Rumph. amb. 281, NIFS bb. 14263; ibid., 200 m: Robinson 1657; ibid., Hila: Teysmann HB 1877 (BO; U, *typus H. obtusid.*) cult. Hort. Bog. IV-F-22, IX-D-55, IX-D-57, IX-D-71. Halma-heira. Tobelo, 150 m: NIFS bb. 23755, 23761. Ternate: De Vriese & Teysmann; ibid., 650—800 m: Beguin 1304, 1542. Tidore. Buhu Mala, 800 m: Lam 5771. Talaud. Karakelang, E slope of G. Piapi, 350 m: Lam 3297. Buru, 250 m: NIFS bb. 25169.

The species is not known with certainty from New Guinea. Similar in flowers, but somewhat aberrant in leaf-characters and fruit not known:

NEW GUINEA. N. New Guinea. Rouffaer River, 300 m: Doot. v. Leeuwen 10354. Idenburg River, 1200 m: Brass & Versteegh 12588. N.W. New Guinea. Wissel Lake region, E. of Tage Lake, 1750 m: Eyma 4926.

53. *H. peekelii* Lauterb., Bot. Jahrb. 45, 1911, 359; l.c. 50, 1913, 331.

Arbuscula. *Ramuli* graciles subteretes, apicibus adpresso rufo-pilosii, ceterum mox glabrescentes et griseo-corticati. *Folia* late oblonga, apice breviter subabrupte acuminata, obtusa, basi cuneata et in petiolum decurrentia, subsessilia, chartacea vel subcoriacea, in secco olivacea, subtus paulo pallidiora, glabra, supra nitidula, subtus opaca, integra, 16—19 cm longa, c. 7 cm lata, costa utrinque elevata, nervis lateralibus utroque latere 6—7 arcuatis vel superioribus rectiusculis sat distantibus prope marginem ± distincte curvato-conjunctis, supra minute, subtus manifeste prominentibus, venis venuisque utrinque dense reticulato-prominulis; petiolus vix 2—3 mm longus, incrassatus, rugulosus. *Racemi* prob. e nodis defoliatis orti, densiflori, 12—16 cm longi, ad rhachidem et pedicellos laxe, ad perianthia laxissime adpresso rufo-pilosii. *Rhachis* 1.5 mm diam. *Bracteae* ovato-acuminatae, acutae, c. 1 mm longae. *Pedicelli* graciles, sub anthesi (6—) 7 mm longi, plerumque bini, liberi vel basi infima tantum connati. *Perianthium* 11 mm longum, in vivo prob. albidum, tubo 0.6 mm diam., limbo clavato 1.5 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* subquadratae, inter sese ± in cupulam crenulatam connatae. *Ovarium* glabrum, stylo gracili. *Fructus* nondum adest.

NEW IRELAND. Namatanai: *Peekel 242* (B, *typus*).

Kanehira & Hatusima, Bot. Mag. Tokyo 52, 1938, 354 mention *H. aff. peekelii* Lauterb. from Rabaul, New Britain, sterile in thickets at about 200 m, Kanehira 3982. I have not seen this specimen.

Of all species of *Helicia* this comes nearest to *H. moluccana* (R. Br.) Bl. as far as can be seen from the characters of the leaf and the inflorescences, the fruit not yet being known.

54. *H. neglecta* Diels ex Sleum., Bot. Jahrb. 70, 1939, 135.

Arbor, ut videtur. *Ramuli* dilute brunnei, glabri, sat dense lenticellis minutis rotundis pallidis obteci. *Folia* oblonga, apicem versus gradatim acuminata, apice ipso subobtusa, basi sensim cuneata et \pm in petiolum decurrentia, subsessilia, subcoriacea, in sicco supra olivaceo-viridia et subnitida, subtus \pm opaca et brunnescens, glabra, margine grosse subsinuato-serrata (dentibus obtusis fere 2 mm altis, 8—12 mm distantibus), 18—25 cm longa, 8—9.5 cm lata, costa supra parum, subtus valde prominente, nervis lateralibus utroque latere c. 14 leviter curvatis et ascendentibus, supra in sicco levissime impressis, subtus conspicue prominentibus, aliis minus distinctis subtusque parum elevatis intermixtis, venis venulisque laxe reticulatis supra fere obscuris, subtus parum prominulis; petiolus 4—5 mm longus, 2—3 mm crassus, basi ipsa valde incrassatus et rugosus. *Racemi* axillares solitarii, densiflori, pedunculo c. 2 cm longo inclusu c. 11.5 cm longi, ubique laxe pilis adspersis rufis obsiti. *Rhachis* angulata, c. 1.5 mm diam. *Bracteae* ovatae, minutae, citissime caducae. *Pedicelli* bini, infima basi connati, crassiulus, sub anthesi (6—)7 mm longi, postremo usque ad 9 mm accrescentes. *Perianthium* in vivo prob. albidum, c. 12 mm longum, tubo 0.5 mm diam., limbo ellipsoideo 1.5 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* in annulum connatae. *Ovarium* glabrum, stylo gracili. *Fructus* ignotus.

NEW IRELAND. Ugana, 100 m: *Peekel 1249* (B, *typus*).

55. *H. macrostachya* Lauterb., Bot. Jahrb. 50, 1913, 332.

Arbor parva. *Ramuli* glabri, in partibus recentissimis angulati, in partibus vetustioribus subteretes, striati, demum griseo-corticati, stigmatibus foliorum delapsorum subtriangularibus. *Folia* obovato-oblonga vel obovata, apice latissime attenuata, obtusa usque subrotundata, basi in petiolum brevisimum cuneata et decurrentia, firmule subcoriacea vel coriacea, in sicco atro-brunnea vel omnino atrescentia, supra nitidula, subtus fere opaca, glabra, integra, 14—17 cm longa, 5—6 cm lata, costa supra parum, subtus valde prominente, nervis lateralibus utroque latere c. 7 a costa angulo 30—35° abeuntibus, inferne rectiusculis, praerupte ascendentibus, superne prope marginem curvatis et obscure anastomosantibus, utrinque prominentibus, venis venulisque utrinque dense reticulatis minuteque elevatis; petiolus crassus, c. 2 mm longus. *Racemi* e nodis ramulorum defoliatorum orti, pedunculo c. 2 cm incl. c. 42 cm longi, \pm laxiflori, ad rhachidem et pedicellos laxe adpresso pilosi. *Rhachis* subteres, c. 2.5 mm diam. *Bracteae* ovato-acuminatae, minutae. *Pedicelli* bini, usque ad $1/3$ long. connati, sat graciles, 4—5 mm longi. *Perianthium* glabrum, c. 20 mm longum, tubo 0.6—0.7 mm diam., limbo elongato-ellipsoideo 1.5—2 mm diam. *Antherae* 3.5 mm longae. *Glandulae hypogynae* ovatae, liberae, approximatae. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Morobe Distr., in mountain-forest near Pema (Waria river region), c. 400 m: Schlechter 19432 (B, typus; P).

56. *H. ceylanica* Gardn., Calc. J. Nat. Hist. 7, 1847, 453; Meisn. in DC., Prodr. 14, 1856, 438 (*ceylanica*); Thwait., En. 1861, 250; Bedd., For. Man. 1872, 178; Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 190; Trimen, Handb. Fl. Ceylon 3, 1895, 457, Atlas 4, 1898, t. 79.

Arbor parva c. 6 m alta, cortice laevi saturate griseo. *Ramuli* glabri, cito griseo-corticati, teretiusculi. *Folia* obovata vel obovato-oblonga, apice latissime attenuata, obtusa vel rotundata, interdum retusa, basi in petiolum brevissimum cuneata et decurrentia, in siccо supra flavescenti-olivacea et subnitida, subtus brunnea et opaca, modice coriacea, glabra, integra sed interdum remote pauciserrata, 5—10(—15) cm longa, 3—4.5(—5) cm lata, costa supra fere plana vel leviter prominente, subtus bene elevata, nervis lateralibus utroque latere 7—8, infimis subarcuatis, superioribus rectiusculis ante marginem tantum curvatis et inter sese conjunctis, in foliis immaturis, cum venis utrinque parum prominentibus, in foliis adultis cum venis sat dense reticulatis supra manifeste immersis, venuulis subobscursis; petiolus 3—5 mm longus, basi ipsa manifeste incrassatus et rugosus ibique in siccо nigrescens. *Racemi* axillares vel e nodis defoliatis orti, satis densiflori, 5—7(—10) cm longi, glabri vel ad pedicellos tantum pilis solitariis rufescentsibus adpressis instructi. *Rhachis* angulata, c. 1 mm diam. *Bracteae* ovatae, acutae, pedicellis adpressae, minutissimae. *Pedicelli* crassiusculi, plerumque bini, liberi vel basi infima tantum connati, 3—5 mm longi. *Perianthium* in vivo flavescentis, 16—24 mm longum, tubo c. 0.7 mm diam., limbo ellipsoideo-clavato 1.5 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* ovato-oblongae, apice minutissime erosae, valde approximatae, liberae vel in inferiore parte connatae. *Ovarium* glabrum, stylo filiformi. *Fructus* late ovoides, acuminatus, purpureo-atrescens, fere 2 mm longus.

CEYLON. Centr. Prov. "Banks of the Massnawatté in the Ambegamoa distr.": Gardner (Herb. Peradenya!, typus, haud vidi). Loco haud ind.: Thwaites C.P. 690 (B, FI, K, MEL, P). Trimen p. 457: 600—1200 m, near Navavapitya (Gardner), Dolosbagie, Galagama, Rangala, rather rare.

57. *H. retevenia* Sleum., Bot. Jahrb. 70, 1939, 141.

Arbor parva c. 4 m alta. *Ramuli* angulati, novelli minute adpresso pilosi, cito glabrescentes et griseo-albido-corticati. *Folia* obovato-oblonga, apice ± rotundata, basi in petiolum attenuata et decurrentia, subcoriacea, rigidula, supra lucida, subtus opaca, in foliis juvenilibus ad costam pubescentia, matura omnino glabra, in siccо olivaceo-brunnescentia, integra, 6—8 cm longa, 2.2—2.6(—3.4) cm lata, margine paullo revoluta, costa utrinque prominente, nervis lateralibus utroque latere 8(—9) inferne rectiusculis, marginem versus curvatis et anastomosantibus, aliis intercalaribus nonnullis minus distinctis intermixtis, omnibus supra manifeste impressis, subtus parum prominentibus, venis venuisque supra sat dense reticulatis et impressis, subtus subinconspicuis; petiolus gracilis, c. 1 cm longus. *Racemi* axillares, subdensiflori, glabri, c. 8 cm longi. *Rhachis* gracilis, angulata, 1 mm diam. *Bracteae* lanceolatae, acutae, fere 1 mm longae. *Pedicelli* sat graciles, plerumque bini et $\frac{1}{3}$ usque ad $\frac{1}{2}$ long. connati, 4—5 mm longi. *Perianthium*, ut videtur, in vivo viridescenti-albidum, 15—16 mm longum, gracile, tubo 0.5 mm diam., limbo 1.2 mm diam. *Antherae* 2.5 mm longae.

Glandulae hypogynae oblongo-ovatae, usque ad medium connatae, cupulam crenatam formantes. Ovarium glabrum. Fructus ignotus.

NEW GUINEA. Papua. Centr. Distr. Mt Victoria, below "The Gap", c. 1980 m: Carr 13761 (B, typus; BM, L, SING).

58. *H. obtusata* Sleum., Bot. Jahrb. 70, 1939, 139.

Arbor ex coll. alta, trunco 20—60 cm diam. *Ramuli* fere teretes, rubro-brunnei, glabri. *Folia* obovata, apice latissime attenuata et obtusa, haud raro rotundata, interdum leviter retusa, basi in petiolum cuneata, fere usque ad petioli basin decurrentia itaque subsessilia, coriacea, glabra in sicco supra flavidio-olivacea vel brunnea et nitidula, subtus brunnea et opaca, *integra*, 11—14(—18) cm longa, 5.5—7(—9.5) cm lata, costa utrinque bene prominente, subtus valida, nervis lateralibus utroque latere 10—11 a costa angulo subrecto abeuntibus, rectiusculis, apice quasi bifidis, ante marginem distincte curvato-anastomosantibus, aliis pluribus brevioribus intermixtis, omnibus supra parum, subtus manifestius prominentibus, venis venuisque utrinque satis dense reticulatis et prominulis; petiolus 0.5—1 (raro usque ad 1.5) cm longus, ± manifeste alatus, validus, basi incrassatus et rugosus. *Racemi* ex axillis foliorum summorum enascentes, densiflori, (sub)glabri, in sicco nigricantes, 10—14 cm longi. *Rhachis* angulata, c. 2.5 mm diam. *Bracteae* ovato-acutae, 1 mm longae, subpersistentes. *Pedicelli* bini, crassiusculi, basi connati, 5—7 mm longi. *Perianthium* in vivo albido, flavescens vel albescenti-virescens, c. 20 mm longum, tubo 0.8—1 mm diam., limbo subacuto c. 2.2 mm diam. *Antherae* c. 4 mm longae. *Glandulae hypogynae* late ovatae, fere quadratae, liberae, approximatae. *Ovarium* glabrum. *Fructus* maturus nondum cognitus.

NEW GUINEA. N.E. New Guinea. Morobe Distr., Yunzaing, 1200—1500 m: Clemens 2318 (A; B, typus); ibid., c. 1370 m: Clemens 6472. Ogeramnang, c. 1700—1800 m: Clemens 5530, 5446. Mt Sarawaket, "bog meadow camp", 2740 m (!): Clemens 5595 (B !).

59. *H. archboldiana* Sleum. sp. nov.

Arbor parva, 3 m alta. *Ramuli* teretiusculi, glabri, cito corticati. *Folia* elliptica vel oblongo-elliptica, apice breviter subabrupte acuminata, subacuta vel obtusa, basi late cuneata et in petiolo decurrentia, tenuiter coriacea, rigidula, utrinque nitidula, in sicco utrinque aequaliter rubro-brunnea, glabra, sat regulariter subserrato-denticulata (dentibus glandula terminatis 0.5—1 mm altis, 4—10 mm distantibus), 8—12 cm longa, 4—6 cm lata, costa utrinque elevata, nervis lateralibus utroque latere c. 10 a costa angulo subrecto abeuntibus, rectiusculis, ante marginem curvatis interque sese conjunctis, aliis pluribus minus distinctis intermixtis, omnibus in utraque pagina parum sed bene visibiliter prominentibus, venis venuisque densissime reticulatis et prominulis; petiolus 0.5—1 cm longus, per fere totam longitudinem lamina decurrente alatus, rugosulus, basi incrassatus. *Racemus* unicus visus, ex axilla folii delapsi ortus, ascendens, in rhachide et pedicellis subdense, in perianthiis laxe adpresse rufo-substrigoso-pilosus, subdensiflorus, 15 cm longus. *Rhachis* teres, sat gracilis, c. 1—1.3 mm diam. *Bracteae* ovato-acuminatae, minutae, pilosulae. *Pedicelli* solitarii vel bini, basi infima connati, graciles, 3 mm longi. *Perianthium* in vivo viride, basi violascens, c. 22—23 mm longum, tubo 0.5 mm diam., limbo elongato-ellipsoideo acutiusculo 1.5 mm diam. *Antherae* c. 2 mm longae. *Glandulae hypogynae* sub-

quadratae vel obovato-truncatae, liberae, approximatae, apice minutissime denticulatae vel crenulatae. *Ovarium* glaber, stylo gracili apice elongato-clavato. *Fructus* deest.

NEW GUINEA. W. New Guinea. 8 km SW of Bernhard Camp, Idenburg River, 1600 m: Brass 12728 (A, *typus*), in mossy forest undergrowth, fl. II-39.

60. *H. wollastonii* Ridl., Trans. Linn. Soc. Bot. 9, 1916, 145.

Arbor? *Ramuli* glabri teretes nitiduli. *Folia* obovato-oblonga vel obovata, apice breviter abrupte subcuspidato-acuminata, acuta vel obtusiuscula, basi in petiolum cuneata et ± decurrentia, subcoriacea, glabra, supra nitida, subtus ± opaca, in secco supra sordide viridi-olivacea vel -brunnescentia, subtus brunnea, glabra, integra, 12—17 cm longa, 5—7 cm lata, costa supra subtusque bene elevata, nervis lateralibus utroque latere 7—8 arcuatis et manifeste anastomosantibus, aliis intercalaribus brevioribus pluribus, omnibus supra bene impressis, subtus arce prominentibus, venis venulisque utrinque dense reticulatis et parum, sed bene visibiliter prominulis, saepius discoloribus; petiolus sat validus, 1—1.5 cm longus, fere ad basin breviter alatus, glaber, basi valde incrassatus et transverse rugosus. *Racemi* axillares, graciles, fere usque ad basin laxiflori, 10—15 cm longi. *Rhachis* glabra, striatula, c. 1.2 mm diam. *Bracteae* subulatae minutissimae. *Pedicelli* graciles 5—6 mm longi, glabri. *Perianthium* in vivo pallide flavidum, in secco nigrescens, 15—16 mm longum, glabrum, tubo 0.4—0.5 mm diam., limbo ellipsoideo 1.5 mm diam. *Antherae* fere 2 mm longae. *Glandulae hypogynae* ovatae vel subrotundae, carnosulae, liberae, approximatae. *Ovarium* glabrum. *Fructus* ellipsoideus, apiculatus, 2.5 cm longus, 1.8 cm diam., basi parum attenuatus, pericarpio 2 mm crasso.

NEW GUINEA. S. New Guinea. Utakwa River, Canoe camp, 45 m: B. Kloss anno 1912 (BM, *typus*).

61. *H. formosana* Hemsl. in Forb. & Hemsl., J. Linn. Soc. 26, 1891, 394; Ann. Bot. 9, 1895, 156, t. 8; Ito, Ill. Formos. Pl. 1927, t. 522; Sasaki, Cat. Govt Herb. Form. 1930, 185. — *H. tsangii* Li, J. Arn. Arb. 24, 1943, 363.

var. formosana.

Frutex elatus vel arbor 3—7(—10) m alta, cortice transverse et longitudinaliter fisso, ramulis recentissimis dense rufo-tomentosulis, annotinis rubrobrunneis glabratis, vetustioribus cortice griseo vel brunnescenti laxeque lenticellis subrotundis obtectis. *Folia* obovato-oblonga, rarius (late) oblonga, apicem versus sensim acuminata, apice ipso saepius paullo curvato subacuta vel obtusiuscula, basi breviter in petiolum cuneata, subsessilia, firmule chartacea usque subcoriacea, supra in secco subatrescenti-viridia, subtus brunnea, utrinque opaca, rarius supra parum nitentia, sat regulariter et dense serrata (dentibus prorsus versis parum uncinatis glandula terminatis subacutis 1—2 mm altis et 4—10 mm distantibus), rarius antice tantum paucidentata, ceterum subintegra, novella utrinque ± dense rufo-ferrugineo-pilosa, adulta supra costa diutius pubescente excepta glabra, demum glaberrima, subtus diutius per faciem et nervos laxe, ad costam densius pilis subadpressis rufescensibus induita, tarde glabrescentia, (8—)12—26 cm longa, (4—)5—7(—10) cm lata, costa supra parum, subtus manifeste elevata, nervis lateralibus utroque latere 8—10(—12, rarius ad 15) curvato-ascendentibus, praeter marginem subobscure anastomosantibus, aliis intercalaribus minus

distinctis pluribus additis, omnibus supra fere planis, subtus prominentibus, venis utrinque laxis, venuulis supra obscuris, subtus dense reticulatis et parum prominulis; petiolus 0.5—1 cm longus, plerumque per fere totam longitudinem lamina decurrente alatus, basin versus exalatus et incrassatus, diutius tomentosulus. *Racemi* axillares vel ad nodos defoliatos orti, solitarii, ascendentes, densiflori, (7—)10—16 cm longi. *Rhachis* teres sicut pedicelli \pm dense pilis subpatentibus \pm crispulis rufis induita, 1.5—2 mm diam. *Bracteae* ovati-acutae, pilosae, c. 1 mm longae, subpersistentes. *Pedicelli* sat graciles, bini, basi connati, 3—4 mm longi. *Perianthium* in vivo albidum val flavescentia, laxe usque sat dense subadpresso rufo-pilosum, gracile, (16—)18—20 mm longum, tubo 0.4—0.5 mm diam., limbo ellipsoideo 1.5 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* subrotundato-ovatae. liberae, approximatae. *Ovarium* glabrum. *Fructus* suboblique depresso-globosus, in sicco brunneus, apice apiculatus, basi brevissime contractus, minute corticato-verruculosus, c. 1.5—2 cm diam.

INDOCHINA. Tonkin. NE of Mon-cay, Pac-si and vicinity: *Tsang* 26880. Hanoi, Taai Wong Mo Shan, near Chuk-phai: *Tsang* 28974, 29174 (A, typus *H. tsangii*). Massif du Tam Dao, 1000 m: *Pételet* 3888.

CHINA. Hainan. Ngo Ko Shan, Ch'ang-kiang distr.: *Lau* 1884. Lok-tung: *Lau* 27163. Kwangtung. Sup Man Ta Shan: *Liang* 69656.

FORMOSA. NE Distr. at 120 m: *Wilford* 517 (K, lecto-typus *H. formos.*). Kelung: *Ford* 46. Bankinzing: *Henry* 511, 805, 805a, *Faurie* 1189. S. Cape: *Henry* 1225. Urai: *Suzuki* 3217. Hori, 350 m: *Gressitt* 250. Arisan, prov. Kagi, 1000—1330 m: *Wilson* 9789, 10889. E. Coast plain: *Price* 446. S. mountains, c. 1200 m: *Price* 542. Loco haud ind.: *Kanehira* 3105, *Price* 918, 1121, *Kawakami* 263, *Faurie* 8241 B, 8245.

61a. var. *oblanceolata* Sleum. var. nov.

A typo foliis oblanceolatis basin versus \pm longe cuneatis 15—35 cm longis, (3—)3.5—5.5 cm latis differt.

CHINA. Hainan. Chin Fung Mt: *Lau* 5000.

SIAM. Payap, Doi Angka, E slope, 1560 m: *Garrett* 399; Doi Intanon, 1300—1500 m: *Kerr* 5335; Doi Nang ka: *Put* 3482; Pang Tawn: *Put* 3928. Maharat, Nan, Doi Tiu, 1200 m: *Kerr* 5097. Nakawan Sawan, Kao Pado, 700 m: *Kerr* 6060 (BM, typus var. *oblanceol.*). Rachasima, Pu Kio, Chaiyapum, 1000 m: *Kerr* 20251.

INDOCHINA. Laos. Ht. Mékong, entre Vieu Pou Kha et Ta Fa, 800 m: *Poilane* 26395.

62. *H. affinis* Sleum., Bot. Jahrb. 70, 1939, 137. — *H. moluccana* (non (R. Br.) Bl.) Lauterb., l. c. 50, 1913, 331.

Arbor parva. *Ramuli* teretes in sicco rubescenti-brunnei, in partibus vetustioribus sat dense lenticellis parvis subrotundis pallidis obtecti. *Folia* oblonga vel obovato-oblonga, apice brevissime lateque acuminata, obtusa, basi cuneata sensim in petiolum cuneata et decurrentia, firmule chartacea, glabra, in sicco utrinque subnitida et brunnea, subtus paullo pallidiora, integra, (16—)21—30 cm longa, (6.5—)7.5—10 (raro usque ad 13) cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere 8—9 curvato-ascendentibus et praeter marginem longe excurrentibus, haud anastomosantibus, supra parum, subtus manifeste prominentibus, venis venulisque utrinque dense reticulatis minuteque prominulis; petiolus 4—5 mm longus, 3—4 mm crassus, rugosus. *Racemi* ex axillis superioribus enascentes, usque ad basin densiflori, 14—22 cm longi, ad rhachidem subdense, ad pedicellos et perianthia laxe vel laxissime pilis brevibus adpressis rufescens obtecti. *Rhachis* teres, 1.5 mm diam. *Bracteae* ovatae, acutissimae,

minutae. *Pedicelli* plerumque bini et basi connati, 2—3 mm longi. *Perianthium* 14—15 mm longum, tubo 0.5 mm diam., limbo ellipsoideo 1.3 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* late oblongae vel subquadrate, liberae vel basi cohaerentes. *Ovarium* glabrum, stylo gracili. *Fructus* haud visus.

NEW GUINEA. NE. New Guinea. Madang Distr., Kani Mts, 600 m: Schlechter 17640 (B, *typus*; P); ibid, 1100 m: Schlechter 17119 (P).

63. *H. clemensiae* Sleum., Bot. Jahrb. 70, 1939, 139.

Arbor parva, ramulis varie angulatis ad internodia incrassatis, innovationibus adpresso rufo-pilosis ceterum glabris. *Folia* ampla, obovata, apice ± rotundata, basin versus gradatim cuneata, basi ipsa valde obtusata vel truncata, in superiore petioli parte decurrentia, subsessilia, subcordiacea, utrinque subnitentia, glabra, in sicco supra flavidо-olivacea, subtus plerumque saturate castanea, interdum utrinque ± nigrescentia, integra, (14—) 19—26 cm longa, (8—) 9—14 cm lata, costa utrinque, praecipue subtus crasse prominente, nervis lateralibus utroque latere c. 10 arcuato-ascendentibus praeter marginem excurrentibus vel superioribus tantum subobscure anastomosantibus, supra parum, subtus distincte prominentibus, venis venulisque supra parum, subtus manifestius laxe reticulatis et prominulis; petiolus 3—4 mm longus, 2—3 mm crassus, rugosus. *Racemi* axillares vel e nodis defoliatis orti, densiflori, 16—19 cm longi, ad rhachidem et pedicellos sat dense usque laxe, ad perianthia laxissime pilis adpressis rufescentibus brevibus induti. *Rhachis* 1.5—2 mm diam. *Bractae* ovato-lanceolatae, acutae, 1 mm longae. *Pedicelli* plerumque gemini basique connati, 5—6 (—7) mm longi. *Perianthium* in vivo albidum, 28—30 mm longum, tubo 0.6—0.8 mm diam., limbo elongato-clavato 6—7 mm longo et c. 2 mm diam. *Antherae* 5—6 mm longae. *Glandulae hypogynae* in cupulam brevem apice minute erosam vel denticulatum connatae. *Ovarium* glabrum, stylo crassissimo apice elongato-fusiformi. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Morobe Distr., Wareo (Sattelberg), c. 600 m: Clemens 1670 (B, *typus*; L), 1425.

64. *H. forbesiana* F. v. M., Vict. Nat. 3, 1886, 63; Bot. Centralbl. 29, 1887, 84; Descr. Not. Pap. Pl. 9, 1890, 61; Bail., Queensl. Agric. J. 24, 1910, 22; Lauterb., Bot. Jahrb. 50, 1913, 331; Sp. Moore, J. Bot. 61, 1923, Suppl. 43; Sleum., Bot. Jahrb. 70, 1939, 139.

Arbor c. 15 m alta, trunco cortice sat laevi pallide brunneo obscure longitudinaliter fisso, ramulis apicibus sat dense adpresso rufo-pilosis, ceterum glabrescentibus, teretibus, griseo-corticatis. *Folia* lanceolata vel lanceolato-oblonga, haud raro oblanceolata, apice sat abrupte acuminata, subacuta vel obtusiuscula, basin versus longe sensim in petiolum cuneata et ± decurrentia, basi ipsa subacuta, subcordiacea, in vivo saturate viridia et lucida, subtus pallidiora, in sicco supra olivaceo- vel flavescenti-virescentia, subnitida, subtus opaca et castanea, integra vel rarissime remote minuteque denticulata, glabra, 15—25(—30) cm longa, 5—8(—11) cm lata, costa utrinque imprimis subtus prominente, nervis lateralibus utroque latere 9—10 arcuatis inter sese ± manifeste curvato-conjunctis, supra leviter impressis vel planis, subtus bene prominentibus, venis venulisque sat dense reticulatis utrinque prominulis vel subtilibus; petiolus 3—8 mm longus, basi 2—4 mm incrassatus et rugosus, glaber. *Racemi* e nodis defoliatis orti, subrecti,

densiflori, pedunculo c. 2 cm longo incl. 10—15 cm longi, ad rhachidem et pedicellos subdense, ad perianthia laxe vel laxissime pilis rufis adpressis obsiti. *Rhachis* rigida, basi 2—3 mm diam. *Bracteae* elongato-ovatae, acutae, 1—1.5 mm longae. *Pedicelli* 0.5 mm crassi, sub anthesi 6—9 mm longi, saepius gemini et basi infima connati. *Perianthium* in vivo albidum, rigidulum, 27—28 mm longum, tubo 1 mm diam., limbo sensim clavato 5—6 mm longo et 2—2.5 mm diam. *Antherae* 4 mm longae. *Glandulae hypogynae* in annulum depresso obscure 4-denticulatum connatae. *Ovarium* glabrum, stylo crassiusculo. *Fructus* immaturus oblique ovoideus, maturus incognitus.

NEW GUINEA. Papua. Centr. Distr., Meroka: *Forbes* 343 (B; BM, lecto-typus). Sogeri: *Forbes* 387. Mt Wori-wori, c. 1525 m: *Forbes* 723. Koikoko Range, c. 760 m: *Forbes* 799. Boku: Schlechter (NSW, haud vidi). Loc. not given: *Forbes* 678. Northern Distr., Patikiari-Gwaiari, 25 m: *Hoogland* 3638 (somewhat different by larger leaves). Milne Distr., Milne Bay: N.G.F. 1284.

65. *H. robusta* (Roxb.) R. Br. ex Wall., Cat. 1831, sub nr 2702; Bl., Ann. Sci. Nat. II, 1, 1834, 220; Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 83; Hassk., Cat. alt. hort. Bog. 1844, 94; Meisn. in DC., Prodr. 14, 1856, 440; Miq., Fl. Ind. Bat. I, 1, 1858, 986; Bedd., Man. 1872, 173; Flor. Sylv. 1873, t. 301; Kurz, For. Fl. Br. Burma 2, 1877, 311; F.-Vill., Nov. App. 1880, 182; Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 191; Boerl., Handl. 3, 1, 1900, 151; Gamble, J. As. Soc. Beng. 75, ii, 1914, 344; Ridl., Fl. Mal. Pen. 3, 1924, 142; Gamble, Fl. Madr. 2, 1925, 1243; Bak. f., J. Bot. 63, 1925, Suppl. 89; Henders., Gard. Bull. Str. Settl. 4, 1928, 314; Kanjilal, Kanjilal, De & Das, Fl. Assam 4, 1940, 106; Suesseng. in Heine, Fedde Rep. 54, 1951, 225. — *Roupala robusta* Roxb., Hort. Beng. 1814, 83, nom. nud.; Fl. Ind. ed. Carey & Wall. 1, 1820, 366 (*Rhopala*); Spreng., Syst. Veg. 1, 1825, 482 pr. p. (p. alt. = *H. cochinch.*); R. & S., Mant. 3, 1827, 285; Roxb., Fl. Ind. ed. Carey 1832, 363; Wight, Ic. Pl. Ind. Or. 1839, t. 191. — *Rupala serrata* Reinw. in Bl., Cat. Buitenz. 1823, 42, nom. nud. — *Helittophyllum javanicum* Bl., Bijdr. 1826, 652. — *Roupala glabrata* Wall., Cat. 1829, n. 1039 (*Rhopala*), nom. nud. — *H. macrophylla* Wall., Cat. 1831, n. 3663, nom. nud. — *H. javanica* (Bl.) Bl., Ann. Sci. Nat. II, 1, 1834, 217; Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 81, 83, t. 18; Meisn. in DC., Prodr. 14, 1856, 440; Miq., Fl. Ind. Bat. I, 1, 1858, 986; Kurz, Nat. Tijd. Ned. Ind. 27, 1864, 172; K. & V., Bijdr. Booms. Java 5, 1900, 306; Greshoff, Meded. 's Lands Plantent. 29, 1900, 181; Ridl., Agric. Bull. Str. & F. M. S. 1, 1902, 248; Koord., Exk. Fl. Java 2, 1912, 155, f. 33; Atlas Baumart. Java 1915, t. 597; Ridl., J. Fed. Mal. St. Mus. 8, 1917, 81; Koord., Fl. Tjibod. 1923, 47; Heyne, Nutt. Pl. 1927, 588; Ochse & Bakh. v. d. Br., Ind. Groent. 1931, 620, f. 379; Burk., Diet. 1935, 1133; Back., Bekn. Fl. Java em. ed. IV, 2, 1942, fam. 79, p. 5. — *H. cumingiana* Presl, Epim. 1851, 246; Walp., Ann. 3, 1852/53, 332; Meisn. in DC., Prodr. 14, 1856, 440; Miq., Fl. Ind. Bat. I, 1, 1858, 986; F.-Vill., Nov. App. 1880, 182; Vid., Phan. Cuming. Philipp. 1885, 139; Rev. Pl. Vasc. Filip. 1886, 229; Merr., Philip. J. Sc. 1, 1906, Suppl. 49; En. Philip. 2, 1923, 99 incl. var. *parvifolia* Merr. l. e. 99. — *H. philippinensis* Meisn. in DC., Prodr. 14, 1856, 441; Miq., Fl. Ind. Bat. I, 1, 1858, 987; F.-Vill., Nov. App. 1880, 182; Vid., Phan. Cuming. Philip. 1885, 140; Rev. Pl. Vasc. Filip. 1886,

229; Sin. Atl. 1883, 37, t. 79; Merr., Philip. J. Sc. 1, 1906, Suppl. 49. — *H. glabrata* Meisn. in DC., Prodr. 14, 1856, 442, nomen. — *H. castaneae-folia* Meisn., l. c. 441; Miq., Fl. Ind. Bat. I, 1, 1858, 986; F.-Vill., Nov. App. 1880, 182; Merr., En. Philip. 2, 1923, 100. — *H. attenuata* (non (Jack) Bl.) Kurz, Nat. Tijd. Ned. Ind. 27, 1864, 172. — *H. obovata* (non Benn.) Kurz, l. c. — *H. travancorica* Bedd. ex Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 191. — *H. oligophlebia* Merr., Philip. J. Sc. 11, 1916, Bot. 6; En. Philip. 2, 1923, 100. — *H. obovata* (non Benn.) Ridl., J. Mal. Br. Roy. As. Soc. 1, 1923, 90.

Frutex arborescens vel arbor parva, (2—)5—8 (raro ad 18) m alta, iam in statu frutescenti florigera et fructifera, trunco saepius curvato, cortice brunnescenti vel cinerascenti, tenui, lamuloso-deciduo. Rami teretes, laevigati, fuscescentes. Ramuli apicibus tantum adpresso rufo-pilosoi ceterum cito glabri, ± complanati, ad nodos incrassati. Folia sparsa, superiora vel summa saepius 3—4-pseudoverticillata vel oblique opposita, obovato-oblonga vel obovata, apice breviter subabrupte acuminata, subacuta vel obtusa, basin versus sensim attenuata et in petiolum validum ± decurrentia, basi ipsa plerumque obtusa vel truncata, rarius subcordata, interdum attenuato-acuta, firme subcoriacea, juniora in vivo subtus cobaltina, basin versus viridi-azurea, supra ± nigrescenti-azurea, matura viridia, in secco supra olivaceo-viridia vel passim nigrescentia, subnitida, subtus castanea et opaca, interdum utrinque aequaliter brunnea, saepius subregulariter argute serrata (dentibus acutis ± incurvis, apice subglandulosis, culminibus 1.5—3 mm altis et 5—12 mm distantibus), interdum pauciserrata vel basin versus minus distincte serrata, supra glabra, subtus initio pilis solitariis adpresso fuscescentibus minutis ± laxe adspersa, maturitate ± glabrescentia, (7—)8—25(—40) cm longa, (4—)5—10(—15) cm lata, in turionibus haud raro maiora et semper manifeste serrata, costa utrinque, subtus magis prominente, in vivo saepe rubicunda, nervis lateralibus utroque latere (7—)10—12(—13) leviter curvatis alteque ascendentibus, prope marginem ± obsolete intersese conjunctis, supra fere planis, subtus prominentibus, venis venuisque utrinque sat laxe reticulatis parum elevatis; petiolus 1—6 (raro usque ad 10) mm longus, 2—4 mm crassus, basi tumidus et rugosus. Racemi axillares et e nodis defoliatis enascentes, solitarii vel rarius gemini, erecti vel patuli, densiflori, 12—25(—30) cm longi, initio in omnibus partibus subdense, sub anthesi laxe usque laxissime pilis adpresso rufescens induiti, ad perianthia interdum glabrescentes, sed ad rhachidem et pedicellos nunquam omnino glabri. Rhachis subangulata, in vivo rubicunda, in secco fusca, 1.5—2 mm diam. Bracteae ovatae, acutae, c. 1—1.5 mm longae. Pedicelli crassiunculi, plerumque bini et basi connati, sub anthesi (3—)4—7, postea usque ad 9 mm elongati. Perianthium in vivo albidum vel flavescens vel virescenti-albidum vel -flavescens, odorum?, (18—)20—22 (rarius usque ad 25) mm longum, tubo (in secco!) ± 0.6 (rarius usque ad 1) mm diam., limbo ellipsoideo 1.5—2.5 mm diam. Antherae ± 2 mm longae. Glandulae hypogynae late ellipticae vel ovato-oblongae, subtruncatae rarius quasi bidentatae, liberae, approximatae, sub anthesi cupulam aemulantes, postea divergentes. Ovarium glabrum, stylo gracili in vivo rubro. Fructus oblique lateque ellipsoideo-subglobosus, plerumque apice manifeste apiculatus basique substipitato-contractus, rarius apice basique subrotundatus, (2—)2.5—3(—4) em

longus, 2—3 cm diam., in vivo flavido-viridis, demum violaceo-suffusus vel nigrescens, pericarpio coriaceo 2—3 mm crasso; semen ovoideum, in superiore parte reticulato-rugosum; pedicellus 6—10 mm longus, 2—3 mm diam.

INDIA. S. India. Travancore and Tinnevelly Mts, above Paupanassam, c. 1200 m: *Beddome* (BM; K, *typus H. travancor.*). Assam. Silhet: *Roxburgh* (BM, *holotypus H. robust.*), *Wallich* 3661 (K, "*H. macrophylla*"). Pundua: *De Silva* (*Wallich* 2702). Naga Hills: *Prain's Coll.* 385. Tingale Bam: *Prain's Coll.* 812. Kamrup, Goalpara: *Buchanan-Hamilton* 432. Sibsagar, Garo Hills, Khasi and Jaintia Hills, 900 m, cit. Kanjilal etc. p. 106. E. Bengal: *Griffith* 4367 pr. p.

BURMA. Lower Burma. Martaban, Tenasserim cit. Hook. f. p. 191. Tavoy: Gomez, Herb. *Wallich* 1039, "*H. glabrata* Wall." msc.

SIAM. Rachaburi, Ranawng: *Kerr* 16860, 16860A. Puket, Trang: *Collins* 2402, *Boonkird* 46.

MALAY PENINSULA. Kedah. Ulu Pantai Mulik: *For. Dep. F. M. S.* 34607. Trengganu. Sg. Paka: *For. Dep. F. M. S.* 26793, 26894. Pahang. Ulu Sg. Rompin: *For. Dep. F. M. S.* 15467, 3221 (*Forsworthy*). Johore. Sg. Sedili: Corner. B. Tana Abang: *Kelsall*. Kota Tinggi: *Ridley* 15441. Selangor. Kuala Lumpur, cit. Ridley p. 142, haud vidi. Malacca. Hervey, *Maingay* 1309 (1792), 1311 (1791), *Griffith* 4367 pr. p. Sg. Hudang: *Cuming* 2338 (G, *typus H. castaneaef.*; NY). Singapore. Garden jungle and B. Timah, cit. Ridley l.c. 142, haud vidi.

SUMATRA. E. Coast. Sibolangit, 350—900 m: *Lörzing* 4190, 4204, 5647, 7946, *Nur SF* 7416. Atjeh, Gajolanden, Losir massif, 2100—2250 m: v. *Steenis* 8441. Karolanden, 1500 m: *NIFS* bb. 8622. Tapau nuli. Bataklanden ("Hochankola"): *Jung-huhn*. W. Coast. Korinchi, 750—1000 m: *Robinson & B. Kloss*. Padang, Ajer mantjur: *Beccari P. S.* 499, 711. Mt Singgalang: *Beccari P. S.* 344, 363. Mt Siboga, Padangpandjang, 780—900 m: *Schiffner* 1912. Palembang. Rawas: *Grashoff* 1143. Martapura: *Bal* 16. Mt Dempo, c. 1200 m: *Forbes* 2212. Tandjong Ring, 1800 m: *Forbes* 2731a. Benkulen. Lebong Tandai: *Brooks*. Lampung. Menggala: *Gusdorf* 60. Banka: *Horsfield*, *Teymann* 3476 HB, *Kobus*, *Berkhout* 36. G. Maras, 60—70 m: *Binnemeijer* 1843, 1602. Pangkalpinang: *Teymann* (cit. *Kurz*, Nat. Tijd. Ned. Ind. 27, 1864, 172 sub *H. obovat.* & *H. attenuat.*). Billiton: *Kiedel*.

JAVA. Bantam. Kosala, Lebak-jaha, c. 750 m: *Forbes* 377. Madur-Sawarna: v. *Hasselt* 31. Loco haud ind.: *Spanoghe*. Batavia. G. Bunder, 750 m: v. *Stoeten* 722. Bolang, 700 m: v. *Steenis* 5043. Tjampea, 150 m: *Koorders* 30443, 30444, *Reinwardt*, "*Rup. serrata*", *Arsin*. G. Kendeng, 1000 m: *Backer* 25889. G. Salak: *Blume* (L, *typus Helittoph. javan.*); *ibid.*: *Zollinger* 3023 pr. p.; *ibid.*, 700 m: *Koorders* 24313. Krawang: *de Monchy* 65, 138. Buitenzorg, 600 m: *Scheffer*, *Boerlage*, *Bakhuisen v. d. Br.* 2825, *Backer* 4146, *Lam* 2271. Djasinga, 200 m: *Backer* 23457. Preanger. Palabuan ratu, 400—580 m: *Koorders* 6245/47. G. Patuha, 1700 m: v. *Steenis* 7439. Takoka, 1000 m: *Koorders* 15011, 15265, 25765. Tjibodas, 1200 m: *Koorders* 31938. Lengkong-Pasawahan, 750 m: *Backer* 17065. G. Sembung, 1250 m: *Backer* 12437; *ibid.*, 1300 m: *Lörzing* 1199. Tasikmalaja, 720 m: *Koorders* 3358. Tjigenteng: *Koorders* 26436. G. Waringin, 1500 m: *Forbes* 670. G. Handjawung, 950 m: *Backer* 6054. G. Tjikuraj, Garut: *Burok* 381. Pangentongan, 900—1300 m: *Koorders* 10987, 18837, 26827; *ibid.*, 1600 m: *Koorders* 6248. Barutungul, 1600 m: *Popta* 26. Tjidadap, S of Tjibeber, 900—1000 m: *Backer* 22500, *Bakhuisen v. d. Br.* 1509, 3698, *Winckel* 777, 778. G. Beser pr. Tjibeber 1000—1200 m: *Bakhuisen v. d. Br.* 3855, *Backer* 22655. G. Wajang: *Smith & Rant* 600. G. Papandanjan: *Scheffer*, *Boerlage*. Plant. Malabar, 1500—1700 m: *Pulle* 3199. Preanger: *Warburg* 2832. Limbang: *Korthals*. Telaga Patengan: *Leefmans*. Tjitalahab, 750 m: v. *Steenis* 12723. Njalindung, S of Sukabumi, 900 m: *Kuntze* 5171. Tegal. Simpar-G. Slamat, 950—1190 m: *Koorders* 6267, 6270. G. Slamat, 700—800 m: *Backer* 170. Cheribon. Kuningan: *Houter* 191. Pekalongan. Lebak Barang, 300 m: *Backer* 29281. G. Prau: *Horsfield*, *Jung-huhn*. Doro: *Doct. v. Leeuwen*. Banjumas. Pringombo, 700—1000 m: *Koorders* 6273, 33789, 39065, 39071, 39162.

BORNEO. B. N. Borneo. Mt Kinabalu, 900—1500 m: *J. & M. Clemens* 26385, 27083; 30069; Ranau, c. 500 m: *Darnton* 168. Sandakan: *Agullana* 3881. Kinabatangan: *Evangelista* 954, 1074, *Br. N. B. For. Dep.* 1741. Sagaliut River: *Evangelista* 700. Elo-pura, Kabihi-Sepilok For. R.: *Br. N. B. For. Dep.* 2966, 10665. Tambunan: *Br. N. B. For. Dep.* 10488. S.E. Borneo. Hayup, N of Banjermasin: *Hub. Winkler* 2195.

W. Kutei, 25 m: *Endert* 1736, 2306. Martapura: *Korthals*, *Labohm* 1208. Asem, Pleihari: *Labohm* 1959. Asem, Sie Baru: *NIFS* bb. 2438.

PHILIPPINES. Luzon. Mount. Prov., Ifugao, Mt Polis: *B. S. 37688 Ramos & Edaño*, *PNH 20382 Mendoza*, *B. S. 19829 McGregor*. Benguet: *B. S. 5705 Ramos*, *F. B. 2207 Leaño*. Baguio: *Elmer 8346, 8763, 8885*. Mt Santo Tomas, 1900 m: *Williams 1342*, *B. S. 82301 Quisumbing*. Busol For. R., 1500 m: *F. B. 31400 Esguerra*. Sablang: *Elmer 6092*, *B. S. 12699 Fenix*. Mt Pauai: *B. S. 82385 Quisumbing & Sulit*, *B. S. 31713 Santos* (K, P; *PNH* †, *leoto-typus H. cuming*, var. *parvifol.*), *B. S. 9107 Clemens*. Mt Tonglon: *F. B. 14407 Darling*. "Benguet", loco haud ind.: *Loher 4499, 4500, 5070*, *Vidal 2008*, *B. S. 5806 Ramos*. Bontoc: *Vidal 1692*. Mt Caua: *B. S. 37998 Ramos & Edaño*. Apayao: *B. S. 28067 Fenix*. Ilocos Sur, Lepanto: *F. B. 14499 Darling*. Isabella, S. Mariano: *B. S. 47003 Ramos & Edaño*. Nueva Vizcaya, Caballo Mt: *B. S. 13738 Loher*. Nueva Ecija: *Vidal 3619, 3620*. Tayabas (Quezon): *Vidal 535*. Mt Camatis: *PNH 4507, 5038 Alcasio & Edaño*. Lucban: *Elmer 7657, 7774*. Casiguran: *B. S. 45487 Ramos & Edaño*. Mt Dingalan: *B. S. 26532 Ramos & Edaño*. Mt Bananao, 1600 m: *F. B. 869 Klemme*, *B. S. 27918, 27954 Ocampo*. Infanta-Siniloan trail: *B. S. 29176 Ramos & Edaño*. Bataan, Mt Mariveles, 500—650 m: *F. B. 836, 1354, 1354, 2076, 3060 Borden*, *F. B. 2599, 2602 Meyer*, *F. B. 1510 Ahern's Coll.*, *Williams 426, 617, 718, Whitford 118, 342*. Rizal: *F. B. Ahern's Coll. 2670, 3098*. S. Isidro: *B. S. 305 Ramos*. Balacbac: *B. S. 14988 Loher*. Montalban: *Loher 6728*, *B. S. 18208 Loher*. Oriud: *Loher 6726*. Mt Angilog: *B. S. 42042 Lopez, Loher 6733*. Bosoboso: *Merrill 1849, 2635*. Laguna, Mt Banajao: *B. S. 27954 Ocampo*. Paete: *Sjoevall*. S. Antonio: *B. S. 20463 Ramos, Ramos 10912*. Batangas: *F. B. 28048 Mabesa, Cuming 1537* (G, typus *H. philippin.*; BM, K). Albay: *Cuming 1262* (B, BM, FI, G, K, MEL, P; PR, typus *H. cumingian.*, haud vidi). Sorsogon, Mt Bulusan: *Elmer 16444*. Mt Kililibong: *B. S. 23320 Ramos* (BM, K; *PNH* †, typus *H. oligophleb.*). Lake Polog: *B. S. 23632 Ramos*. "Luzon", loco haud indicato: *Loher 6740, Vidal 2136a*. Catanduanes, 600 m: *B. S. 75332 Ramos & Edaño*, *B. S. 30525 Ramos*. Mindoro: *B. S. 8723 Merritt*. Pinamalyan: *B. S. 40952, 41115, 41117 Ramos*. Mt Halcon: *B. S. 40659 Ramos & Edaño*. Cabesa River, Calapan: *PNH 19467 Britton*. Samar. Mt Calbiga: *PNH 6461 Sulit*. Catubig River: *B. S. 24408 Ramos*. Leyte: *Wenzel 629, 1020*. Antilao River: *PNH 11856 Edaño*. Abuyog, 300 m: *B. S. 31128 Fontanoza*. Mt Abucayan: *B. S. 41786 Edaño*. Biliran: *B. S. 18552 Mo Gregor*. Mt Suiro, 315 m: *PNH 21668 Sulit*. Negros. Mt Canlaon, 1960 m: *PNH 21949, 21961 Edaño*. Mindanao. Surigao: *Wenzel 2958*. Misamis, Mt Malindang: *F. B. 4700 Mearns & Hutchinson*. Cagayan: *F. B. 28879 Cenarbre & Agelar*. Bukidnon, Mt Katanglad, 1800 m: *PNH 9953 Sulit*. Tangkulan: *B. S. 39116 Ramos & Edaño*. Davao, Mt Apo: *Elmer 11581*. Mt Mayo: *B. S. 49382 Ramos & Edaño*. Lanao, Camp Keithley, Lake Lanao: *Clemens 558*.

H. robusta is understood here in a wide sense, including *H. cumingiana*, *H. philippensis* and *H. oligophlebia*, which have the leaf-base ± acutely cuneate into the petiole, whilst "typical" *H. robusta* has the leaf-base truncate or at least obtuse, sometimes subcordate. But forms with the cuneate leaf-base occasionally are found on Java and the Malay Peninsula also, and some of the Philippine specimens of *H. robusta* have obtuse leaf-bases quite as has the type-specimen. There seem no other differences to exist in the flowers or fruits between the West Malaysian and the Philippine material of *H. robusta*.

65a. var. *integrifolia* (Elm.) Sleum. stat. nov. — *H. integrifolia* Elm., Leafl. Philip. Bot. 8, March 1915, 2798; Merr., En. Philip. 2, 1923, 99. — *H. longiflora* Merr., Philip. J. Sc. 10, Sept. 1915, 300. — *H. integra* Merr., Philip. J. Sc. 10, Sept. 1915, 301; En. Philip. 2, 1923, 99.

A typo foliiis integris saepius minoribus differt.

PHILIPPINES. Luzon: *Vidal 1141*. Mount. Prov., Benguet: *F. B. 29781 Valentín*. Baguio, road to Bontoc: *v. Steenis 17931*. Tayabas, Mt Banahao: *Whitford 982* (K; NY, typus *H. longifl.*). Bataan, Mt Mariveles: *Merrill 3767*. Rizal, Mt Susong-Delaga: *B. S. 29551 Ramos & Edaño*. Laguna: *F. B. 24156 Santos*. S. Antonio: *B. S. 15127 Ramos* (K; *PNH* †, typus *H. integ.*, haud vidi). Mindanao. Agusan, Mt Urdaneta:

Elmer 13392 (B, FI, BO, L, NY, P; PNH †, typus *H. integrif.*, haud vidi; U).
 Bukidnon, Mt Dumalucpihan: *B. S. 38994 Ramos & Edaño*. Mt. Candoon: *B. S. 38998 Ramos & Edaño*. Dinagat Isl.: *B. S. 83941 Ramos & Convocar*. Mindoro. Pinamalayan: *B. S. 41024 Ramos*.

H. integrifolia Elm., here reduced to the status of a variety, seems to represent forms of *H. robusta* with entire and mostly smaller leaves, occurring in the higher parts of the Philippines, not rarely found together with the serrate "typical" form.

A specimen which comes near var. *integrifolia* but is different in somewhat thicker leaves and other minor characters:

BORNEO. Br. N. Borneo. Mt Kinabalu, Marai Parai, open place, base of great wall, 3350 m: *J. & M. Clemens 55095*. Mentioned under *H. erratica* Hook. f. by Suessenguth in Heine, Fedde Rep. 54, 1951, 226, a species which does not occur in Borneo.

66. *H. hainanensis* Hayata, Ic. Pl. Formos. 9, 1920, 87; Groff, Ding & Groff, Lingn. Agr. Rev. 1, 1924, 75; Merr., Philip. J. Sc. 21, 1922, 494; Lingn. Sc. J. 5, 1927, 68; Kaneh. & Sasaki, Tr. Nat. Hist. Formos. 19, 1929, 367; Tanaka & Odash., J. Soc. Trop. Agr. 10, 1938, 364; Chun, Sunyatsenia 4, 1940, 183; Merr., J. Arn. Arb. 23, 1942, 159; Masam., Fl. Kainant. 1943, 63. — *H. brevipetiolata* Merr., J. Arn. Arb. 23, 1942, 160.

Frutex elatus vel arbor parva 3—8(—15) m alta, cortice griseo vel brunnescenti. *Ramuli* subteretes, in partibus recentissimis in sicco viridescentes, in partibus vetustioribus brunnei, glabri, striati, lenticellis nullis. *Folia* saepius approximata quasi verticillata, oblanceolata, rarius oblongo-obovata, apice sensim vel subcaudato-acuminata, apice ipso acutis-vel obtusiuscula, basin versus cuneata, basi ipsa breviter attenuata plerumque obtusa, sessilia vel subsessilia, chartacea vel tenuiter subcoriacea, in vivo viridia et lucida, subtus pallidiora, in sicco olivaceo-virescentia, supra manifeste, subtus parum vel haud nitentia, glabra, sat regulariter ± remote serrata (dentibus prorsus versis et ± uncinatis 0.5—1.5(—3) mm altis, 6—15(—20) mm distantibus, 12—20(—25) cm longa, 4—7(—8) cm lata, costa utrinque elevata, nervis lateralibus utroque latere 7—8 leviter curvato-ascendentibus, margine obscure anastomosantibus, supra parum, subtus distinctius elevatis, venis venuisque utrinque dense reticulatis minuteque prominulis; petiolus brevissimus plerumque vix 1—2 mm longus et crassus, rarius usque ad 5 mm longus. *Racemi* axillares solitarii sat densiflori, cum pedunculo c. 2 cm longo 12—18(—20) cm longi, omnino glabri. *Rhachis* subangulata, in sicco virescens, 1—1.5 mm diam. *Bracteae* anguste ovatae, acutissimae, 1—1.5 mm longae. *Pedicelli* sat graciles plerumque bini, basi tantum connati, 3—4(—5) mm longi. *Perianthium* in vivo albidum vel flavescens, interdum rosaceum vel viridescens, (17)—21—22 mm longum, glabrum, tubo gracili 0.5—0.6 mm diam., limbo ellipsoideo 2 mm longo et 1.5 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae* late ovatae, obtusae, in inferiore parte connatae. *Ovarium* glabrum. *Fructus* immaturus anguste ellipsoideus, rostratus, maturus ovoideo-ellipsoideus, apice breviter abrupte apiculatus, basi haud vel brevissime contractus, in vivo flavidus, griseo-brunneo-furfuraceus, 3—3.8 cm longus, 2.2—2.5 cm diam., pericarpio tenuiter coriaceo vix 1 mm crasso, pedicello 4—5 mm longo, 2—3 mm crasso.

INDOCHINA. Tonkin. Sontoy, Mt Bavi: *Pételot 2619, 2628* (A, typus *H. brevipetiol.*). Phu-tho: *Eberhardt 5066*. Hoa Binh: *Eberhardt 4129*. Annam. Vinh, Rés.

forest. de Cé Ba: *Fleury* (Herb. *Chevalier* 32373). Thua-thien, haut cours du Bogiang: *Eberhardt* 2685, 2821.

CHINA. Kwangsi. Tonkin-Kwangsi border, Kung Mu Shan: *Liang* 67480, cit. *Chun*, haud vidi, *Soo* 68175, cit. *Chun*, haud vidi. S. Nanning: *Ching* 7867, 8198. Kwangtung. Tung Sing: *Tsoong* 1897, cit. *Merr.* l.c. 494, haud vidi. Kanton: d'Alleizette. Hainan, 300—1000 m: *McClure* 8069, 8385, 8429, 9206, 9563, 9716, *Konishi* (TI, typus *H. hainan*, haud vidi), *Lei* 106, *Tsang* & *Fung* L.U. 17806, 18185, *Tsang* 590, 887, *Chun* & *Tso* 43800, 44331, *Liang* 62795, *Wang* 34549, 35208, 36148, *Gressitt* 854, *How* 71730, 72404, 73370.

67. *H. grandifolia* Lec., Not. Syst. 1, May 1910, 189; Fl. Gén. Indo-Chine 5, 1914, 164, fig. 14 (1—4).

Arbor 8—10 m. *Ramuli* subteretes glabri. *Folia* ampla, saepius subopposita, obovata vel obovato-spathulata, apice breviter acuminata, obtusa, basi cordata vel auriculata, subsessilia, supra in sicco saturate vel atrescenti-viridia, nitida, subtus dilutiora castanea, subnitida, glabra, integra vel supra medium paucidentata (dentibus glandula terminatis 1—1.5 mm altis valde distantibus), 24—35 cm longa, 9—15 cm lata, costa crassa supra bene, subtus valde prominente, nervis lateralibus utroque latere 8—10 leviter curvatis, obscure inter sese anastomosantibus, supra vix, subtus bene prominentibus, venis venulisque utrinque dense prominulo-reticulatis; petiolus 2—4 mm longus, 3—4 mm crassus. *Racemi* axillares, 20—26(—30) cm longi, rigidiusculi, ad rhachidem sat laxe, ad pedicellos et perianthia subdense breviter adpresso rufo-pilosi. *Rhachis* paulo applanata, c. 2.5—3 mm diam. *Bracteae* ± anguste ovato-acutae, glabrescentes, c. 2 mm longae. *Pedicelli* 1—1.5 mm tantum longi, plerumque geminati, basi connati, crassiusculi. *Perianthium* in vivo flavum, c. 18 mm longum, tubo 0.8—1 mm diam., limbo late ellipsoideo-clavato c. 3 mm longo, 2—2.5 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae* late oblongae, apice irregulariter retusae, liberae, approximatae, cupulam aemulantes. *Ovarium* glabrum, stylo gracili. *Fructus* incognitus.

INDOCHINA. Tonkin. Mt Bavi, vallée de Lankok: *Balansa* 3805 (K; P, typus).

68. *H. finis-terrae* Lauterb., Bot. Jahrb. 50, 1913, 332.

Arborescens, ramulis teretibus glabris. *Folia* obovata vel late obovato-oblonga, apice late attenuata, apice ipso obtusa, basi breviter in petiolum cuneata manifesteque decurrentia, ± coriacea, in sicco brunnea, supra subnitida, subtus opaca, glabra, integra, margine subrevoluta, 30—36 cm longa, (12—)13—16 cm lata, costa utrinque distincte prominente, nervis lateralibus utroque latere 9—10 curvato-ascendentibus, praeter marginem ± excurrentibus vel obscure anastomosantibus, alis pluribus brevioribus et minus distinctis intermixtis, omnibus supra parum, subtus bene prominentibus, venis venulisque utrinque dense reticulatis et prominulis; petiolus 5—7 mm longus, valde crassus et rugosus. *Racemi* e nodis defoliatis orti, breviter pedunculati, c. 22 cm longi, sat densiflori, ad rhachidem et pedicellos sparse pilis brevibus adpressis rufescensibus obsiti, ceterum glabri. *Rhachis* c. 2.5 mm crassa, teres, tuberculis numerosis minutissimis intructa. *Bracteae* minutae. *Pedicelli* gemini, basi connati, 3 mm longi. *Perianthium* 16—17 mm longum, tubo 0.6—0.7 mm diam., limbo ellipsoideo apice rotundato-obtuso 1.5—1.8 mm diam. *Antherae* c. 3 mm longae. *Glandulae hypogynae* subrotundato-truncatae, liberae, approximatae. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Madang Distr., Finisterre Mts, c. 1200 m: Schlechter 18162 (B, typus).

Similar, with somewhat smaller leaves, flowers not yet full-developed:

NEW GUINEA. N.E. New Guinea. Sepik Distr.: Ledermann 9605 (K).

69. *H. attenuata* (Jack) Bl., Ann. Sc. Nat. II, 1, 1834, 216; Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 83; Meisn. in DC., Prodr. 14, 1856, 439; Miq., Fl. Ind. Bat. I, 1, 1858, 985; Hook. f. in Hook. f., Fl. Brit. Ind. 5, 1886, 190; Boerl., Handl. 3, 1, 1900, 151; K. & V., Bijdr. Booms. Java 5, 1900, 313; Hall. f., Meded. Rijksher. 12, 1912, 23; Koord., Exk. Fl. Java 2, 1912, 154; Gamble, J. As. Soc. Beng. 75, ii, 1914, 341; Ridl., Fl. Mal. Pen. 3, 1924, 141; Burk. & Henders., Gard. Bull. Str. Settl. 3, 1925, 417; Henders., Gard. Bull. Str. Settl. 4, 1928, 314; Merr., J. Arn. Arb. 33, 1952, 243; Back., Bekn. Fl. Java em. ed. IV A, 1942, fam. 79, p. 6. — *Roupala attenuata* Jack, Mal. Misc. 1, 1820, 10 (*Rhopala*), reimpr. Hook. Bot. Misc. 2, 1830, 65; Walp., Ann. 1, 1848/49, 592. — *R. moluccana* (nec R. Br., nec Jack) Roxb., Hort. Beng. 1814, 83, nom. nud.; Fl. Ind. ed. Carey & Wall. 1, 1820, 364; R. & S., Mant. 3, 1827, 284; Roxb., Fl. Ind. ed. Carey 1832, 361. — *H. obovata* Benn. in Benn. & R. Br., Pl. Jav. Rar. 1838, 83; Meisn. in DC., Prodr. 14, 1856, 440, incl. var. *minor* Meisn. l. c.; Miq., Fl. Ind. Bat. I, 1, 1858, 985; K. & V., Bijdr. Booms. Java 5, 1900, 311; Koord., Nat. Tijd. Ned. Ind. 62, 1902, 226 incl. var. *connata* K. & V.; la. c. 63, 1904, 39. — *H. oblongifolia* Benn. in Benn. & R. Br., Pl. Jav. Rar. 1838, 83; Meisn. in DC., Prodr. 14, 1856, 438; Miq., Fl. Ind. Bat. I, 1, 1858, 983 incl. var. *subpetiolata* Miq. l. c. 984; Suppl. 1, 1860, 148; K. & V., Bijdr. Booms. Java 5, 1900, 310. — *H. bennettiana* Miq., Fl. Ind. Bat. I, 1, 1858, 984; K. & V., Bijdr. Booms. Java 5, 1900, 309; Koord., Exk. Fl. Java 2, 1912, 155; Back., Bekn. Fl. Java em. ed. IV A, 1942, fam. 79, p. 7. — *H. sumatrana* Miq., Fl. Ind. Bat. Suppl. I, 1860, 148, 1861, 364. — *Finschia sumatrana* Miq. ex Boerl., Handl. 3, 1, 1900, 151 (sphalm. pro *Helicia sumatrana*). — *H. suffruticosa* Ridl., J. Fed. Mal. Stat. Mus. 6, 1915, 171; Fl. Mal. Pen. 3, 1924, 141. — *H. lanceolata* (non K. & V.) Bak. f., J. Bot. 63, 1925, Suppl. 89. — *H. kingiana* (non Prain) Merr., Pap. Mich. Acad. Sc. 24, 1939, 67.

Frutex (1—)3—5 m altus vel arbor medioeris, raro 20 m alt. attingens, cortice sat laevi cinereo-brunnescenti minute longitudinaliter fisso. *Rami* divaricati. *Ramuli* glabri, pallide brunnei, laeves, nitiduli, longitudinaliter striati. *Folia* oblonga vel elliptico-oblonga, interdum oblongo-lanceolata rarius fere obovata, apice gradatim attenuata et subacuta, apice extremo obtusiuscula, basi attenuata, basi ipsa subacuta usque obtusata rarius subcordato-truncata, ± in petiolum decurrentia, firmule chartacea vel subcoriacea, in vivo supra saturate viridia et lucida, subtus dilutiora et ± opaca, caeruleo-reflectentia, in sicco virescentia, olivaceo-flavescentia vel dilute brunnea, recentissima interdum rubescenti-brunnea, supra nitentia, subtus subopaca, integra vel remote denticulata, interdum imprimis antice sat grosse repando-serrata, 9—25(—30) cm longa, (3—)5—8(—11, raro usque ad 17) cm lata, costa utrinque prominente, nervis lateralibus utroque latere 7—9(—10) alte curvato-ascendentibus, ante marginem distincte anastomosantibus, supra parum prominentibus vel in sicco saepius leviter impressis, subtus manifeste elevatis, venis venulisque plerumque sat dense

reticulatis utrinque parum manifuste prominulis, interdum subinconspicuis; petiolus 2—10 mm longus, basi valde incrassatus et rugosus. *Racemi* solitarii axillares vel ad nodos defoliatos instructi, fere usque ad basin densiflori, 12—25(—30) cm longi, initio erectiusculi deinde horizontaliter patuli. *Rhachis* teretiuscula, in sicco viridescens vel rubescens, glabra vel sicut pedicelli laxissime pilis adpressis rufescensibus brevibus obsita, 1.5—2.5 mm diam. *Bractae* ovato-subulatae, minutissimae, vix 1 mm longae. *Pedicelli* plerumque bini, in vivo caerulescentes, basi vel usque ad $\frac{1}{4}$ long. connati, crassiusculi, sub anthesi 4—5 mm longi. *Perianthium* albescens vel flavescens, interdum viridescenti-flavescens, odoratum, (20)—25—28 mm longum, glabrum, tubo 0.5—0.6 mm diam., limbo ellipsoideo c. 1.5 mm diam. *Antheræ* c. 2.5 mm longae. *Glandulae hypogynæ* subtruncatae, fere omnino in urceolum crenulatum connatae. *Ovarium* elongato-ovoideum, basi ipsa attenuatum, glabrum, stylo filiformi. *Fructus* in vivo caerulescenti-viridis denique purpureo-atrescens, late ellipticus vel ovoideus, subinaequilateralis, breviter apiculatus, basi late attenuatus vel manifestius in pedem brevem contractus, costis c. 6 \pm manifestis longitudinalibus subangulatus, 3—4(—5) cm longus, (2)—2.5—3 cm diam., pericarpio coriaceo \pm 2 mm crasso, pedicello 4—5 mm longo, c. 2.5 mm crasso.

SIAM. Payap, Ban Wo, Toh Moh (Doi-Sutep), c. 180 m: *Kerr* 693 (BM), shrub near stream in evergreen forest, fl. yellow. Puket, Tasan: *B. Kloss* 6928 (K), fr.

MALAY PENINSULA. Penang: Jack, Herb. Wallich 1040, 1 (BM; K, typus *H. atten.*). Telong (Tulloh) Bahang: *Curtis* 1181, *Ridley* 12683. Waterfall: *Curtis* 2765, Nur. Kedah. Langkawi: *For. Dep. F.M.S.* 20759. Perak. Kelan Tujor, 150 m: *Wray* 4052. Parit For. Res.: *For. Dep. F.M.S.* 12027, 34285. Larut: *Kunstler* 3383. Batu Togo, 60 m: *Henderson* SF 10210. Taiping, 450—600 m: *Kunstler* 8496. Goping, 100 m: *Kunstler* 5931. Ulu Kerling, 150—250 m: *Kunstler* 8795. Banks of Kinta River: *Kunstler* 764. Loco hand indicato: *Wray* 2159, 2671, 3144, 3156, *Scortechini* 195, *Kunstler* 4301, 4594, 8496. Kelantan. B. Batu Papan, S. Lebir: *Henderson* SF 29561. Pahang. G. Tahan, Teku Woods: *Ridley* 16126 (K, typus *H. suffruticos.*; SING); ibid, c. 1370 m: *Holtum* SF 20743. Telom: *Ridley*. Cameron Highlands, c. 1460 m: *Henderson* SF 23277; ibid., Bob Plant. c. 1200 m: *Nur* SF 32617, Batten Pooll. Lubok Tamang, Bertam River, c. 1060 m: *Henderson* SF 11104. Bintong: *Burkill & Haniff* SF 16684. S. Pertang, Ulu Tembeling: *Henderson* SF 22045. B. Batu Berandam, P. Tioman: *Nur* SF 21752. S. Cheka: *Holtum* SF 24761. Ulu Serau: *For. Dep. F.M.S.* 27996. Selangor. Kuala Lumpur: *Curtis* 2372, *For. Dep. F.M.S.* 15232. Dusun Tua Kajang: *Ridley*, *For. Dep. F.M.S.* 16966. Kepang Plant.: *For. Dep. F.M.S.* 44916. Ginting Sempak: *For. Dep. F.M.S.* 12114. Ulu Gombak: *For. Dep. F.M.S.* 16988. Symington. S. Buloh For. Res.: *For. Dep. F.M.S.* 13933 *Strugnell*. Klang Gates: Hume 7251a. Lower Ampang Res. *For. Dep. F.M.S.* 13367. Malacca. S. Ujong: *Alwans* 3301. Johore. Mt. Austin: *Ridley* 13008. S. Pelepong, 60 m: *Nur* SF 20001. S. Tebrau: *Ridley* 13224. Kota Tinggi Jemaluang: *Sinclair* SF 40294.

SUMATRA. E. Coast. Asahan: *Rahmat* & *Boeea* 6445, 6610, 6828, 7437, 7562, 7637, 8134, 9516, *Yates* 1191, 1593, *Bartlett* 7385, 8064. Kualu: *Bartlett* 7116, 7598. Sibolangit, 80—500 m: *Lörzing* 5685, 9692; ibid, 1100 m: *Galungi* 337. Labuhan Batu: *Toroë* 3965. G. Singgalang: *Binnemeijer* 2622. Tapau uli: *Toroë* 4691, 4746, 5092, 5294. Palembang. Ipil, Batang Leko (Harileko): *Teysmann* H.B. 3934 (BO, L; U, typus *H. sumatrana*). W. Coast. Fort de Kock: *Yates* 2510. Lampung: *Zollinger* 1594 (P, typus *H. oblong.* var. *subpetiol.*). G. Tanggamus, 1000 m: *de Voogd* 177. Loco hand indicato: *Korthals*.

JAVA. Bantam. G. Karang, 600—1000 m: v. *Hasselt*, *Koorders* 6251, 40109, 40622. Kosala, Pasir Orai, 700 m: *Forbes* 465. Tjibadui, c. 600 m: *Forbes* 80. Preanger. Tjisalak: *Koorders* 38962. Pangentjongan, 1300—1600 m: *Koorders* 6249, 6256, 13831, 13878, 13901, 13953, 26619. G. Masigit, 1650 m: *Backer* 12410. Pangerango, 1000 m: *Bakhuzen v. d. Br.* 2075. G. Salak, 600—1000 m: *Zollinger* 3023 pr. p., *Koorders* 24358. Sukabumi, 650 m: *Koorders* 38962. G. Beser, S. of Bandung: *Bak-*

huizen v. d. Br. 2801. Loco haud indicato: *Forbes* 1921. *Banjumas*. *Pringombo*: *Koorders* 6274, 12198, 33859, 39070. *Madjenang*, G. *Tjendana*, 700 m: *Backer* 18657. *Pekalongan*. *Surdjo*, 800—1400 m: *Koorders* 6257, 6271, 6272, 11236. G. *Prau*, 1600—1750 m: *Loogen*, *Lörzing* 608. *Kedu*. G. *Merbabu*, 1000—2000 m: *Büsgen* 161. G. *Sindoro*, 1200—1800 m: *Blokhus* 49, *Koorders* 6266, 11338, 36632. *Semarang*. *Telemojo*, 1200 m: *Koorders* 6265, 27901, 27902, 39230, *Coert* 1628. *Ungaran*, c. 1200 m: *Junguhu*, *Doot v. Leeuwen*. *Salatiga*, 1500 m: *FRI Ja.* 2478. *Djokja*. G. *Plawangan*, 750 m: *Beumée A* 106. *Madiun*. *Ngebel*: *Koorders* 6262, 6275, 6276, 29355, 38693. G. *Lawu*, 1500—2650 m: *Coert*, *Elbert* 227, *Dorgelo* S 438. *Pasuruan*. *Probolinggo*, *Tengger*, 1650 m: *Ridley*, *Kobus*, *Koorders* 37908 (BO, *typus H. obovat. var. connat.*). G. *Tarub*, 1250—1300 m: *Dillewijn* 545, *v. Steenis* 10718. G. *Widodaren*, 1700 m: *Backer* 3669. G. *Dorowati*, 1450 m: *Backer & Posthumus*. *Djungo*, 1200 m: *v. Steenis* 2529. *Kediri*. G. *Wilis*, 1200 m: *Lörzing* 836. *Ngandjuk*, 1100 m: *FRI Ja.* 3014. *Besuki*. *Semeru*, 1200—1800 m: *Zollinger* 597 (= 2599, BM; G, *typus H. obovat. var. minor*; P). Loco haud indicato: *Horsfield* (BM, K; U, *typus H. bennettiana*), *Horsfield* (BM, *typus H. oblongifol.*; K), *Horsfield* (BM, *typus H. obovat.*; K), *Hoffmannsegg*, *Leschenault*.

BALL G. *Pala*, 525 m: *Sarip* 255. G. *Patas*, 945 m: *Sarip* 470.

BORNEO. Br. N. *Borneo*. *Mt Kinabalu*, *Dallas*, c. 1000 m: *J. & M. Clemens* 27286; *ibid.*, below *Kalawat* near *Kappok*, 600 m: *J. & M. Clemens* 51609; *ibid.*, near *Bundu Tuhan*, c. 1000 m: *Carr SF* 27785. *Tuaran*, E of *Tamparuli*, c. 1000 m: *Br. N. B. For. Dep. San A* 4529. *Tawao*: *Elmer* 21539, 21817. *Tambunan*, 760—880 m: *Br. N. B. For. Dep. A* 3627, A 4446. *Sandakan*, *Kabili-Sepilok For. Res.*: *Castro* 4432, *Br. N. B. For. Dep.* 38808. *Sarawak*. G. *Pua*: *Igon* 456. C. E. *Borneo*. *Lelebulan*: *Jaheri* 873. *Ulu Bluu*: *Amdjah* 281. *Sg. Brunei* (c. 1°—115°): *Jaheri* 1092. E. *Borneo*. *Bulongan*, pr. fl. *Sadjan*: *Rutten* 93. SE. *Borneo*. P. *Tjahu*, 200 m: *NIFS bb.* 11097. W. *Kutei*, near *Mt Kemul*, 1500 m: *Endert* 3911. G. *Sakumbang*: *Korthals*.

Sterile, similar in leaf-characters, possibly conspecific:

CELEBES. C. *Celebes*. *Tapalang*, N of *Madjene*: *Noerkas* 438.

Specimens identical with the type-specimen, i.e. with rather thin leaves and an ± acute leaf-base, occur in Siam, the Malay Peninsula, Sumatra, Java and Borneo, whilst forms with thicker leaves and an obtuse, truncate or subcordate leaf-base up to date have been found only once in Sumatra (*Sibolangit*), but are rather frequent in Java and Borneo, exclusively so in Bali. It seems impossible to maintain this second form, described as *H. obovata*, *H. oblongifolia* and *H. bennettiana*, as a species or merely as a variety, because it is connected with the typical form by many intergrades, specially in Java. Although the extreme forms of *H. attenuata* seem to be rather distinct from each other, they show no differences in flowers or fruits.

70. *H. bullata* Sleum. sp. nov.

Arbor c. 8 m alta, ramulis novellis c. 3 mm crassis saturate ferrugineotomentosis, vetustioribus subdense pilosis brunnescentibus. *Folia* elliptica vel obovato-elliptica, apice late attenuata, subacuminata vel saepius obtusa usque rotundata, basi in petiolum cuneata, haud decurrentia, interdum paullo inaequilateralia, subcoriacea, in sicco viridescenti-flavida, juniora supra ad costam et nervos, subtus per totam faciem pilis rufis elongatis crispulis subdense aequaliter obtecta, ad costam densius tomentosa, matura supra glabra et nitida, subtus ad costam et nervos tantum manifestius pilosa, in facie ± glabrescentia, costa supra bene, subtus valde prominente, nervis lateralibus utroque latere 8—12, infimis paucis ± rectis, superioribus ± curvatis ante marginem ± distinete inter sese anastomosantibus, aliis intercalaribus paucis brevioribus, omnibus in foliis nondum plane

maturis supra parce, in foliis maturis valde manifeste cum rete venarum sat denso impressis, subtus prominentibus, venuis supra minus profunde sed distincte immersis, subtus parum elevatis; petiolus validus diutius tomentosus, demum subglabrescens et rugosus, 1.2—1.8 cm longus, ± 2.5 mm crassus, basi valde incrassatus. *Racemi* e ramulis, ut videtur, vetustioribus orti, solitarii vel bini, erecti, rigidiusculi, usque ad basin densissime florigeri, 9—10 cm longi, ubique tomento ferrugineo sat denso et ± adpresso obtecti. *Rhachis* basi 3 mm crassa. *Bracteae* ovato-acuminatae, 1 mm longae. *Pedicelli* crassiuseculi, plerumque gemini et in inferiore tertio connati, sub anthesi 4—5 mm longi. *Perianthium* in vivo albidum, c. 16 mm longum, basi inflatum, tubo 1 mm diam., limbo clavato subacuto 1.8 mm diam. *Antherae* 3.5 mm longae. *Glandulae hypogynae* ovato-oblongae, retusae, liberae, approximatae. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. Papua. West. Highl., Nondugl: N.G.F. 4368 Womersley (K, typus; L, LAE), fl. 4—51.

71. *H. insculpta* Sleum.. Bot. Jahrb. 70, 1939, 141.

Frutex vel arbuscula 2—6 m alta, ramulis crassis, novellis dense pilis crispulis ferrugineis obtectis, cito glabratis, denique griseo-corticatis, apieibus folia subcomose gerentibus. *Folia* late oblonga vel elliptica rarius oblonga, apice late acuminata, obtusa, basi late cuneata vel fere rotundata, subcoriacea, novella utrinque pilis crispulis subadpressis dilute ferrugineis subdense obtecta, citissime costa subtus. basi brevissime pilosa excepta glabrescentia, regulariter dentata (dentibus glanduloso-incrassatis obtusiusculis 6—9 mm distantibus, c. 1 mm altis), 6.5—8(—10) cm longa, 3.5—4.5(—5) cm lata, costa supra parum prominente vel leviter impressa, subtus valde prominente, nervis lateralibus utroque latere c. 7 arcuatis, margine inter sese conjunctis, supra distincte impressis, subtus bene prominentibus, venis laxe reticulatis supra parum immersis, subtus elevatis, venuis subinconspicuis; petiolus crassiuseculus, ± dense ferrugineo-pubescent, 5—6 mm longus. *Racemi* e ramulis defoliatis orti, densiflori, rigidiusculi, 6—8 cm longi. *Rhachis* dense rufo-pilosa, c. 2.5 mm diam. *Bracteae* ovato-acuminatae, glabrescentes, 2—2.5 mm longae. *Pedicelli* plerumque gemini, basi connati, laxe rufo-pilos, 2.5—3 mm longi. *Perianthium* in vivo rubrum vel rosaceum, ante anthesin sat dense, sub anthesi laxe usque laxissime pilis rufescensibus adpressis indutum, c. 30 mm longum, tubo 0.7 mm diam., limbo clavato 2.5 mm diam. *Antherae* 2.5—3 mm longae. *Glandulae hypogynae* in anulum 1 mm altum connatae. *Ovarium* glabrum, stylo crassiuseculo apice fusiformi. *Fructus* ignotus.

NEW GUINEA. Papua. Centr. Distr., Mt Victoria, above "The Gap", c. 2440 m: Carr 13744 (B, typus; BM, K, L, NY, SING), 15236. Owen Stanley Range, c. 2800 m: McGregor.

72. *H. silvicola* W. W. Smith, Not. Edinb. Bot. Gard. 10, 1918, 181.

Arbor parva, usque ad 6 m alta. *Ramuli* novelli ± dense subpatenter rufo-tomentosuli, vetustiores glabrescentes. *Folia* oblanceolata, apice sensim vel subcaudato-acuminata, acutiuscula, basi ± longe in petiolum attenuata, in superiore petoli parte tantum decurrentia, firmule chartacea usque subcoriacea, in secco supra brunnescenti-viridia, subtus saturate castanea, utrinque opaca et costa ± patenter ferrugineo-tomentella excepta glabra, demum omnino glabrescentia, regulariter serrata vel serrulata, dentibus prorsus

versis glandula terminatis subacutis 0.5—1 mm altis, superne 3—6 mm, deorsum magis distantibus), 15—25 cm longa, 3—6 cm lata, costa utrinque imprimis subtus elevata, nervis lateralibus utroque latere 10—12(—14) curvatis inter sese subparallelis et parum distinete anastomosantibus, supra parum, subtus manifestius prominulis, venis venulisque sat laxe reticulatis supra parum vel vix, subtus minute prominulis; petiolus rufo-tomentosus, (1.5—)2—2.5 cm longus. *Racemi* axillares fere ad basin densiflori, suberecti, 12—17 cm longi. *Rhachis* subpatenter rufo-crispulo-tomentosa, c. 2 mm diam. *Bracteae* ovato-lanceolatae vel lineares, acutae, subpersistentes 2(—3) mm longae, rufo-pilosae. *Pedicelli* plerumque bini, basi connati, subgraciles, sat dense rufo-pilosae, tarde glabrescentes, 3—4 mm longi. *Perianthium* in vivo pallide flavidum, 11—12 mm longum, extus glabrum, tubo gracili c. 0.5 mm diam., limbo ellipsoideo 1.5 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* oblongo-ovatae, liberae, approximatae, basi paullo cohaerentes. *Ovarium* glabrum. *Fructus* ignotus.

CHINA. Yunnan. Szemao, c. 1980 m: Henry 18075 (A, B; E, typus; FT, K, L, NY).

73. *H. pyrrhobotrya* Kurz, J. As. Soc. Beng. 43, ii, 1873, 103; Prel. Rep. For. Veg. Pegu 1875, 74; For. Fl. Br. Burma 2, 1877, 312; Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 191.

Arbor parva 3—6 m alta, ramulis novellis rufo-tomentosis, vetustioribus tarde glabrescentibus rigidis, nodulosis, vestigiis foliorum delapsorum magnis subrotundatis. *Folia* ampla, oblonga-obovato vel plerumque oblanceolata, ad apices ramulorum conferta, subcoriacea, apice sat abrupte et breviter acuminata, acuta rarius subobtusa, basin versus ± longe cuneata, basi ipsa acuta vel obtusa, in superiore petoli parte ± decurrentia, in sicco supra flavidoolivacea, subnitida, subtus dilute brunnea et opaca, adulta costa diutius tomentosa excepta glabra, subtus laxissime minute adpresse rufescenti-pilosula, sat dense subregulariter argute serrata (dentibus prorsus versis 1—2 mm altis et 4—8(—15) mm distantibus, glandula terminatis), 20—30(—45) cm longa, (6—)7—12(—16) cm lata, costa utrinque prominente, subtus valde crassa, nervis lateralibus utroque latere c. 14 leviter areuatis, inter sese ± parallelis, prope marginem parum distinete anastomosantibus, supra fere planis vel levissime immersis, subtus prominentibus, venis venulisque subdense reticulatis utrinque obscure prominulis; petiolus valde crassus 1—3 cm longus, 2.5—3 mm crassus, initio rufo-tomentosus, deinde glabrescens. *Racemi* e ramulis defoliatis orti, robusti, ± penduli, pedunculo 2—3 cm longo incl. 20—30 cm longi. *Rhachis* subteres, laxe usque sat dense subpatenter rufo-pilosa, sub anthesi 2.5—3 mm crassa. *Bracteae* subovato-lanceolatae, 1—1.5 (rarius —3) mm longae, patenter tomentosae, ± persistentes. *Pedicelli* (2—)3—4 mm longi, crassiusculi, plerumque gemini, basi vel usque ad medium connati, subdense rufo-pilosae. *Perianthium* in vivo albidum vel flavescens, laxe adpresse rufo-ferrugineo-pilosum, 18—23 mm longum, tubo 0.8—1 mm diam., limbo subclavato-ellipsoideo c. 2 mm diam. *Antherae* 3 mm longae. *Glandulae hypogynae* truncatae, in annulum crenatum connatae. *Ovarium* glabrum. *Fructus* oblique subglobosus, brunneo-furfurascens, rugosulus, apice breviter apiculatus, basi in stipitem 2—3 mm longum contractus, 2—2.5 cm diam., pericarpio 2.5 mm crasso, pedicello 10 mm longo, 2 mm crasso.

BURMA. Lower Burma. Martaban Hills, between Sittang and Salween watershed, c. 1200 m: *Brandis* 1408 (CAL; K, *typus*). Pegu, Karen hills: *Kurz* 5123. Kow-pok, Salween: *Meebold* 16703 (CAL). Thayet Ch. Chg.: *Kurz* 987bis. Meeplay: *Brandis* 1380. Amherst Distr., Dawna Range, c. 1000 m: *Lace* 5656. Tenasserim, Jaepo, 1500 m: *Gallatly* 546.

CHINA. Yunnan. Szemao, SE. forest, c. 1200—1800 m: *Henry* 12808.

74. *H. petelotii* Merr., J. Arn. Arb. 19, 1938, 24.

Arbor c. 10 m alta, ramulis crassis apicibus saturate rufo-tomentosis, deorsum glabratiss. *Folia* oblanceolata vel elongato-oblongo-ovata, apice breviter acuminata, subacuta vel obtusa, basin versus longe cuneata, basi ipsa breviter in petiolum attenuata vel sat abrupte obtusata, in petiolo parum vel haud decurrentia, subcoriacea vel coriacea, in sicco supra virescenti-olivacea vel dilute castanea et nitentia, subtus brunnea et subopaca, sat regulariter remoteque serrata (dentibus prorsus versis subuncinatis glandula terminatis c. 1—1.5 mm altis, 6—10(—15) mm distantibus), rarius subintegra, supra glabra, subtus secus costam diutius rufo-tomentosula, in facie passim pilis rufescensibus minutis adpressis vestita, 30—40 cm longa, 10—13 cm lata, costa utrinque prominente, subtus validissima, nervis lateralibus utroque latere 12—15(—20) curvatis praeter marginem excurrentibus, supra planis vel paullo elevatis, subtus prominentibus, venis venuisque utrinque sat dense reticulatis et prominulis; petiolus crassus, (1—)1.5—2 cm longus, diutius rufo-tomentosus. *Racemi* e trunco e ramulis defoliatis orti, ut videtur ascendentes, fere usque ad basin sat densiflori, 30—40 cm longi. *Rhachis* sicut pedicelli rufo-ferrugineo-tomentosula, subteres, rigida, 2.5—3 mm diam. *Bracteae* lanceolatae, pilosae, subpersistentes, 2 mm longae. *Pedicelli* robusti, plerumque bini, basi connati, 6—8 mm longi. *Perianthium* (*in vivo* albidum?) laxe usque subdense subadpresso rufo-ferrugineo-pilosum, 30—35 mm longum, tubo 1—1.2 mm diam., limbo elongato-ellipsoideo 2.5—3 mm diam. *Antherae* 3.5 mm longae. *Glandulae hypogynae* in cupulam crenatum connatae. *Ovarium* glabrum. *Fructus* ignotus.

INDOCHINA. Tonkin. Chapa, slope west of the first ridge, Massif du Fan Tre Pan, c. 1400 m: *Pételot* 5721 (A, *typus*). Chapa, 1500 m: *Pételot* 4791.

75. *H. hypoglaucă* Diels, Bot. Jahrb. 54, 1916, 202; Sleum., l.c. 70, 1939, 142.

Arbor 20—25 m alta, gracilis, fusco-corticata. *Ramuli* novelli rufo-ferrugineo-tomentosi, vetustiores plerumque mox glabrescentes, teretes. *Folia* (lanceolato-)oblonga, apice breviter (1—2 cm) acuminata, subacuta, basi in petiolum attenuata, in superiore tertio petioli parum manifeste decurrentia, subcoriacea, *in vivo* supra viridia et lucida, subtus glabrescentia, in sicco pallide olivaceo-virescentia usque flavescentia, supra nitidula, subtus ± opaca, novella subtus in facie rufo-ferrugineo-tomentosula cito glabrescentia, adulta subtus diutius ad costam, nervos et basin versus in facie ± laxe adpresso fusco-pilosa, denique omnino glabrescentia, integra vel rarissime hic inde denticulo 1 mm alto obsita, (6—)7—12(—15) cm longa, (2.5—)3.5—5.5 cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere 6—7(—8) inferne subrectis marginem versus curvatis interque sesse conjunctis, subtus tantum prominulis, venis venuisque utrinque sat dense prominulo-reticulatis; petiolus gracilis, basi parum incrassatus, tarde glabrescens, 1.5—2.5(—3) cm longus. *Racemi* axillares

vel e ramulis defoliatis orti, solitarii, interdum ad summas axillas haud foliigeras dispositi itaque paniculam terminalem praebentes, densiflori, 7—13(—15) cm longi, ubique sat dense adpresso ferrugineo- vel rufescens pilosi. *Rhachis* 1.5—2 mm diam. *Bracteae* ovato-lanceolatae, acutiusculae, 1 mm longae, plerumque cito caduae. *Pedicelli* sat graciles, sub anthesi 3—5 mm longi, plerumque bini et basi, rarius usque ad medium connati. *Perianthium* in vivo albido-flavescens vel flavidum, 17—18(—20) mm longum, tubo 0.8—1 mm diam., limbo ellipsoideo 2 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* late obovatae, truncatae, ± manifeste in cupulam connatae. *Ovarium* glabrum, stylo gracili. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Sepik Distr., "Pyramide", c. 400 m: *Ledermann* 7594 (B, typus; K). Morobe Distr., Sattelberg, c. 1000 m: *Clemens*. Wareo, c. 600 m: *Clemens* 1398. Yunzaing, 1370—1520 m: *Clemens* 3999, 4066, 6471. Sambanga, 1500—1800 m: *Clemens* 7695. Samanzing, 1800—2130 m: *Clemens* 9433. Matap, 1500—1800 m: *Clemens* 11261. Boana, 1200—1500 m: *Clemens* 8595.

The hairs in the type-material are somewhat crisp, but in the specimens from the Sattelberg region manifestly appressed.

76. *H. albiflora* Sleum., Bot. Jahrb. 70, 1939, 138.

Arbor c. 12 m alta, ramulis novellis adpresso saturate fusco-tomentosulis, vetustioribus subteretibus glabris. *Folia* oblonga, late obtuse attenuata, basi late attenuata usque subrotundata, in superiore petioli parte paulo decurrentia, in secco olivaceo-castanea vel saturate castanea, supra nitidula, subtus opaca et pallidiora, novella subtus rufo-pubescentia, adulta glabra vel subtus ad costam et nervos pilis solitariis passim induita, integra, (12—)15—17 cm longa, 5.5—7(—8) cm lata, costa supra parum, subtus manifeste prominente, nervis lateralibus utroque latere 8—9 supra parum, subtus distinete prominentibus, curvatis et conspicue anastomosantibus, venis venulisque dense reticulatis utrinque parum, sed bene visibiliter prominulis; petiolus ± dense adpresso rufo-pilosus, tarde glabrescens, 1.5—2 cm longus, basi ima incrassatus. *Racemi* ex axillis defoliatis enascentes, solitarii, 10—12 cm longi, ad rhachidem et pedicellos sat dense breviter adpresso rufo-pilosii. *Rhachis* 2—2.5 mm diam. *Bracteae* lanceolatae, acutae, 1—1.5 mm longae. *Pedicelli* crassiusculi, plerumque bini et basi connati, c. 3 mm longi. *Perianthium* in vivo albidum, laxe pilis sublongis rufis adpresso pilosum, 25 mm longum, tubo 0.8 mm diam., limbo 2 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae* subquadratae, breves, connatae, cupulam crenulatam formantes. *Ovarium* glabrum, stylo crassiusculo. *Fructus* deest.

NEW GUINEA. Papua. Centr. Distr., Isuarava, c. 1200 m: *Carr* 15473 (B, typus; BM, K, NY, SING); ibid., c. 1370 m: *Carr* 15493.

77. *H. petiolaris* Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 84; Meisn. in DC., Prodr. 14, 1856, 438; Miq., Fl. Ind. Bat. I, 1, 1858, 983; Hook. f. in Hook. f. Fl., Br. Ind. 5, 1886, 190; Boerl., Handl. 3, 1, 1900, 151; Ridl., J. Str. Br. R. As. Soc. 33, 1900, 132; Agrie. Bull. Straits & F. M. S. 1, 1902, 248; Gamble, J. As. Soc. Beng. 75, ii, 1914, 342; Merr., En. Born. Pl. 1921, 235; Fl. Mal. Pen. 3, 1924, 141; Henders., Gard. Bull. Str. Settl. 4, 1928, 314; Burk., Dict. 1935, 1134. — *Roupala moluccana* (non R. Br., non Roxb.) Jack, Mal. Misc. 1, 1820, 10 (*Rhopala*), reimpr. Hook. Bot. Misc. 2, 1830, 65; R. & S., Mant. 3, 1827, 284. — *H. attenuata* (non

[Jack] Bl.) Ridl., J. F. M. Stat. Mus. 7 (1916) 49. — *H. erratica* (non Hook. f.) Suesseng. in Heine, Fedde Rep. 54, 1951, 226 pr. p.

Frutex c. 4 m altus vel arbor parva 8—12 (rarius usque ad 20) m alta. *Ramuli* crassi, in partibus novellis angulati, glabri, in partibus vetustioribus subteretes, cito griseo-corticati. *Folia* obovato vel oblongo-obovata, apice breviter late usque subcaudato-acuminata, apice ipso subacuta vel obtusa, interdum subrotundata, basi in petiolum cuneata paulloque decurrentia, rigide subcoriacea usque coriacea, in sicco supra saturate olivacea vel brunnea, nitida, subtus intense castanea, opaca, haud raro omnino nigrescentia, integra, glabra, (10—)14—22(—27) cm longa, (5—)6—10 (—13) cm lata, costa supra parum, subtus valde prominente, nervis lateraliibus utroque latere 7—8 (interdum usque ad 10) curvatis praeter marginem conspicue inter sese anastomosantibus, aliis pluribus intercalaribus intermixtis, omnibus supra subimpressis vel plerumque parum, subtus semper manifeste prominentibus, venis, venulisque subdense reticulatis utrinque parum, sed bene visibiliter elevatis; petiolus sat crassus, (1—)1.5—2.5 (—4) cm longus, basi valde incrassatus. *Racemi* axillares, patuli, usque ad basin densiflori, 15—25(—30) cm longi, in sicco nigrescentes. *Rhachis* in vivo purpurascens, sub anthesi 2.5(—3) mm crassa, subangulata, sicut pedicelli sparse pilis minutis adpressis obsita vel cito omnino glabrata. *Bracteae* anguste ovato-acuminatae vel subulatae, pilosulae, vix 1 mm longae, plerumque subpersistentes. *Pedicelli* crassiusculi, bini, basi ± alte connati, 5—6(—7) (rarius usque ad 10) mm longi. *Perianthium* in vivo albidum vel pallide viride, glabrum, crassiusculum, (18—)20—22 (rarius usque ad 25) mm longum, tubo robusto c. 1 mm diam., limbo elongato-ellipsoideo 2—2.5 mm diam. *Antherae* c. 3 mm longae. *Glandulae hypogynae* ovatae, obtusae, sub anthesi ± in cupulam crenulatam et interdum minutissime fimbriatam cohaerentes demum divergentes. *Ovarium* glabrum. *Fructus* subglobosus vel obovoideus vel depresso-globosus, (2—)2.5—3 cm longus, 2.5—3 cm crassus, apice subrotundatus vel brevissime obtuse apiculatus, basi late attenuatus vel paullo substipitato-contractus, demum in sulco unilaterali verticali manifesto hians, in vivo primo viridis, deinde caeruleo-purpureus, pericarpio coriaceo duro exsucco c. 2 mm crasso, pedicello 6—7 mm longo, 3 mm crasso.

MALAY PENINSULA. Penang: Jack in Herb. Wallich 1041.1 (BM; K, typus of *H. petiol.*). Moniots Road: Curtis. Western Hill: Haniff SF 9134. Kedah. Kedah Peak, c. 1060 m: Robinson & B. Kloss 6118. Perak. Larut: Kunstler 5458. Ulu Kerling: Kunstler 8687. Goping, 150—250 m: Kunstler 4641. Thaiping: Kunstler 8442. Trolak For. Res.: For. Dep. F. M. S. 43418. Kelantan. G. Stong, c. 790 m: For. Dep. F. M. S. 37635. Selangor. Public Gardens Kuala Lumpur: For. Dep. F. M. S. 15233, Goodenough 10472. Johore. S. Sedili, Bagan Liman: Corner SF 25965. Singapore: Wallich 1041.2. Garden jungle: Ahmad Garden nr. 1219, Ridley 4695. Sg. Buloh: Ridley 3625b, 6257. Changi Res.: Ridley 4696. Bukit Mandai: Ridley 3625a.

BORNEO. Br. N. Borneo. Mt Kinabalu, Dahobang River, c. 2130 m: J. & M. Clemens 32914, not typical; ibid., Penibukan Ridge, 1220 m: J. & M. Clemens 40999; ibid., Columbon River, 1800—2100 m: J. & M. Clemens 33963; ibid., Upper Kinataki River, c. 2100 m: J. & M. Clemens 31865; ibid., Dallas, c. 1000 m: J. & M. Clemens 27586 (27636); ibid., below Kalawat near Kappok, c. 610 m: J. & M. Clemens 51609. Labuan: Treacher, Barber (Motley) 242. Sarawak: Haviland & Hose 3734. Baram Distr.: Hose 217. Miri River: Hose 531. Mt Brengoh, near Tegura: Haviland. C. Borneo. Lianggagang: Hallier 2616. S.E. Borneo. W. Kutei, near Mt Kemul, 1200—1500 m: Endert 3644, 3877. E. Borneo. P. Tarakan: Meyer 2484, 2541.

77a. var. *kingiana* (Prain) Sleum. stat. nov. — *H. kingiana* Prain, Kew Bull. 1912, 342; Gamble, J. As. Soc. Beng. 75, ii, 1914, 343; Ridl., Fl. Mal. Pen. 3, 1924, 142; Burk. & Henders., Gard. Bull. Str. Settl. 3, 1925, 417; Henders., Gard. Bull. Str. Settl. 4, 1927, 102. — *H. obscurinervis* Chatterjee, Kew Bull. 1948, 65.

A typo foliis manifeste in petiolum decurrentibus brevissime petiolatis vel subsessilibus recedit. *Fructus* subgloboso-ellipsoideus, apice quam in typo magis apiculatus, basi distinctius substipitato-contractus.

BURMA. S. Lower Burma. Tavoy, headwaters of Heinize Chaung, 300 m: Gage 77 (CAL, typus *H. obscurinervis*; K).

S. SIAM. Puket, Pang-nga, Kao Katalawan, 1700 m: Kerr 18491 (BM).

MALAY PENINSULA. Perak. Larut, 250—300 m: Kuntler 3714, 3881, 6217 (K, lecto-typus *H. kingianus*). G. Batu Puteh, 1200 m: Wray 983, 1160. Pahang. Rompin, G. Legong, Mengail For. Res.: For. Dep. F.M.S. 17120. Renglet, Cameron Highl., c. 1100 m: Henderson SF 28641. Fraser Hill, c. 1200 m: Nur SF 11173. "Close to the Gap", Pahang side, c. 800 m: For. Dep. F.M.S. 1072.

BORNEO. Sarawak: Beccari P.B. 3609. S.E. Borneo. Banjermasin: Motley 398.

78. *H. clivicola* W. W. Smith, Not. Edinb. Bot. Gard. 10, 1918, 179.

Frutex vel arbor parva, 6—10(—12) m alta. *Ramuli* primo molliter rufo-tomentosi, posteae glabrescentes corticeaque in secco brunnecenti-nigrescenti obtecti. *Folia* late obovato-oblonga vel obovata, apice breviter obtuse vel subacute acuminata, basi ± late in petiolum cuneata, novella utrinque laxe usque subdense rufo-ferrugineo-pilosa, matura supra costa exenta glabra, denique omnino glabrescentia, in secco saturate vel atro-viridia, interdum flavescenti-viridia, vix nitidula, subtus pallidiora et ad costam et nervos diutius rufo-ferrugineo-tomentosa demum ± glabrescentia, ± firmule subcoriacea vel fere coriacea, integra vel antice pauciserrata, rarius densius et usque ad laminae basin serrata, (12—)14—20(—22) cm longa, 6—9(—11) cm lata, costa supra parum, subtus bene prominente, nervis lateralibus utroque latere 6—8(—10) curvatis alteque ascendentibus, haud vel obscure anastomosantibus, supra parum, subtus distinete prominentibus, venis venuisque sat dense reticulatis, supra planis vel leviter immersis, subtus parum elevatis; petiolus 1.5—2(—2.5) cm longus, c. 2 mm crassus, initio tomentosus, deinde glabreseens. *Racemi* ex axillis summis orti, suberecti vel patuli, (7—)10—22 cm longi, densiflori. *Rhachis* teretiuscula, pilis subadpressis vel crispulis ferrugineo-tomentosa, ± 2.5 mm crassa. *Bracteae* subovato- usque lineari-lanceolatae, 1—2 mm longae, pilosulae. *Pedicelli* plerumque bini, basi connati, c. 2(—3) mm longi, ± dense rufo-ferrugineo-pilosi. *Perianthium* 13—14(—15) mm longum, glabrum, in vivo viridescenti- vel flavidо-aurantiacum, vel luteum, fragrans, tubo 0.5—0.7 mm diam., limbo ellipsoideo 1.5—1.8 mm diam. *Antherae* c. 2.5 mm longae. *Glandulae hypogynae* crassae, late oblongae vel obovatae, truncatae, liberae, approximatae. *Ovarium* glabrum. *Fructus* subglobosus, apice rotundatus, basi breviter substipitato-contractus, 2—2.5 cm diam., pericarpio coriaceo c. 1.5 mm crasso, pedicello 6—7 mm longo, c. 2 mm diam.

CHINA. Yunnan. Hills S of Tengyueh, 25°, 1800—2100 m: Forrest 8333 (E, typus); ibid., Shweli-Salween div., E of Tengyueh, 25° 6': Forrest 29802; ibid., 25° 20': Forrest 17493; ibid., S of Tengyueh, 25°—98° 30'; Forrest 26297; ibid., Shweli-Salween div., 25° 40': Forrest 18411.

79. *H. nilagirica* Bedd., Madr. J. Lit. Sci. ser. 23 (III, 1, 1864) 56,

pl. 11 (fl.) ; Fl. Sylv. 1872, 173; Hook. f. in Hook. f., Fl. Bl. Ind. 5, 1886, 190; Gamble, Fl. Madras 7, 1925, 1243. — *H. cochinchinensis* (non Lour.) Meisn. in DC., Prodr. 14, 1856, 442 quoad pl. assam.; Kurz, For. Fl. Br. Burma 2, 1877, 311. — *H. erratica* Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886, 189; Lee., Fl. Gén. I. C. 5, 1914, 161; Kanjilal, Kanjilal, De & Das, Fl. Assam, 4, 1940, 106. — *Finschia erratica* Hook. f. ex Boerl., Handl. 3, 1, 1900, 151 (sphalm. pro *Helicia erratica*). — *H. robusta* (non (Roxb.) R. Br. ex Wall.) Hosseus, Beih. Bot. Centralbl. 28, 2. Abt., 1911, 385; Lee., Fl. Gén. I. C. 5, 1914, 161. — *H. hookeriana* Hosseus, Durch König Tschulalongkorns Reich 1913, 165, nom. nud. — *H. stricta* Diels, Fedde Rep. 13, 1915, 527.

Arbor parva vel mediocris, alt. 10 m attingens, cortice pallide brunneo rugosulo. Ramuli ad apices tantum ± dense adpresso rufo-pilosí, ceterum citissime glabratí, teretiusculi, in sicco brunneo-nigrescentes. Folia elliptica vel oblonga, rarius oblongo-lanceolata, apice breviter acuminata, subacuta vel rarius obtusa, basi cuneata et paullo in petiolum decurrentia, in sicco saepius supra flavidó-viridia vel pro parte nigrescentia, haud vel parce nitidula, subtus ± brunnescentia et opaca, chartacea usque subcoriacea, integra vel undulata, interdum imprimis antice pauciserrata, vel praecipue in speciminiibus junioribus vel in turionibus densius et ± regulariter subargute serrata (dentibus subincurvatis glandula terminatis obtusiusculis c. 1—1.5 mm altis, 3—10 mm distantibus), initio ad petiolum et utrinque ad basin, imprimis secus costam ± laxe adpresso rufescenti-pilosa, matura omnino glabra, 8—14(—20, in turionibus usque ad 30) cm longa, (2.5—)4—6.5(—9, in turionibus usque ad 12) cm lata, costa supra leviter, subtus distinctius prominente, nervis lateralibus utroque latere c. 6—7, inferioribus 2—3 rectiusculis alteque ascendentibus, superioribus distincte curvatis marginem potentibus et inter sese obscure conjunctis, aliis brevioribus intercalaribus pluribus, omnibus supra minute elevatis, in sicco saepius discoloribus pallidioribus, subtus prominentibus, venis venulisque sat laxe reticulatis utrinque parum elevatis, supra interdum supra impressiusculis; petiolus sat gracilis, (1—)1.5—2(—2.5) cm longus. Racemi axillares vel e nodis defoliatis orientes, ± ascendentes, 10—18(—26) cm longi, fere usque ad basin densiflori, solitarii, ad rhachidem et pedicellos laxe usque subdense pilis minutis adpressis rufidulis adspersi. Rhachis subangulata, c. 1.5 (raro usque ad 2) mm diam. Bracteae anguste ovato-acutae, pedicellis adpressae, rufo-pilosae, vix 1 mm longae. Pedicelli crassiusculi, sub anthesi 2—3 mm longi, plerumque bini basique connati. Perianthium in vivo albidum vel flavescens, ingrate odoratum. 13—14 mm longum, tubo c. 0.7 mm diam., limbo clavato 1.5—1.8 mm diam. Antherae c. 2.5 mm longae. Glandulae hypogynae late ovatae vel subrotundatae, liberae, valde approximate. Ovarium basi contractum, glabrum, stylo gracili apice manifeste clavato. Fructus oblique globosus, apice apiculatus, basi distincte breviter (sub)-stipitato-contractus, (2—)2.5—3.5 cm diam., pericarpio coriaceo 2 mm crasso, pedicello 3—4 mm longo, 2.5—3 (rarius usque ad 4) mm crasso.

INDIA. S. India. W. Ghats, Nilgiri Hills, Walaghat, c. 1000 m: *Beddome* (BM, typus *H. nilagir.*). Sipara Ghat: *Beddome* (BM). SE. Wynnaad, Devala, c. 1000 m: Gamble 15424. S. Travancore, Mutikalongat: *Beddome* (BM). Sikkim, reg. trop., 900—1800 m: J. D. Hooker (B, BM, E; K, lecto-tpus *H. errat.*; NY, S), King 2101, Kurz. Gangtok, c. 1500 m: *Lacaita*. Darjeeling Hills, c. 1000 m: Gamble 745, Cowan

144. Sitong, 1500 m: *Gamble 10265*. Kurseong, c. 1370 m: *Clarke 26612*, *Sykes & Gamble 2304*. Junction of the Little and Great Rangiet, 550—760 m: *Anderson 1016*. Mungpoo, c. 1370 m: *Cousins 51*, *Gammie*. Choontuttee (Chunbati), c. 1000 m: *Clarke 28098*; *ibid.*, c. 760 m: *Gamble 628*. Pankabau, c. 915 m: *Gamble 6971*. Bhutan: *Cooper & Bulley 1122*. Rinkinpung, c. 1200 m: *Gamble 9591*. Kalimpung, c. 1200 m: *Gamble 2305*, *10528*, *Burkill R. E. P. 32281*. Bengal: *Griffith 4367 pr. p.* Leesh valley, 1000 m: *Haines 1010*. Assam: *Griffith 183*. Khasia Hills, 1200—1800 m: *Kurz 197*, *331*, *Burkill & Banerjee 133*. Kullung, Mamloo: *Hooker & Thomson*. Mulki, c. 1600 m: *Ruse 147*. Surareen, c. 1500 m: *Clarke 14782*, *40428*, *43685*. Manksandram: *Clarke 14390*. Borpani, c. 1000 m: *Clarke 38164*. Nonglam, c. 1200 m: *Clarke 15423*. Shillong, c. 1060 m: *Collett, Clarke 43924*, *44176*; *ibid.*, Bendon Fall, c. 1370 m: *Prain 42*, *Kanjilal 2382*. Konomo: *Watt R. E. P. 11574*. Nungkao, c. 1000 m: *Clarke 44041*. Mawlengkeng, common between Shillong and Jowai: *Carter E. B. 750*. Nya Bungalow, 1000 m: *Clarke 43317*. Duphla Hills: *Lister*. Outer Arbor Hills, summit of Mt Bapu, c. 1900 m: *Burkill R. E. P. 86926*. Pynursla: *Biswas 4012*. Naga Hills, 1200—1500 m: *Meebold 9261*, *Bor 4497*. Jainthia Hills, c. 1400 m: *Burkill & Bonerjee 293*. Chennap valley: *Gallatly 313*. Manipur. Laimatak, 1200—1500 m: *Meebold 5884*. Myang-khong, 1000—1200 m: *Watt 7160*.

BURMA. Upper Burma. Nam Tamai valley, $27^{\circ} 45'$ — $97^{\circ} 45'$, c. 2100 m: *K. Ward 13517*. Ruby Mines: *Abdul Huk 104*, *203*. Mogok, 1200—1500 m: *Rodger 163*, *333*. Upper Chindwin, c. 1830 m: *MacKenzie 9*. Maymyo, 600—1100 m: *Meebold 8033*, *Haines, Rodger 104*, *Badal Khan 14*, *63*, *261*, *Lace 3150*, *5800*, *Parkinson 252*, *662*, *2076*, *Buchanan 34*. Phyet, c. 1900 m: *Toppin 6226*. Katha, 1500—1800 m: *Rodger 166*. Bhamo, Cachin Hills: *Cubbitt 460*, *Shaik Mokin*. Pegu, Karen Hills: *Kurz 987*. S. Shan States, c. 1200 m: *K. Ward 8829*, *Rock 2196*, *2200*, *Collett 726*; *ibid.*, Laikha border, c. 1900 m: *Robertson 360*; *ibid.*, Kuy Tung, c. 1680 m: *McGregor 722 bis*. Lower Burma. Tenasserim, Moulmein, 1800—2100 m: *Parish 1023*. Mooleyit, c. 1900 m: *Parkinson 7*, *Gallatly 452*.

CHINA. Yunnan. Mekong-Salween div., $26^{\circ} 40'$: *Forrest 18204*. Szemao, 1370—1525 m: *Henry 11935* (B, *typus H. strict.*), *11935 A*, *12858*. Ship-ping Hsien, 200 m: *Tsai 53359*. Mengtze: *Henry 11383*. Tengyueh, c. 1800 m: *Forrest 26668*. Shunning, 1720 m: *Yü 16089*. Mong-ka, 1750 m: *Tsai 56374*, *56915*. Mong-Hai, 1200—1500 m: *K. Ward 12752*.

INDOCHINA. Tonkin. Cha-pa, c. 1000 m: *Poilane 12895*, *Pételot 1626*. Annam. Tourane, 600—1500 m: *Poilane 7116*. Massif du Langbian, 900—1200 m: *Chevalier 40566*, *40575*; *ibid.*, Dran, 1000 m: *B. Kloss, Poilane 3926*. Haut Donai, Djirinh, 1000—1900 m: *Poilane 22562*. Dalat: *Hayata 186*, *Evrard 285*, *1083*. Cambodia. Thong, Knang Prépeu: *Pierre 692 pr. p.* Laos. Plateau d'Attapeu: *Harmand 1150*.

SIAM. Payap, Chiengmai, Doi Angka (Doi Intanon), 1650—2570 m: *Hosseus 357*, *Kerr 5904*, *Put 3732*, *3786*, *Garrett 532*; Chiengdao, c. 1450 m: *Garrett 1179*; Pang Tawn: *Put 3911*; Doi Sutep, 800—1500 m: *Kerr 622*, *R. For. Dep. Thailand 2843*, *3338*, *4539*; Doi bakom Pok, Muang Fang, 2000 m: *Kerr 5195*. Udawn, Phu Krading, Loie, 1040 m: *R. For. Dep. Thailand 5635*; Kao Krading, Loi, 1200 m: *Kerr 20058*.

80. *H. paucinervia* Merr., Philip. J. Sc. 17, 1921, 247; En. Philip. 2, 1923, 100.

Frutex vel arbor parva, usque ad 5 m alta. *Ramuli* teretes, laeves, in siccio saturate rubro-brunnei, novelli laxe minutissime adpresso pilosuli. *Folia* oblongo-elliptica vel subovato-oblonga, apice late acuminata, obtusa, interdum subrotundata, basi in petiolum cuneata paulloque decurrentia, firmule subcoriacea, in siccio supra olivaceo-brunnescentia et nitida, subtus aequaliter brunnea et opaca, interdum utrinque saturate brunnea, integra vel superne leviter et distanter grosse serrata, margine parum revoluta, 10—15 cm longa, 4—6(—8) cm lata, costa utrinque prominente, nervis lateralibus utroque latere 4—5 curvato-ascendentibus, inter sese sat manifeste conjunctis utrinque prominentibus, venis venulisque sat dense reticulatis utrinque bene prominulis; petiolus 1(—1.5) cm longus. *Racemi* axillares vel ex axillis defoliatis orti, erecti, sat densiflori, 14—20 cm longi. *Rhachis* teretiuscula, sieut pedicelli laxissime pilis minutis adpresso rufescensibus

pilosula, e. 1.5 mm diam. *Bracteae* subdeltaeae, acutiusculae, vix 0.5 mm longae. *Pedicelli* plerumque bini, liberi vel ima basi connati, 2—3 mm longi. *Perianthium* in vivo albidum vel flavescens, glabrum, (16—)17—19 mm longum, tubo gracili 0.4—0.5 mm diam., limbo ellipsoideo 1—1.2 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* late ovatae, obtusae, superne liberae, inferne in cupulam connatae. *Ovarium* glabrum. *Fructus* subglobosus, laevis, apice brevissime apiculatus, paullo contractus, ± 3.5 cm diam., pericarpio coriaceo 2—3 mm crasso, pedicello 4 mm longo, c. 3 mm crasso.

PHILIPPINES. Mindanao. Surigao, on river banks at the iron deposit on the NE. coast, 300 m: B. S. 34610 Ramos & Pascasio (PNH †, typus, haud vidi), 34621. Dinagat Isl., iron deposit: B. S. 83867, 84098 Ramos & Convocar.

81. H. pallescens Diels, Bot. Jahrb. 54, 1916, 200.

Arbuscula divaricato-ramosa, trunco cinereo-corticato. *Ramuli* novelli subangulati, glabri. *Folia* oblongo-lanceolata vel oblonga, rarius anguste elliptica, apice sensim acuminata, subfalcata, subacuta, basi sensim in petiolum angustata, haud decurrentia, coriacea vel subcoriacea, glaberrima, in vivo saturate viridia et opaca, subtus glaucescentia, in sicco pallide olivaceo-viridescentia, subopaca, integra, 15—20 cm longa, 3.5—7 cm lata, costa supra in sicco bene visibiliter immersa, subtus crasse prominente, nervis lateralibus utroque latere 7—8 longe curvato-ascendentibus et praeter marginem excurrentibus, supra parum, subtus distinctius prominentibus, obsolete inter sese curvato-conjunctis, venis venuisque dense reticulatis utrinque bene visibiliter prominulis; petiolus crassiusculis, ± 1 cm longus. *Racemi* ex axillis ramulorum defoliatorum orti, gracillimi, pedunculo c. 1.5 cm longo inclusu 6—8 em longi. *Rhachis* glabra vel pilis solitariis minutis adspersa, 1.5 mm diam. *Bracteae* haud visae, probabiliter citissime caducae. *Pedicelli* saepius bini, liberi vel usque ad medium connati, 3—4 mm longi. *Perianthium* in vivo albidum, sparse pilis ferrugineis gracillimis adpressis obsitum, fere glabrum, 18—20 mm longum, tubo 0.6 mm diam., limbo elongato-ellipsoideo fere 2 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* crassiusculae, late obovatae, truncatae vel leviter emarginatae, liberae, approximatae. *Ovarium* glabrum. *Fructus* ignotus.

NEW GUINEA. N.E. New Guinea. Sepik Distr., "Lordberg", 1000 m: Ledermann 10184 (B, typus), 10056 (B †).

82. H. graciliflora Merr., Philip. J. Sc. 3, 1908, 132; En. Philip. 2, 1923, 99.

Arbor parva c. 6 m alta, ramulis gracilibus, in partibus novellis dense subadpresso rufo-ferrugineo-tomentosis, ceterum cito glabratiss, brunneis vel cinerascentibus. *Folia* elliptico-lanceolata, apice sat breviter (1—2 cm longe) subacute acuminata, saepius paullo curvata, basi in petiolum manifestum attenuata, parum decurrentia, subinaequilateralia, chartacea usque subcoriacea, sat tenuia, in sicco supra brunnescenti-olivacea, subnitida, subtus brunnescientia et opaca, integra vel antice distanter paucidentata (dentibus prorsus versis acutiusculis vix 1 mm altis), rariter grosse paucilobata, recentissima utrinque sat dense longeque adpresso rufo-pilosa, maturitate glabrescentia, adulta subtus ad costam diutius laxe rufo-pilosa, denique glaberrima, (8—)10—14(—20) cm longa, 2.5—4.5(—6) cm lata, costa supra fere plana, subtus prominente, nervis lateralibus utroque latere 7—8 inferne

manifeste rectiusculis, superne curvatis, praeter marginem inter sese conjunctis supra parum, subtus distinctius elevatis, venis venuisque utrinque sat dense laeteque prominulo-reticulatis; petiolus gracilis glabrescens, 1—1.5(—2) cm longus. *Racemi* axillares solitarii, ascendentis, gracillimi, laxiflori, 12—20 cm longi, ubique subdense pilis longis rufis pro parte deciduis subadpressis induiti. *Rhachis* 0.5—0.7 mm diam. *Bracteae* ovato-lanceolatae, tenues, $\frac{1}{2}$ — $\frac{2}{3}$ pedicellorum longit. aequantes. *Pedicelli* plerumque bini, 0.5—1 cm distantes, graciles, c. 3 mm longi, basi infima tantum connati. *Perianthium* tenuissimum, 14—16 mm longum, sub anthesi basi tantum pilosum, ceterum glabrescens, tubo 0.4 mm diam., limbo ellipsoideo 1.2 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* subquadratae, apice retusae, liberae, valde approximatae itaque cupulam aemulantes. *Ovarium* glabrum. *Fructus* ignotus.

PHILIPPINES. Mindanao. Lanao, Lake Lanao, Camp Keithley, 700 m: Clemens (B, BO, NY; PNH †, *typus*), Sept. 1907.

83. *H. biformis* Sleum., Bot. Jahrb. 70, 1939, 140.

Arbuscula 4—6 m alta. *Ramuli* subteretes, glabri, cito cortice cinereo obtecti. *Folia* elliptico-oblonga vel elliptica, late apice acuminata, obtusa, rarius breviter emarginata, basi late in petiolum attenuata, interdum subrotundata, parum decurrentia, coriacea, rigidiuscula, in sicco supra flavescentia usque saturate olivacea, subtus castanea et opaca, novella utrinque imprimis subtus dense pilis substrigosis pallidis obtecta, epidermide pro parte squamuoso-secernente, matura glabra vel subtus brevissime laxissime adpresso rufescenti-pilosula, integra, (4.5)—5.5—8(—9) cm longa, (2.5)—3—4.5 cm lata, costa supra parum elevata vel (in sicco!) impressa, nervis lateribus utroque latere 6—8 inferne rectiusculis, marginem versus curvatis et manifeste inter sese conjunctis, supra leviter immersis, subtus manifeste prominentibus, venis venuisque supra subinconspicuis, subtus parum prominulo-reticulatis; petiolus crassus, saepe brevissime adpresso rufo-pilosus, 0.5—1 cm longus. *Racemi* ex axillis foliorum delapsorum orti, densiflori, subascendentis vel horizontaliter patentes, ubique sat dense pilis rufidulis adpressis obsiti, 5—9 cm longi. *Rhachis* rigidiuscula, 2—2.5 mm diam. *Bracteae* ovato-lanceolatae, acutae, 1.5—2 mm longae, plerumque cito caducae. *Pedicelli* fere semper bini, liberi vel basi connati, crassiusculi, 3—4 mm longi. *Perianthium* in vivo laete rubrum, 20—23 mm longum, initio subdense, serius laxius rufo-pilosum, ab apice glabrescens, tubo 1 mm diam., limbo elongato-ellipsoideo 2—2.5 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* in cupulam crenulatam connatae. *Ovarium* glabrum, stylo crassiusculo. *Fructus* globosus, 1.5 cm diam., pedicello 5 mm longo et 2 mm crasso.

NEW GUINEA. Papua. Centr. Distr., Murray Pass, Wharton Range, 2840 m: Brass 4717 (A, BO; NY, *typus*), 4535.

84. *H. cauliflora* Merr., J. Arn. Arb. 19, 1938, 24.

Arbor 5—6 m alta. *Ramuli* novelli in sicco brunnescentes, omnino glabri, subteres, vetustiores griseo-corticati. *Folia* lanceolata vel oblongo-lanceolata, apice sensim acuminata, apice ipso subobtusa, basi in petiolum cuneata parum decurrentia, subcoriacea, in sicco supra viridi-olivacea, nitida, subtus brunnescentia minus nitentia, integra, glabra, (8)—10—17 cm longa, 2—3 cm lata, costa supra inferne leviter elevata, superne paullo

impressa, subtus prominente, nervis lateralibus utroque latere 7—8 inferne bene rectiusculis, ante marginem curvatis et anastomosantibus, supra subobscuris, subtus prominulis, venis venuisque supra laxe, subtus dense reticulatis et manifestius prominulis; petiolus c. 1 cm longus, basi incrassatus et rugosulus. *Racemi* solitarii vel depauperato-fasciculati, in ramulis crassioribus vel in trunco e tuberculis lignosis usque ad 2.5 em diam. orti, satis laxiflori, 12—15 cm longi. *Rhachis* rigida, subangulata, 2—2.5 mm diam., sicut pedicelli sat dense pilis adpresso-rufidulis obtecta. *Bracteae* subulatae c. 1 mm longae, pilosulae. *Pedicelli* crassiusculi, plerumque bini et ima basi connati, sub anthesi 4—5 mm longi, denique usque ad 7 mm accrescentes. *Perianthium* sat gracile, 30—35 mm longum, inferne glabrum, superne ad limbum laxe adpresso rufescens-pilosulum, tubo c. 1 mm diam. limbo clavato 2 mm diam. *Antherae* 2.5 mm longae. *Glandula hypogynae* late ovatae, truncatae, liberae, approximatae, cupulam aemulantes. *Ovarium* glabrum, stylo gracillimo sat abrupte distinete clavato ibique c. 1 mm diam. *Fructus* ignotus.

INDOCHINA. Tonkin. Route from Vinh Yen to Tam Dao: Pételot 5684 (A, typus; NY, P).

85. *H. longipetiolata* Merr. & Chun, Sunyatsenia 2, 1935, 217, t. 41; Tanaka & Odash., J. Soc. Trop. Agr. 10, 1938, 364; Masam., Fl. Kainant. 1943, 63.

Arbor 5—12 m alta, trunco c. 25 m diam., cortice griseo vel castaneo. *Ramuli* apicibus decidue rufo-pilosi ceterum glabri, subteretes, vetustiores in sicco brunnei demum griseo-corticati. *Folia* oblongo-lanceolata, rarius oblonga, apicem versus gradatim attenuata, apice ipso subacuta rarius obtusiuscula, glandula terminali distincta instructa, basi in petiolum cuneata, in superiore petioli parte ± longe anguste decurrentia, subcoriacea usque coriacea, firma, glabra, in vivo saturate viridia, subtus pallidiora, glaucescentia, in sicco supra olivaceo-viridia, subnitida, subtus cinerascenti-brunnescentia et opaca, integra, (9)—10—16(—18) cm longa, 2.5—4(—6) cm lata, costa utrinque bene prominente, nervis lateralibus infimis utroque latere singulis e basi orientibus, superioribus 7—8(—9) a costa abeuntibus inferne bene rectiusculis demum bifidis et curvato-anastomosantibus, intercalariibus paucis, omnibus utrinque aequaliter prominulis, venis venuisque subdense reticulatis utrinque leviter sed visibiliter prominulis; petiolus 2—3(—5) cm longus, basi ipsa valde manifeste incrassatus et rugosus. *Racemi* plerumque ex axillis defoliatis orti, solitarii, fere ad basin subdense florigeri, 12—20 cm longi. *Rhachis* subteretes, laxissime adpresso rufo-pilosa vel glabrescens, c. 1.5 mm diam. *Bracteae* subulatae, 0.5 mm longae. *Pedicelli* crassiusculi laxe adpresso rufo-pilosi, plerumque bini et basi tantum connati, ± 3 mm longi. *Perianthium* in vivo albidum, viridescens vel purpurascens-suffusum, glabrum vel laxissime adpresso pilosulum, 15—16 mm longum, tubo 0.6—0.8 mm diam., limbo elongato-ellipsoideo 1.8—2 mm diam. *Antherae* c. 2.5 mm longae. *Glandulae hypogynae* late ovatae, liberae, valde approximatae vel ima basi connatae. *Ovarium* glabrum. *Fructus* ovoideus, apiculatus, basi breviter contractus, maturus purpureo-nigrescens, c. 2.5 cm diam., pedicello 5 mm longo, 1.5 mm crasso.

CHINA. Hainan. Tung Gap and Tung Gap to Munfa Shi: Chun & Tso 43706

(A, B; NY *typus*), 43741, 43903. Mocheung Ling, 500—900 m: Chun & Tao 44294. Loco haud indicato: Wang 36905, 36056, How 73216.

86. *H. stenophylla* Merr., J. Arn. Arb. 19, 1938, 25.

Arbor parva, ramulis etiam recentissimis glabris gracilibus, teretibus, brunnescensibus demum cinerascentibus, subnitidis. *Folia* (anguste) lanceolata, apicem versus sensim acuminata, subacuta, basi in petiolum cuneata, subcoriacea, in siccio supra saepius olivaceo-viridia, interdum saturate castanea, subtus plerumque brunnea, supra nitida, subtus subnitida, glabra, in superiore dimidio vel tertio remote serrata (dentibus prorsus versis obtusis culis c. 1 mm altis et 4—6(—10) mm distantibus), basin versus plerumque integra, rarissime denticulis utroque latere 2 exceptis integra, 9—13 cm longa, (1—)1.5—2.5(—3) cm lata, costa utrinque parum vel subtus magis prominente, nervis lateralibus utroque latere 8—10 inferne rectiusculis, superne arete curvatis et ascendentibus, prope marginem manifeste intersese conjunctis, utrinque leviter prominentibus, venis venuisque utrinque dense prominulo-reticulatis; petiolus gracilis, glaber, 8—10 mm longus. *Racemi* axillares, solitarii, elongati, graciles, penduli, pedunculo 4—6 cm inclusu 25—30 cm longi, ante plenam anthesin ubique subdense, sub anthesi laxe pilis elongatis adpressis rufis induti. *Rachis* 1 mm diam. *Bractae* ovato-lanceolatae, acutae, ± persistentes, 1.5—2 mm longae. *Pedicelli* graciles, plerumque bini et in inferiore tertio connati, sub anthesi 6—7 mm longi, postea usque ad 9 mm accrescentes. *Perianthium* in vivo probabiliter albidum, gracile, 20—23 mm longum, tubo 0.4 mm diam., limbo subgloboso-ellipsoideo c. 1 mm diam. *Antherae* 1.5 mm longae. *Glandulae hypogynae* in annulum crenatum connatae. *Ovarium* glabrum, stylo filiformi. *Fructus* ignotus.

INDOCHINA. Annam. Tourane: J. & M. Clemens 3487 (A, *typus*; B, K, NY, P).

87. *H. cochinchinensis* Lour., Fl. Cochinch. 1790, 83; ed. Willd. 1793, 105; R. & S., Syst. 3, 1818, 306; Mant. 3, 1827, 234; Bl., Ann. Sc. Nat. II, 1, 1834, 214; Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 82; Meisn. in DC., Prodr. 14, 1856, 442 quoad pl. Loureir.; Benth., Fl. Hongk. 1861, 295; Forbes & Hemsl., J. Linn. Soc. Bot. 26, 1891, 394; Matsum. & Hayata, En. Pl. Formos. 1906, 354; Ind. Pl. Jap. II, 2, 1912, 48; Dunn & Tutch., Fl. Kwangt. & Hongk. 1912, 226; Lec., Fl. Gén. I. C. 5, 1914, 161; Crevost & Lemarie, Cat. Prod. Indoch. 1917, 261; Groff, Ding & Groff, Lingn. Agr. Rev. 1 (1923), 1924, 75; Chun, Cat. Trees & Shr. Chin. 1924, 38; Merr., Lingn. Sc. J. 5, 1927, 68; Yanagita, Ill. Seedl. For. Trees 1, 1927, fig. 191; l. c. 3, 1927, fig. 349 veg. & var.; Masam., Prel. Rep. Veg. Yak. 1929, 69; Hand.-Mazz., Symb. Sin. 7, 1929, 157; Sasaki, Cat. Gov. Herb. Formosa 1930, 185; Mak. & Nem., Fl. Jap. ed. 2, 1931, 238; Honda & Sakisaka, Syst. Pl. Jap. 1931, 159; Ito, Fl. of Mieken, Jap. 1932, fig. 281; Masam., Mem. Fac. Sci. Agr. Univ. Taihoku 11, 1934, 163; Merr., Comm. Loureiro Fl. Cochinch., Trans. Am. Phil. Soc. N. S. 24, 1935, 140; Tanaka & Odash., J. Soc. Trop. Agr. 10, 1938, 364; Masam., Fl. Kainant. 1943, 63. — *Roupala cochinchinensis* (Lour.) R. Br., Trans. Linn. Soc. 10, 1810, 192 (*Rhopala*); R. & S., Syst. Veg. 3, 1818, 429. — *R. robusta* (non Roxb.) Spreng., Syst. Veg. 1, 1825, 482 pr. p. (*Rhopala*). — *H. lancifolia* S. & Z., Fl. Jap. Fam. Nat. 2, Abh. Akad. Münch. 4, 3, 1846, 198; Walp., Ann. 1, 1848/49, 592; Meisn. in DC., Prodr. 14, 1856, 439; Miq., Ann. Mus. Bot. Lugd. Bat. 3, 1867, 137; Franch. & Sav., Enum. Pl. Jap. 1, 1875, 403; Engl. in E. & P.,

Nat. Pfl. Fam. 3, 1, 1893, 146. — *H. tonkinensis* Lee., Not. Syst. 1, 1910, 190; Fl. Gén. I. C. 5, 1914, 162. — *H. annularis* W. W. Smith, Not. Bot. Gard. Edinb. 10, 1918, 178; Merr., J. Arn. Arb. 19, 1938, 23.

Frutex 1—5 m vel arbuscula 3—10 m alta, rarius arbor 20 m. alt. attingens, trunco cortice intense cinerascente verrucoso. *Ramuli* glabri, novelli subangulati, in sicco olivacei, vetustiores teretes nigrescentes. *Folia* lanceolata usque lanceolato-oblonga vel oblanceolata, rarius subobovato-oblonga, apice subabrupte acuminata, apice ipso subacuta vel obtusa, basi in petiolum cuneata, in superiore petioli parte ± decurrentia, firmule chartacea usque subcoriacea, rarius fere coriacea, in sicco supra flavid-viridia vel brunnea, interdum nigrescentia, subtus brunnea, supra subnitida, subtus opaca, glabra, integra vel plerumque antice pauciserrata (dentibus glandula terminatis obtusiusculis 1—2 mm altis et 3—6 mm distantibus), in speciminiibus junioribus vel in turionibus omnino argute serrata, (5—)6—13 (raro usque ad 14) cm longa, 2—3(4, rarius usque ad 5) cm lata, costa supra subtusque prominente, nervis lateralibus utroque latere c. 6—7, omnibus vel certe superioribus inferne distinete rectiusculis, interque sese subparallelis, marginem versus curvatis et anastomosantibus, intercalaribus additis plerumque brevioribus pluribus, omnibus utrinque leviter sed bene visibiliter elevatis, venis venulisque sat dense reticulatis utrinque minute prominulis, interdum subobscursis; petiolus sat gracilis, 0.7—1.2(—1.5) cm longus. *Racemi* solitarii, axillares vel e nodis defoliatis orti, interdum subterminales, sat graciles, stricti, subascendentes, 4—17 cm longi, fere usque ad basin subdense florigeri, plerumque omnino glabri, rarius ad rhachidem et pedicellos laxe pilis subadpressis rufescens adspersi. *Rhachis* angulata, c. 1 mm diam. *Bractae* subovato-lanceolatae, subpersistentes, acutae, 1—1.5 mm longae. *Pedicelli* sub anthesi 3—4 mm longi, plerumque bini, basi vel usque ad medium connati, subgraciles. *Perianthium* in vivo albidum vel flavescens, odoratum, 10—12 (—14, rarius usque ad 15) mm longum, tubo c. 0.5 mm diam., limbo clavato c. 1.2—1.5 mm diam. *Antherae* 2 mm longae. *Glandulae hypogynae* late ovatae vel ellipticae, interdum subrotundae, obtusae vel truncatae, interdum leviter retusae, liberae vel sat approximatae et inferne cohaerentes. *Ovarium* glabrum, stylo gracili. *Fructus* subgloboso-ovoideus, breviter apiculatus, basi 1—2 mm contractus, sulco longitudinali manifesto, maturus azureo-nigrescens, c. 1.5 cm longus, 1.2 cm crassus.

INDOCHINA. *Cochinchina.* Loureiro (BM, typus *H. cochinch.*) Bien Hou: *d'Alleizette*. Cambodge. Km 175 route de Frimbell: *Poilane* 449. Annam. Vinh. entre Phu-qui et Cau-Giat: Fleury (Herb. Chevalier 32618). Thua-thien, Binh dien: *Poilane* 1428. Haut Donai, 900 m: Pételot 8923. Blao, 800 m: *Poilane* 21891, 21915, 21975, 22204. Quang-tri, Dong Tam Pe: *Poilane* 30050. Tourane: J. & M. Clemens 4136, *Poilane* 7526. Col des Nuages près Tourane, 400—500 m: *Poilane* 7903. Massif du Langbian, 1000—1100 m: Chevalier 31267. Tonkin. Khang-thuong: Bon 1613. Thien-thou: *Balansa* 5417, Bon 5417. Thoi-Nguyen: Pételot 5839. Ninh Binh, Cho Ganh: Pételot 950. Sontay, Mt Bavi: *d'Alleizette*. Phu Tho, Phu Ho: Pételot 1061, 6184. Bat-bac: *Balansa* 3302 (B, L, K; P, typus *H. tonkin.*).

CHINA. Yunnan. Szemao, c. 1400 m: Henry 12315 (E, typus *H. annular.*; K, NY), 12315A, 12315B. Mengtze, c. 1200 m: Henry 10756. Hills NW of Tengyueh, 25° 25'—98° 15': Forrest 27167. Tchen-fong-shan, 650 m: Maire. Ping-pien Hsien, 1400 m: Tsai 55124, 60275, 62777. Szechuan. Kiang-Yu-Hsien: Cheng 2673. Mt Omei, 500 m: Liu 1292. Kwangsi. Shap Man Taai Shan, Kwangtung border: Tsang 22236, 22624, 23977, 24030, 14355, 24569. S. Nanning, 760—1000 m: Ching 8044, 8054, 8318.

Tou Ngok Shan: *Tsang* 23257. Tian-chen: *Ching* 7823. Se Tze Shan: *Tsang* 23336. Hainan, 250—1000 m: *Tsang* 409, 439, *Lei* 254, 713, *Lau* 1453, 1640, *Wang* 35344, *Hou* 73005, *Chun* 7018, 7074, *Ford*, *Chun* & *Tso* 43937. Hunan. Sintien Hsien, 600 m: *Fan* & *Li* 378. Tschangtscha: *Handel-Mazz.* 11909. Tsingtschou: *Handel-Maze.* 11045. Kwangtung: Canton vicinity: *Henry*, *Canton Chr. Coll.* 433, 1917, 1540bis, 3050. Lung T'au Shan: *Canton Chr. Coll.* 12690, *McClure* 13759. Lin distr.: *Canton Chr. Coll.* 3433, 3463. Lo Fou Shan: *Tsiang* 1614, *Merrill* 11001. Kau Fung: *Tsang* 20999. H. Heung Shan: *Canton Chr. Coll.* 6290. Sunwie: *Tsiang* 2932. Pon-tan, Luichow: *Tsiang* 2548. Siudsao: *Handel-Mazz.* 307. Fan Shiu Shan: *Lau* 2558. Tsing Wan Shan: *Lau* 2264. Chang-kiang: *Chun* 5830. Hongkong: *Ford*, *Wright* 459, *Tsiang* 2948. Kiangsi. Sai Hang Cheung: *Lau* 3995. Oo Chi Shan: *Lau* 4436. Wuchiao, near Hualing Shan, 200 m: *Tsiang* 10485. Lipechiao, Tsoongjen, 300 m: *Tsiang* 10181. Ningdu-Tjingian, 500 m: *Handel-Maze.* 501. Fukien. Futchau: *Waburg* 5801. N. Fukien, near Chekiang border, 600—1200 m: *Ching* 2248. Kuliang: *Chung* 6461. Diengloh: *Fukien Chr. Univ.* 2579. Yeping, 650 m: *Chung* 2854. Minhow Hsien: *Chung* 2240. Kushan: *Chung* 6673, *Fukien Chr. Univ.* 5761. Amoy: *Chung* 4685. Central Fukien: *Dunn* 234. Chekiang. Lung Chiung Hsien: *Hu* 460. Hu p eh. Enshih Hsien: *Chow* 1838.

FORMOSA. Shinchiku, Hoppo: *Wilson* 10318, *Kanehira* 262. Koasong: *Price* 536. Bankinseng Mts: *Henry* 819. Taihoku: *Wilson* 11233. For other localities cf. Sasaki, 1930, 185.

JAPAN. Liu Kiu Isl. & Okinawa, Amami-Oshima, Tanegasima, cf. Masamune 1934, 163. Yakushima: *Masamune*, *Faurie* 3807. Kyusyu. Nagasaki: *Pierot* 601 (L, *holo-typus* *H. lanatifol.*; A, M), *Maximovicz*, *Oldham*. Mt Kuishima: *Tachiro*. Kagoshima, Mt Kaimon: *Sakurai*. Sikoku cf. Masamune 1934, 163. Honshu. Shingu Wakayamaken (c. 33° 40'): *Uno*, apparently the most northern locality of *H. cochinchinensis*. — "Japan", loco haud indicato: *Bürger*, *Zollinger* 502.

87a. var. *pseuderratica* Sleum. var. nov.

Foliis late oblongis vel late obovato-ellipticis 8—18(—22) cm longis, 3.5—6.5(—10) cm latis, in sicco semper viridi-flavescentibus, reticulatione venarum venularumque utrinque magis prominente, interdum supra leviter immersa, perianthio 14—17(—18) mm longo a typo recedit. *Fructus* (*Tsang* 23336) obovoideo- vel ellipsoideo-globosus, 2—2.3 cm longus, 1.6—1.9 cm diam., levissime 6-costatus, pericarpio 1 mm crasso, nigrescente. — An species propria?

CHINA. Kweichow. Tuhsien, 500—550 m: *Tsiang* 6630, 7041. Sanhoa, 700 m: *Tsiang* 6264. Kwangsi. San Ching Hsien, 300 m: *Steward* & *Cheo* 1002. Ling Yün Hsien, 1360 m: *Steward* & *Cheo* 680. Tung Hoo, N of Luchen: *Ching* 5628. Miu Shan, N of Luchen, 1060 m: *Ching* 6001. Yeo Mar Shan, N of Hin Yen, 1430 m: *Ching* 7196. Dar Shan, S. Nanning, 915 m: *Ching* 8014. Shap Man Taai Shan: *Tsang* 24254. Kwangtung. Lok Chong: *Tso* 20285, 20985, 21051 (K; NY, typus; P). Ying Tak: *Wang* 509, *Chun* 30425. Teng Wu Shan: *Lau* 20279, *Canton Chr. Coll.* 3069 *Levine*, *Ho* 60062. Lo Fou Shan: *Ford* 21, *Canton Chr. Coll.* 1556 *Levine*, *Merrill* 10358. Ching Yuen distr.: *Canton Chr. Coll.* 2093 *Levine*. Fan Shiu Shan: *Lau* 2600. Hongkong: *Ford* 329.

87b. var. *lungtauensis* Sleum. var. nov.

Foliis latioribus 13—22 cm longis, (6—)7—12 cm latis, in sicco plerumque saturate castaneis a typo diversa.

CHINA. Kwangtung. Ye Wong Fa, Yang Shan, S of Linchow: *Tsui* 747 (K, typus, "*H. erratica* Hook. f. var. *lungtauensis*" F. P. Metcalf msc.; NY). Lung T'au Shan: *Mell* 746, 949, *Canton Chr. Coll.* 12456, 12612, *Lingnan Univ. Herb.* 12690. Yam Na Shan: *Tsang* 21378. Thai-young: *Dalezel*. Yung yun city: *Lau* 913 (→ var. *pseuderratica*). Wah Shui Shan: *Lau* 948 (→ var. *pseuderratica*). Kiangsi. Sai Hang Cheung: *Lau* 4112 (→ var. *pseuderratica*).

Species obscurae

H. ovata (Jack) Benn. in Benn. & Br., Pl. Jav. Rar. 1838, 84; Meisn. in DC., Prodr. 14, 1856, 439; Miq., Fl. Ind. Bat. I, 1, 1858, 984. —

Roupala ovata Jack, Mal. Misc. 2, 1822, 95 (*Rhopala*), reimpr. Hook. Comp. Bot. Mag. 1, 1836, 259; Merr., J. Arn. Arb. 33, 1952, 243.

“Folia subsessilia ovata utrinque glaberrima integerrima, alterna et opposita, c. 25 cm longa, c. 15 cm lata, marginibus revolutis, venis conspicuis. Racemi axillares, pedicellis brevissimis cum perianthiis ovariisque levissime tomentosis.”

SUMATRA. Tapanuli, Jack.

No type-specimen is available. I have seen no material from Sumatra which would coincide with the original description. Possibly the simple-leaved form of a species of *Heliciopsis*.

H. serrata R. Br. in F.-Vill., Nov. App. 1880, 182.

“Ex silvis S. Mateo, Luzon.”

No material seen. Certainly not the true *H. serrata* (R. Br.) Bl., which does not occur in Luzon.

Roupala serrata Roxb., Hort. Beng. 1814, 83 (*Rhopala*), nom. nud.

“Malay Arch.” An *Helicia serrata* (R. Br.) Bl. (*Roupala serrata* R. Br.)?

Species e genere excludendae

H. artocarpoides Elm., Leafl. Philip. Bot. 5, 1913, 1826 = *Heliciopsis*.

H. balansae Lec., Not. Syst. 1, 1910, 189 = *Heliciopsis*.

H. darlingiana F. v. M., Fragm. 5, 1865, 24 = *Darlingia spectatissima* F. v. M.

H. diversifolia White, Queensl. Dep. Agr. Bot. Bull. 20, 1918, 18, f. = *Hicksbeachia*.

H. henryi Diels in Fedde Rep. 13, 1915, 528 = *Heliciopsis*.

H. heyana Bail., Queensl. Fl. 4, 1901, 1329 = *Macadamia*.

H. incisa K. & V., Bull. Inst. Bot. Btzg 2, 1899, 10 = *Heliciopsis*.

H. lanceolata K. & V., Bull. Inst. Bot. Btzg 2, 1899, 10 = *Heliciopsis*.

H. lobata Merr., Lingn. Sci. J. 6, 1930, 276 = *Heliciopsis*.

H. micronesica Kaneh., Fl. Micron. 1933, 95, japon.; Bot. Mag. Tokyo 47, 1933, 669 = *Finschia chloroxantha* Diels.

H. pallidiflora W. W. Smith, Not. Bot. Gard. Edinb. 10, 1918, 179 = *Heliciopsis*.

H. parasitica Pers., Syn. 1, 1805, 214, based on *Helixanthera parasitica* Lour. = *Loranthus pentapetalus* Roxb.

H. praealta F. v. M., Fragm. 3, 1862, 37 = *Macadamia praealta* (F. v. M.) Bail.

H. sayeriana F. v. M., Vict. Nat. 3, 1886, 93 = *Hollandaea sayeri* F. v. M.

H. scottiana F. v. M., Fragm. 4, 1864, 107 = *Xylomelum salicinum* A. Cunn.

H. terminalis Kurz, For. Fl. Br. Br. Burma 2, 1877, 312 = *Heliciopsis*.

H. ternifolia (F. v. M.) F. v. M., Fragm. 2, 1860, 91 = *Macadamia ternifolia* F. v. M.

H. velutina Prain, Kew Bull. 1912, 343 = *Heliciopsis*.

H. verticillata F. v. M., Fragm. 6, 1868 = cf. *Brabeium stellatifolium* L.

H. whelani Bail., Rep. Exp. Bellend.-Ker 1889, 55 = *Macadamia whelani* (Bail.) Bail.

VI. HELICIOPSIS SLEUM., A NEW GENUS OF THE PROTEACEAE-GREVILLEAE.

Heliciopsis Sleum. gen. nov. — Arbores dioicae. *Folia* spiralia, simplicia vel plurilobata usque pinnatisecta, integra, sessilia vel petiolata. *Racemi* simplices spiciformes, multiflori, axillares vel e ligno vetere orti. *Bracteae* subulatae, parvae vel elongato-lineares, ± persistentes; bracteolae minutae ± caducae. *Pedicelli* plerumque gemini, liberi vel usque ad $\frac{4}{5}$ long. connati. *Perianthium* rectum, tubo sat gracili, limbo clavato vel ellipsoideo, in floribus ♂ basin versus sensim attenuatum, in floribus ♀ ovario bene evoluto basi dilatatum, in plena anthesi in segmenta 4 usque ad basin fissum, segmentis revolutis. *Stamina* 4, fere sessilia; antherae oblongae, in floribus ♂ pollen reticulatum praebentes, in floribus ♀ polline carentes; connectivum in apiculum productum. *Glandulae hypogynae* 4 liberae, plerumque approximatae itaque cupulam aemulantes. *Ovarium* sessile, ovulis 2 orthotropis ab apice cavitatis pendulis, in floribus ♀ tantum evolutis, in floribus ♂ valde reductis vel nullis. *Stylus* gracilis, apice clavatus, stigmate terminali punctiformi. *Drupa*. *Exocarpium* coriaceum, sat tenui, saepius cito dissolutum, interdum subpersistens. *Mesocarpium* e fibris radialibus submollibus numerosissimis formatum, persistens, rarius cito dissolutum vel ± reductum. *Endocarpium* durum, certe in parte interiore lignescens, crassum vel rarius tenui, extus reticulato-lacunosum, interdum loco lacunorum reticulato-perforatum. *Semen* 1 subglobosum (vel semina 2 hemisphaerica), in superiore dimidio rugulosum. *Testa* tenuis. *Cotyledones* magni, carnosii.

Type species: *H. velutina* (Prain) Sleum. — **Distribution:** 7 species in Assam, Burma, Indochina, SW. and S. China, Siam, Sumatra, Malay Peninsula, Java, Borneo, Palawan, Mindanao.

The genus combines certain characters of *Helicia* Lour. (anthers sessile) with those of *Macadamia* F. v. M. (ovules orthotropous, pendent from the top of the cavity), but is very different from both by the dioecia, the peculiar differentiation of the pericarp and a manifestly "reticulate" pollen. It is by this special surface of the exine, that specimens with ♂ flowers easily can be recognized as belonging to the genus.

There are incomplete materials from W. and E. Sumatra, the Malay Peninsula and Borneo, among which are two or three not yet described species.

Clavis specierum

- | |
|--|
| 1. <i>Exocarpium</i> coriaceum, sat tenui, persistens. <i>Mesocarpium</i> fibrosum, ± reductum, cito dissolutum. <i>Endocarpium</i> c. 0.5 mm crassum, sublignoso-coriaceum, firmum, extus grosse leviterque reticulato-lacunosum. — <i>Assam, Burma, Indochina, Yunnan, Kwangsi, Hainan, Siam</i> 1. <i>H. terminalis</i> (Kurz) Sleum. |
| 1. <i>Exocarpium</i> subcoriaceum vel coriaceum, tenui, plerumque cito dissolutum. <i>Mesocarpium</i> valde manifestum, persistens, e fibris numerosissimis radialibus formatum. <i>Endocarpium</i> 1—3 mm crassum, ± lignescens, durum, extus grosse profundeque reticulato-lacunosum. loco lacunarum interdum perforato 2 |
| 2. <i>Bracteae</i> lineares, 6—8(—10) mm longae, ± 0.5 mm latae 3 |

2. *Bracteae subulatae*, 1—2 mm longae 4
 3. *Folia chartacea vel subcoriacea*, costa excepta glabra, in sicco plumbeo-viridia.
 — *Malay Peninsula, Borneo* 2. *H. velutina* (Prain) Sleum.
 3. *Folia coriacea*, supra glabra, subtus per faciem breviter rufescens-pilosa.
 — *Malay Peninsula* 3. *H. rufidula* Sleum.
 4. Flores sessiles vel subsessiles, pedicellis usque ad 1.5 mm longis. Folia subtus
 diutius breviter rufo-pilosa — *Hainan, Kwangsi* 4. *H. lobata* (Merr.) Sleum.
 4. Flores 3—6(—8) mm pedicellati. Folia ab initio glabra vel cito glabrescentia. 5
 5. Perianthium 14—15 mm longum. — *Borneo, Palawan, Mindanao* 5. *H. artocarpoides* (Elm.) Sleum.
 5. Perianthium 8—10 mm longum 6
 6. *Folia simplicia lanceolata* vel *oblanceolata*, apice basique acuta. — *Java*
 6. *H. lanceolata* (K. & V.) Sleum.
 6. *Folia simplicia oblanceolata* vel plerumque ± late obovato-oblonga, apice breviter
 et ± obtuse attenuata. — *Sumatra, Java* 7. *H. incisa* (K. & V.) Sleum.

1. *H. terminalis* (Kurz) Sleum. comb. nov. — *Helicia terminalis* Kurz,
 For. Fl. Br. Burma 2, 1877, 312; Hook. f. in Hook. f., Fl. Br. Ind. 5, 1886,
 190; Forbes & Hemsl., J. Linn. Soc. Bot. 26, 1891, 394; Ridl., J. Fed.
 Mal. Stat. Mus. 10 (1920) 113. — *H. balansae* Lec., Not. Syst. 1, 1910, 189;
 Fl. Gén. I.C. 5, 1914, 164, fig. 14(6). — *H. henryi* Diels in Fedde, Rep.
 13, 1915, 528; Merr., Lingn. Sci. J. 13, 1934, 56; Tanaka & Odash., J. Soc.
 Trop. Agr. 10, 1938, 364; Li, J. Arn. Arb. 24, 1943, 363; Masam., Fl.
 Kainant. 1943, 63. — *H. pallidiflora* W. W. Smith, Not. Bot. Gard. Edinb.
 10, 1918, 179.

Arbor (4—)8—10(—15) m alta, trunco 0.25—1.5 m diam., cortice
 cinereo vel castaneo. *Rami* castanei. *Ramuli* apicibus resp. innovationibus
 rufo-tomentelli, ceterum cito glabrescentes corticeque griseo obtecti. *Folia*
simplicia oblanceolata rarius oblonga vel obovato-oblonga, apice breviter
 subabrupte acuminata, subacuta, vel obtuse attenuata, interdum retusa,
 mucrone apicali instructa, basi in petiolum cuneata et in superiore petoli
 tertio ± decurrentia, novella papyracea, in sicco nigrescentia, matura sub-
 coriacea, in vivo supra saturate viridia, subtus pallidiora, in sicco olivacea
 vel utrinque vel subtus tantum nigrescentia, utrinque nitida, glaberrima,
 integra, interdum subundulata, (10—)12—25(—35) cm longa, (4—)5—8
 (rarissime usque ad 10) cm lata, costa utrinque imprimis subtus prominente,
 nervis lateralibus utroque latere 7—10 (rarius usque ad 14), ascendentibus,
 inferne rectiusculis denique ante marginem arcuato-conjunctis, aliis inter-
 calaribus minus distinctis pluribus additis, omnibus supra parum sed
 manifeste, subtus distinctius prominentibus, venis venulisque utrinque rete
 densum prominulum formantibus; petiolus glaber sat crassus, (1—)1.5—
 2(—3) cm longus, basi incrassatus. *Folia pinnatisecta* glabra, nitidula, 35—
 60 cm longa, 18—25 cm lata, utroque latere ± profunde, sed nunquam
 usque ad costam 3—5-lobata, lobis ± anguste oblongis 8—18 cm longis, 2—
 3 cm latis, acuminatis; petiolus crassus 2—8 cm longus. *Racemi* ex axillis
 foliorum delapsorum orti, sat graciles, ± penduli, solitarii vel rarius gemini,
 sat laxiflori, pedunculo 1—2 cm longo inclusu (8—)15—20(—35) cm longi.
Rhachis laxe pilis ferrugineis minutis adspersa, in sicco nigrescens, c. 1.5 mm
 diam. *Bracteae* subulatae ± persistentes, c. 1—1.5 mm longae; bracteolae
 similes, breviores. *Pedicelli* sat dense minuteque ferrugineo-pilosi, rarius
 ab initio glabri, plerumque bini et $\frac{1}{3}$, usque $\frac{1}{2}$ long. connati, sub anthesi
 (4—)6—8 mm longi. *Perianthium* albidum vel ochroleucum, in sicco nigres-

cens, fragrans, subdense vel plerumque laxe adpresso rufo-ferrugineo-pilosulum, haud raro glabrescens, vel ab initio subglabrum rarius omnino glabrum, 12—14 mm longum, tubo 0.8—1 mm diam., limbo late ellipsoideo \pm 2 mm diam. *Antherae* 2.5 mm longae. *Glandulae hypogynae liberae*, ovato-oblongae, paullo distantes. *Ovarium* glabrum. *Fructus* ellipsoideus, parum compressus, apice basique breviter attenuatus, brevissime apiculatus, forma olivae, laevis, immaturus pruinosus, maturus viridis vel atrocaeruleus, in secco brunneus vel nigrescens, 3—4 cm longus, 2—2.5 cm crassus. *Exocarpium* coriaceum, 0.5 mm crassum; *mesocarpium* spongioso-fibrosum 0.3—1 mm crassum, in fructu plane maturo iam \pm dissolutum; *endocarpium* lignescens, tenue, fragile, 0.5 mm crassum, extus reticulato-lacunosum. *Semen* ellipsoideum. *Pedicellus* fructiferus 6—7(—10) mm longus, 2—3 mm crassus.

ASSAM. Garo Hills, c. 1200 m: *Parry* 804. Lushai hills, c. 1000 m: *Parry* 104, 519, 602, 687.

UPPER BURMA. Ava (near Maymyo, c. 22°—96°), Kakhyan hills: *Kurz* (*typus H. termini*, haud vidi, not in CAL). Maymyo plateau, c. 1000 m: *Lace* 5799, c. fr.; ibid.: *Badal Khan*. Pyinmana: *Robertson*. Ruby Mines: *Abdul Huk* 205.

LOWER BURMA. Tenasserim, Panchong, c. 1200 m: *Gallatly* 678. Mergui, Sandawat: *Lace* 4800; Thaton, Dawna Range, c. 1370 m: *Lace*.

CHINA. Yunnan. Poneshee: *Anderson*. Szemao, c. 1500 m: *Henry* 11910, 11910A (B, *typus H. henryi*; E, *typus H. pallidifl.* K, NY), 11910B, 11910C. Sine loco: *Tsiang* 12883. Kwangsi. Bako Shan, 900 m: *Ching* 7418. Dar Shan, S. Nanning, 900 m: *Ching* 8032. Shap Man Taai Shan: *Tsang* 22324. Hainan. Liang 62538, *McClure* 7817, 7909, 8390, 9640, 20105, How 72353, 73100, 73856.

INDOCHINA. Tonkin. Mon-cay: *Tsang* 26961. Taai Wong Mo Shan: *Tsang* 27078, 27252, 29299. Sontay, Mt Bavi, 700 m: *Fleury* (Herb. *Chevalier* 37825), *Balansa* 3803 (K; P, *lecto-typus H. balansae*), 3804. Annam. J. & M. *Clemens* 3507, 4244, 4326. Nhatrang, Phu-Hu: *Poilane* 5249. Cambodia: *Harmand* a. 1876/77.

SIAM. Pitsanulok, Petchabun, 600 m: *R. For. Dep.* 4850. Udawn, Dan Sai, 1500 m: *Kerr* 5781. Rachaburi, Kanburi, 1400 m: *Kerr* 10408; Ranawng: *Kerr* 16852. Puket, Takuapa, 1500 m: *Kerr* 17051. W. Coast and islands, Tapli: *B. Kloss* 6815.

2. *H. velutina* (Prain) Sleum. comb. nov. — *Helicia velutina* Prain, Kew Bull. 1912, 343; Gamble, J. As. Soc. Beng. 75, ii, 1914, 346; Ridl., Fl. Mal. Pen. 3, 1924, 143.

Arbor, (8)—12—23 m alta, trunco 20—35 cm diam., cortice griseo-brunnescenti, laevi, pro parte irregulariter erumpente lenticellisque parvis albescens obtecto. *Ramuli* recentissimi rufo-tomentosi, annotini glabri, in secco brunnescentes vel cinerascentes, striati, teretes. *Folia simplicia* oblonga vel \pm late oblanceolata, apice breviter (1.5—2 cm) sat abrupte subcuspidato-acuminata, acutiuscula, acumine saepius paullo curvata, basi in petiolum cuneata paullo decurrentia, rigide chartacea vel subcoriacea, in vivo laete viridia valde nitida, in secco supra flavidio-olivacea vel plumbea, subtus plumbea vel brunnescenti-plumbea, utrinque nitidula, integra, costa imprimis subtus parcepilosa excepta glabra, (10)—14—22 cm longa, (3)—4—7 cm lata, costa utrinque prominente, nervis lateralibus utroque latere 12—14(—16) inferne rectiusculis superne curvatis interque sese \pm parallelis, manifeste ante marginem anastomosantibus, intercalaribus pluribus brevioribus minus distinctis, omnibus supra prominulis vel saepius leviter immersis, subtus bene elevatis, venis venulisque sat laxe irregulariter reticulatis utrinque parum prominulis; petiolus (1.2—)1.5—2(—3) em longus, c. 2 mm crassus, initio rufo-tomentosus, demum glabrescens, basi arte pulvinato-incrassatus. *Folia lobata* vel pinnata adhuc ignota. *Racemi* axil-

laris vel saepius e nodis annotinis \pm defoliatis orti, singuli vel rarius bini, fere ad basin densiflori, (6—)7—12 cm longi, omnino rufo-tomentosi. *Rhachis* in specim. ♂♂ c. 1.5 mm, in specim. ♀♀ c. 2—2.5 mm diam. *Bracteae* lineares (6—)8—10 mm longae, 0.4—0.8 mm latae, subpersistentes; bracteolae 4—5 mm longae. *Pedicelli* crassiusculi, 4—5 mm longi, plerumque bini, liberi vel usque ad medium connati. *Perianthium* flavescenti- vel viridescenti-albidum, inodorum, rufo-ferrugineo-tomentosum, apice subglabrescens, 10—12 mm longum, tubo in fl. ♂♂ c. 0.6 mm, in fl. ♀♀ c. 1.5 mm diam., limbo clavato 2—2.5 mm diam. *Antherae* c. 2 mm longae. *Glandulae hypogynae* parvae, late obovato-truncatae, liberae, paullo distantes. *Ovarium* glabrum. *Fructus* cylindrico-ellipsoideus, paullo complanatus, in sicco brunneus, c. 4 cm longus, c. 2.5 cm latus, c. 2 cm crassus. *Exocarpium* coriaceum 1—2 mm crassum; *mesocarpium* fibrosum, in sicco irregulariter fissum, 2—3 mm crassum; *endocarpium* lignosum 1—2 mm crassum. Semen haud visum. *Pedicellus fructiferus* 0.8—1 cm longus, 3 mm crassus.

MALAY PENINSULA. Perak, Larut, Gunong Bubu, open jungle, 600—750 m, fl. buds: *Kunstler* 7316 (K, typus). Johore, 3rd mile Mawai-Jemaluang road, low, fl. ♀: *Corner SF* 37097.

BORNEO. Br. N. Borneo. Tawao, Elphinstone prov.: *Elmer 21674*. S.E. Borneo. E. Kutei, Sangkulirang, 50 m: *NIFS* bb. 11929; Muan region near Sg. Riko, Balikpapan Bay, 20 m: *Kostermans 4364*, fl. ♂.

3. *H. rufidula* Sleum. sp. nov.

Arbor (8—)15—35 m alta, trunco usque ad 0.9 m diam., cortice laevi, griseo, lamuloso-deciduo. *Ramuli* subteretes, recentissimi saturate fusco-tomentosi, vetustiores glabri cinerascentes. *Folia simplicia* obovata vel late obovato-oblonga, apice (sub)rotundata vel latissime \pm obtuse attenuata, basi in petiolum cuneata, coriacea, in sicco saturate castanea, supra nitida costaque excepta glaberrima, subtus opaca et per totam faciem aequaliter, in costa et nervis densius breviter rufo-pilosa, integra, (12—)15—28 cm longa, (6—)7—13 cm lata, costa supra vix, subtus crasse prominente, nervis lateralibus utroque latere 14—18 rectis inter sese \pm parallelis a costa angulo c. 45° abeuntibus, ante marginem inter sese arcte curvato-conjunctis, ceteris brevioribus pluribus intermixtis, omnibus supra leviter, subtus manifeste prominentibus, venis venulisque irregulariter denseque areolatis utrinque parum sed distincte elevatis; petiolus paullo applanatus, initio rufo-tomentosus, glabrescens, (1—)1.5—3 cm longus, c. 2—3 mm crassus, basi incrassatus, in superiore tertio laminae decurrente alatus. *Folia pinnatisecta* utroque latere 3—4-loba, lamina c. 55 cm longa, c. 35 cm lata, lobis 12—18 cm longis et 5—8 cm latis, supra glabra, lucida, subtus sat dense breviter rufo-tomentosa, partim glabrescentia, in sicco subtus brunneo-subnigrescentia; petiolus c. 11 cm longus, 5—6 mm crassus. *Flores* adhuc ignoti. *Infructescentiae* e ligno vetere ortae, 8—15 cm longae. *Rhachis* striata, subdense rufo-pilosula, 2—3 mm diam. *Bracteae* lineares c. 6 mm longi, subpersistentes. *Pedicelli* c. 8 mm longi, 2—3 mm diam. *Fructus* maturus cylindrico-ellipsoideus, in vivo ruber, 3.5—4 cm longus, c. 2.5 cm latus, c. 2 mm crassus. *Exocarpium* coriaceum 0.5—1 mm crassum; *mesocarpium* radiatofibrosum, in sicco irregulariter fissum, c. 3 mm crassum; *endocarpium* lignescens c. 1 mm crassum.

MALAY PENINSULA. Perak. Trolak For. Res., flatland, 45 m: *For. Dep. F.M.S. 43457 Browne* (KEP, typus) fr. II-37. Parit For. Res.: *For. Dep. F.M.S. 39487*; Kroh

For. Res., Compt. 27: *For. Dep. F. M. S.* 31047; *ibid.*, Compt. 52: *For. Dep. F. M. S.* 28724. Pahang. Kuantan, Bukit Goh Res.: *For. Dep. F. M. S.* 29666. Selangor, Ulu Gombak-Kuala Lumpur: *For. Dep. F. M. S.* 36631. Bukit Cheraka For. Res., Compt. 27: *For. Dep. F. M. S.* 41853. Sungai Buloh For. Res.: *For. Dep. F. M. S.* 14914, 15292. Kanching: *For. Dep. F. M. S.* 24852 (SING).

4. *H. lobata* (Merr.) Sleum. comb. nov. — *Helicia lobata* Merr., Lingn. Sci. J. 6, 1930, 276; Tanaka & Odash., J. Soc. Trop. Agr. 10, 1939, 364; Chun, Sunyatseria 4, 1940, 184; Masam., Fl. Kaitan. 1943, 63.

Arbor 6—8(—15) m alta, cortice cinereo. *Ramuli* apicibus ± dense rufo-tomentelli ceterum glabri, in partibus vetustioribus cortice cinereo obtecti. *Folia simplicia* oblonga vel elliptico-oblonga, apice breviter obtuse acuminata, basi in petiolum cuneata, subcoriacea, in sicco (rubro-)brunnea, subtus paullo pallidiora, integra, novella utrinque ± dense rufo-pilosa, cito costa utrinque ± excepta glabrata, matura utrinque subnitida, (8—)10—17 cm longa, (3.5—)4—7 cm lata, costa supra fere plana, subtus valida, nervis lateralibus (10—)12—14, angulo c. 45° a costa abeuntibus, inter sese et cum ceteris intercalaribus ± parallelis ante marginem obsolete curvato-conjunctis, utrinque parum sed distincte elevatis, venis venulisque utrinque sat dense reticulato-prominulis; petiolus sat gracilis, (1—)2—4 cm longus. *Folia pinnata* quam simplicia maiora, 20—40 cm longa, usque ad 20 cm lata, utroque latere 2—5(—8)-lobata, lobis integris, oblongis, acuminatis vel obtusis, contiguis, 6—11 cm longis, 2—4 cm latis, subtus initio laxe rufo-pubescentia demum omnino glabrescentia, sicut folia simplicia dense reticulata; petiolus crassus, 0.5—5 (rarius usque ad 10) cm longus. *Racemi* densiflori e ligno vetere, id est ramulis defoliatis orti, in rhachide et in pedicellis dense, ad perianthia subdense usque laxe rufo-pilos, in speciminiibus ♂♂ tantum visi. *Rhachis* gracilis c. 1 mm diam. *Pedicelli* crassiusculi, liberi, 1—1.5 mm longi, basi minutissime bracteati. *Perianthium* c. 12 mm longus, tubo c. 1 mm diam., limbo ellipsoideo fere 2 mm diam. *Glandulae hypogynae* ovato-oblongae, liberae, satis approximatae. *Ovarium* rudimentarium glabrum. *Flores* ♀♀ haud visi. *Fructus* ellipsoideus, laevis, nitidus, in vivo viridis, in sicco castaneus, c. 7—8 cm longus, 5—6 cm crassus. *Exocarpium* coriaceum partim cito lamellosum, 1—2 mm crassum; *mesocarpium* radiato-fibrosum, irregulariter fissum, molle, 2—3(—4) mm crassum; *endocarpium* parum reticulato-lacunosum, 3—4(—5) mm crassum, in parte exteriore (2—3 mm) ± fibrosum, in parte interiore (1—1.5 mm) lignosum et durum. *Semen* unicum ellipsoideum.

CHINA. Hainan. Noh Pong Shan, Tiu Keng Shue (Taam-chau distr.): *Tsang 846* (Lingn. Univ. Herb. 16345: A; NY, typus, S), fr. Chim Shan: *Fung 20133*, fl. ♂. Sine loco: *Wang 36321*. Kwangsi. Lungchow, Ta-Ching Shan: *Liang 65894*, cit. Chun, haud vidi.

5. *H. artocarpoides* (Elm.) Sleum. comb. nov. — *Helicia artocarpoides* Elm., Leafl. Philip. Bot. 5, 1913, 1826; Merr., En. Philip. 2, 1923, 99; Pl. Elm. Born. 1929, 52.

Arbor parva, gracilis, usque ad 15 m alta, vel frutex arborescens, trunco ± torquato, cortice brunneo vel griseo, lenticellis rotundis et ellipticis rarius elongatis subdense pustulato. *Ramuli* juveniles rufo-tomentelli, cito glabrescentes, vetustiores striati. *Folia simplicia* oblonga vel obovato-oblonga, apicem versus sensim breviter attenuata, obtusa vel rotundata, basi in petiolum cuneata et paullo decurrentia, ± coriacea, in sicco dilute rarius saturate

castanea, interdum nigrescentia, subnitentia, glabra, integra, 30—40 (vel plus ?) cm longa, 9—12.5 cm lata, costa supra bene, subtus valde prominente, nervis lateralibus utroque latere 14—16 leviter curvatis inter sese subparallelis praeter marginem excurrentibus, superioribus parum distincte curvato-anastomosantibus, supra minute, subtus alte prominentibus, venis a nervis rectiuscule abeuntibus inter sese subparallelis utrinque priminulis, venuis imprimis subtus sat dense reticulatis et parum elevatis; petiolus glaber 8—14 cm longus, basi ipsa incrassatus et curvatus. *Folia pinnatisepta* in speciminiibus junioribus saepius ad apicem trunci congesta et ± horizontaliter patentia, in siccō saturate brunnea, utrinque reticulata, integra, glabra, nitentia, usque ad 90 cm longa, lobis in utroque latere 5—8 anguste oblongis vel oblanceolatis vel obovato-oblongis, breviter acuminatis, 15—30 cm longis, 3—18 cm latis, sinubus ± rotundatis, plerumque a costa primaria 1.5—3 cm distantibus, rarius usque fere ad costam primariam productis, nervis lateralibus 10—15 plerumque rectis praeter marginem curvatis ibique in nervum intramarginalem ± distinctum collectis; petiolus 3—5 mm crassus, initio rufo-pubescent, demum glabrescent, vel glaber, (6—)10—18 cm longus. *Racemi* solitarii rarius plures (ad 10) e ramulis validis vel e trunci tuberculis orti, (5—)15—30(—60) cm longi, ± densi-flori, in rhachide et pedicellis dense, in perianthiis subdense breviter adpresso ferrugineo-pilosi. *Rhachis* 1.5—2.5(—3) mm diam. *Bracteae* minutae, lanceolatae, 0.5—1 mm longae, ± caducae. *Pedicelli* plerumque bini, (3—) 5—7(—8) mm longi, sat graciles, usque ad $\frac{2}{3}$ long. connati. *Perianthium* fragrans, albidum vel flavidum, 14—15 mm longum, tubo in fl. ♂♂ 0.8—1 mm, in fl. ♀♀ c. 1.5 mm diam., limbo clavato 1.5—2.2 mm diam. *Antherae* 2—2.5 mm longae. *Glandulae hypogynae* ovato-oblongae, liberae, ± approximatae itaque cupulam aemulantes. *Ovarium* glabrum. *Fructus* in vivo saturate flavidus, ellipsoideo-cylindricus, (3—)4—4.5 cm longus, (2—)2.5—3 cm diam., laevis, nitidus. *Exocarpium* tenue, coriaceum; mesocarpium fibrosum c. 3 mm crassum; endocarpium lignescens, reticulato-lacunosum, c. 1 mm crassum.

PHILIPPINES. Puerto Princesa, Mt Pulgar, forest-ridge, c. 600 m: Elmer 12946 (A, B, BM, BO, E, L, M, NY; PNH †, typus). Mindanao. Zamboanga, Malangas: B. S. 57448 Ramos & Edano.

BORNEO. Br. N. Borneo. Sandakan, Elopura: Br. N. B. For. Dep. 1626, 10016, 10041, 10659. Kinabatangan: Evangelista 999. Tawao: Elmer 21372. Mt Kinabalu, c. 1000 m: J. & M. Clemens 27390. Sarawak: Haviland & Hose 1585, 3199. S.E. Borneo. W. Kutei, 200—500 m: Endert 2876, 4097. Sg. Bluu: Jaheri 447. Sine loco: Jaheri 174.

Apparently not present in the Malay Peninsula; sterile material from the Malay Peninsula which is similar but not identical in leaf-characters, is deposited in Herb. Singapore.

6. *H. lanceolata* (K. & V.) Sleum. comb. nov. — *Helicia lanceolata* K. & V., Bull. Inst. Bot. Btzg 2, 1899, 10; Bijdr. Booms. Java 5, 1900, 320; Koord., Nat. Tijd. Ned. Ind. 60, 1901, 389; Exk. Fl. Java 2, 1912, 154; Atl. Baumart. Java 1915, t. 598; Back., Bekn. Fl. Java em. ed. IV A, 1942, fam. 79, p. 5, nec Bak.f., J. Bot. 63, 1925, Suppl. 89 (= *Helicia attenuata*).

Arbor, 15—27 m, trunco erecto 25—45(—60) cm diam. *Ramuli* teretiusculi, striati, initio ± dense pilis rufescentibus adpresso induti mox glabres-

centes et griseo-corticati. *Folia simplicia* adhuc cognita, lanceolata vel oblongo-lanceolata, apice sensim acuminata et acuta, basi in petiolum cuneata paulloque decurrentia, in vivo saturate viridia, subtus pallidiora, utrinque nitida, in sicco saturate brunnea vel nigrescentia, firmule subcoriacea, integra, glabra, 10—16(—23) cm longa, (2.2—)3.5—5(—8) cm lata, costa utrinque prominente, nervis lateralibus utroque latere (6—)8—10 in inferiore parte rectiusculis, marginem versus curvatis interque sese manifeste anastomosantibus, utrinque prominentibus, venis venulisque dense reticulato-prominulis; petiolus glaber, basi paullo incrassatus, 1—2(—5) cm longus. *Racemi ♂♂* tantum cogniti, ex axillis superioribus defoliatis orti, solitarii, 12—26(—30) cm longi, ascendentis, rigidiusculi, laxe florigeri, ad rhachidem et pedicellos subdense, ad perianthium laxe pilis rufis minutis adpressis obsiti. *Rhachis* 1—2 mm diam. *Bracteae* subulatae, 1—2 mm longae, ± caducae. *Pedicelli* plerumque gemini, $\frac{1}{2}$ — $\frac{4}{5}$ long. connati, crassiusculi, (2—)3—4 mm longi. *Perianthium* 8—10 mm longum, demum glabrescens, in vivo pallide virescenti-lutescens. *Antherae* c. 2 mm longae. *Glandulae hypogynae* fere rotundae, liberae, approximatae. *Ovarium* glabrum. Cetera ignota.

JAVA. Preanger. Takoka: Koorders 4528, 6235 (fl. ♂, BO, lecto-typus; L), 12155, 25547, 39554 (all these numbers from the same tree 2095 alpha); ibid.; Koorders 6244. Bondung, Tjiguludug, 1050 m: JA. 1503. Pekalongan. NW G. Prahu, Surdo: Koorders 11038. Besuki. Tjoramanis: Koorders 10054, 20939. — Cult. Hort. Bog. III. B. 11.

7. *H. incisa* (K. & V.) Sleum. comb. nov. — *Helicia incisa* K. & V., Bull. Inst. Bot. Btzg 2, 1899, 10; Bijdr. Booms. Java 5, 1900, 317; Koord., Nat. Tijd. Ned. Ind. 60, 1901, 389; Exk. Fl. Java 2, 1912, 154; Atl. Baumart. Java 1915, t. 599, 600; Back., Bekn. Fl. Java em. ed. IV A, 1942, fam. 79, p. 6. — *Artocarpus chaphasha*? Roxb. ex Koord.-Schum., Syst. Verz. 2, 1910, 16.

Arbor usque ad 15 m alta, trunco c. 25 cm diam., cortice griseo, fragili. *Ramuli* crassi, in sicco castanei, longitudinaliter sulcati, ad nodos dilatati, apicibus rufo-puberuli, ceterum mox glabrescentes. *Folia simplicia* oblanceolata vel plerumque ± late obovato-oblonga, apice late obtuse acuminata subrotundata, basin versus cuneata, subcoriacea, in sicco brunnescentia, nitentia, integra, glabra, (15—)20—30(—45) cm longa, (5—)7—12 cm lata, costa supra parum, subtus crasse prominente, nervis lateralibus utroque latere 6—9(—10, raro usque ad 12) a costa angulo c. 30° abeuntibus, erecto-curvatis, praeter marginem indistincte arcuato-conjunctis, aliis intercalaribus paucis vel nullis, omnibus supra parum, subtus manifeste prominentibus, venis venulisque rete sat densum utrinque prominulum formantibus; petiolus 1.5—2.5 mm crassus, striatus, in sicco nigrescens, glaber, (1.5—)2—4 (—5.5) cm longus, sed in foliis summis interdum subnullus. *Folia tripartita* usque *pinnatisecta* in arboribus juvenilibus observata magna, usque ad 1 m longa et usque ad 60 cm lata, segmentis utrinque 1—5 cum lobo terminali oblongis vel superioribus ovatis, apice breviter acuminatis vel obtusis, sinibus ± rotundatis a costa primaria c. 2.5 cm distantibus, basin versus attenuata, ima basi contracta, sicut simplicia utrinque dense reticulato-venosa, glaberrima; petiolus valde crassus, 0.5—2(—5) cm longus interdum nullus. *Racemi ♂♂* tantum cogniti, axillares vel e ligno vetere orti, solitarii

vel 2—3-fasciculati, (15—)30—40 cm longi. *Rhachis* c. 1.5 mm crassa, siue pedicelli laxe adpresse ferrugineo-pilosa. *Bracteae* ovato-lanceolatae minutae. *Pedicelli* graciles 3(—4) mm longi. *Perianthium* in fl. ♂♂ 8—10 mm longum, laxe adpresse ferrugineo-pilosum, tubo 0.6 mm diam., limbo clavato 1.5 mm diam. *Antherae* c. 3 mm longae. *Glandulae hypogynae* late triangulares, obtusae, liberae. *Ovarium* pilis paucis adpersum vel glabrum. *Fructus* (specimen sumatranum) compresso-ellipsoideus, c. 6 cm longus, 4 cm latus, 2.5 cm crassus. *Exocarpium* coriaceum tenue; *mesocarpium* fibrosum c. 3 mm crassum; *endocarpium* lignescens, durum, c. 2—3 mm crassum, irregulariter reticulato-lacunosum, loco lacunarum perforatum.

SUMATRA. East coast. R. Kampar Kiri: *Anon.*, comm. Heyne (381, BO 140926—28, 140934, fol. simpl., fl., fr.). S. Sigati, biv. Tassi, 30 m: Koorders 10456. Palembang. R. Rawas: *Anon.*, comm. Heyne (425, BO, fol. pinn.). Lampung. Kota Agung, 600 m, rather rare: Gusdorf 272 (BO, fol. simpl.).

JAVA. Banjumas. Pringombo, 700—1000 m: Koorders 6260 (BO, *lecto-typus*, ster., fol. pinn.; K, L), 11819, 12200, 21895 (these three from the same tree as 6260), 27100, 27101, 27144, 33951, 36649, 37942, 37949, 39066—69, 39072—76, 39163, 39173. Besuki. Tjorammanis, 700 m: Koorders 6277.

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 - *attenuata* (Jack) Bl. V: 69
 - *attenuata* [non (Jack) Bl.] Kurz V: 65
 - *attenuata* [non (Jack) Bl.] Ridl. V: 77
 - *australasica* (non F. v. M.) Bail. V: 4
 - *australasica* F. v. M. V: 3
 - *balansae* Lee. V, VI: 1
 - *bauerlenii* White V: 9
 - *bennettiana* Miq. V: 69
 - *biformis* Sleum. V: 83
 - *brachyantha* Merr. V: 33
 - *brassii* V: 20
 - *brevipetiolata* Merr. V: 66
 - *bullata* Sleum. V: 70
 - *cameronii* F. v. M. V: 36
 - *carrii* Sleum. V: 20
 - *castaneaefolia* Meisn. V: 65
 - *cauliflora* Merr. V: 84

- Helicia celebica** Sleum. V: 14
 — *ceylanica* Gardn. V: 56
 — *clemensiae* Sleum. V: 63
 — *clivicola* W. W. Smith V: 78
 — *cochininchinensis* Lour. V, V: 65, 87
 — var. *lungtauensis* Sleum. V: 87b
 — var. *pseuderratica* Sleum. V: 87a
 — *cochininchinensis* (non Lour.) Meisn. V: 79
commutata Sleum. V: 45
 — *conjugiflora* F. v. M. V: 5a
 — *criboiana* (Bail.) Bail. V: 2
 — *cumingiana* Presl V: 65
 — var. *parvifolia* Merr. V: 65
 — *curtissii* Gamble V: 33
 — *darlingiana* F. v. M. V
 — *dentellata* Sleum. V: 30
 — *divaricata* Sleum. V: 20
 — *diversifolia* White IV, V
 — *elephantii* Sleum. V: 38
 — *erratica* Hook. f. V: 79
 — var. *lungtauensis* F. P. Metcalf V: 87b
 — *erratica* (non Hook. f.) Stapf V: 39
 — *erratica* (non Hook. f.) Suesseng. V: 65a, 77
 — *excelsa* (Roxb.) Bl. V: 34
 — var. V: 14
 — var. *celebica* Koord. V: 14
 — var. *edentata* Meisn. V: 34
 — var. *forbesii* Gamble V: 34
 — var. *salicifolia* (Presl) Gamble V: 34
 — *ferruginea* F. v. M. V: 9
 — var. V: 8
 — var. *tropica* Bail. V: 8
 — *ferruginea* F. v. M. ap. Benth. V: 8
 — *finis-terre* Lauterb. V: 68
 — *forbesiana* F. v. M. V: 64
 — *formosana* Hemsl. V: 61
 — var. *formosana* V: 61
 — var. *oblanceolata* Sleum. V: 61a
 — *fuscotomentosa* Suesseng. V: 16
 — *glabrata* Meisn. V: 65
 — *glabrescens* White V: 4
 — *glabrifolia* F. v. M. V: 5
 — var. *conjugiflora* (F. v. M.) Domin V: 5a
 — *graciliflora* Merr. V: 82
 — *grandifolia* Lauterb. V: 24
 — *grandifolia* Lec. V: 67
 — *grandis* Hemsl. V: 42
 — *hainanensis* Hayata V: 66
 — *henryi* Diels V, VI: 1
 — *heyana* Bail. II, II: 9, V
 — *hookeriana* Hosseus V: 79
 — *hypoglaeca* Diels V: 75
 — *incisa* K. & V. V, VI: 7
 — *insculpta* Sleum. V: 70
 — *integra* Merr. V: 65a
 — *integritifolia* Elm. V: 65a
 — *javanica* (Bl.) Bl. V: 65
 — *kingiana* (non Prain) Merr. V: 69
 — *kingiana* Prain V: 77a
 — *kjellbergii* Sleum. V: 19
 — var. *calva* Sleum. V: 19a

- Helicia lamingtoniana* (Bail.) White ex L. S. Smith V: 6
 — *lanceolata* (non K. & V.) Bak. f. V: 69
 — *lanceolata* K. & V. V, VI: 6
 — *lancifolia* S. & Z. V: 87
 — *latifolia* White V: 51
 — *lauterbachiana* Sleum. V: 24
 — *ledermannii* Diels V: 31
 — *lobata* Merr. V, VI: 4
 — *longiflora* Merr. V: 65a
 — *longipetiolata* Merr. & Chun V: 85
 — *loranthoides* (non Presl) Merr. V: 15
 — *loranthoides* Presl V: 13
 — *longespicata* Sleum. V: 18
 — *macrophylla* Wall. V: 65
 — *macrostachya* Lauterb. V: 55
 — *maxwelliana* Gibbs V: 43
 — *microcarpa* Sleum. V: 41
 — *micronesica* Kaneh. V
 — *microneura* White V: 29
 — *microphylla* Diels V: 37
 — *moluccana* (R. Br.) Bl. V: 52, 53
 — *moluccana* [non R. Br.] Bl. Lauterb. V: 62
 — *neglecta* Diels ex Sleum. V: 54
 — *nilagirica* Bedd. V: 79
 — *nortoniana* (Bail.) Bail. V: 8
 — *ob lanceolata* Merr. V: 34
 — *ob longifolia* Benn. V: 69
 — var. *subpetiolata* Miq. V: 69
 — *obovata* Benn. V: 69
 — var. *connata* K. & V. V: 69
 — var. *minor* Meisn. V: 69
 — *obovata* (non Benn.) Kurz V: 65
 — *obovata* (non Benn.) Ridl. V: 65
 — *obovatifolia* Merr. & Chun V: 28
 — var. *mixta* (Li) Sleum. V: 28a
 — *obscurinervis* Chatterjee V: 77a
 — *obtusata* Sleum. V: 58
 — *obtusidens* Miq. V: 52
 — *odorata* Diels V: 46
 — *oligophlebia* Merr. V: 65
 — *olivacea* Sleum. V: 44
 — *oreadum* Diels V: 25
 — *ovata* (Jack) Benn. V
 — *pallidiflora* W. W. Smith V, VI: 1
 — *parasitica* Pers. V
 — *paucinervia* Merr. V: 80
 — *pekelii* Lauterb. V: 53
 — *peلتata* White V: 35
 — *petelotii* Merr. V: 74
 — *petiolaris* Benn. V: 52, 77
 — var. *kingiana* (Prain) Sleum. V: 77a
 — *phaeotricha* Diels V: 25
 — *philippensis* Meisn. V: 65
 — *platyphylla* Sleum. V: 12
 — *praealta* F. v. M. II: 8, V
 — *pterygota* Sleum. V: 39
 — *purpurascens* Sleum. V: 21
 — *pyrrhobotrya* Kurz V: 73
 — *retevenia* Sleum. V: 57
 — *rigidiflora* Sleum. V: 15

- Helicia robusta* (Roxb.) R. Br. ex Wall. V: 65
 — var. *integrifolia* (Elm.) Sleum. V: 65a
 — *robusta* [non (Roxb.) R. Br. ex Wall.] Hosseus V: 79
 — *rufescens* Prain V: 17
 — *salicifolia* Presl V: 34
 — *saruwagedica* Sleum. V: 49, 51
 — *saurauioides* Sleum. V: 50
 — *sayeriana* F. v. M. V
 — *schlechteri* Lauterb. V: 23
 — *soortechinii* Gamble V: 33
 — *scottiana* F. v. M. V
 — *sellae-montis* Sleum. V: 10
 — *serrata* (R. Br.) Bl. V, V: 33
 — var. *oreophila* Sleum. V: 33a
 — var. *petiolata* K. & V. V: 33
 — var. *serrata* V: 33
 — var. *subintegra* K. & V. V: 33
 — *shweliensis* W. W. Smith V: 40
 — *silvicola* W. W. Smith V: 72
 — *stelechanta* Diels V: 26
 — *stenophylla* Merr. V: 86
 — *stricta* Diels V: 79
 — *subrhombifolia* Domin V: 5
 — *suffruticosa* Ridl. V: 69
 — *sumatrana* Miq. V: 69
 — *terminalis* Kurz V, VI: 1
 — *ternifolia* (F. v. M.) F. v. M. V
 — *teysmanniana* Sleum. V: 47
 — *tonkinensis* Lec. V: 87
 — *torricellensis* Lauterb. V: 22
 — *travancorica* Bedd. ex Hook. f. V: 65
 — *tropica* (Bail.) Domin V: 8
 — *tsangii* Li V: 61
 — *uganensis* Diels ex Sleum. V: 7
 — *validinervis* White V: 25
 — *velutina* Prain V, VI: 2
 — *verticillata* F. v. M. II, V
 — *vestita* (non W. W. Smith) Li V: 28a
 — *vestita* W. W. Smith V: 27
 — var. *miata* Li V: 28, 28a
 — *whelani* Bail. II: 1, V
 — *wollastonii* Ridl. V: 60
 — *youngiana* Moore & F. v. M. V: 1
 — var. *montana* White V: 1b
 — var. *robusta* White V: 1a
 — var. *typica* White V: 1
 — var. *youngiana* V: 1
 — *zeylanica* V: 56
- Helciopsis* Sleum. V, VI
 — *artocarpoides* (Elm.) Sleum. VI: 5
 — *incisa* (K. & V.) Sleum. VI: 7
 — *lanceolata* (K. & V.) Sleum. VI: 6
 — *lobata* (Merr.) Sleum. VI: 4
 — *rufidula* Sleum. VI: 3
 — *terminalis* (Kurz) Sleum. VI: 1
 — *velutina* (Prain) Sleum. VI, VI: 2
- Helitropodium* Bl. V
 — *javanicum* Bl. V: 65
- Hicksbeachia* F. v. M. IV, V
 — *diversifolia* (White) Sleum. IV
 — *pinnatifolia* F. v. M. IV

- Hollandaea lamingtoniana* Bail. V: 6
 — *sayeri* F. v. M. V
Kernmadecia Brongn. & Gris III
 — *austro-caledonica* (Brongn. & Gris) Benth. & Hook. f. III
 — *bleasdalei* (F. v. M.) Benth. & Hook. f. ex Bailey III
 — *pronyensis* (Guillaum.) Guillaum. III
Lomatia III
Loranthus pentapetalus Roxb. V
Macadamia F. v. M. II, V, VI
 — *francii* (Guillaum.) Sleum. II: 7
 — *heyana* (Bail.) Sleum. II: 9
 — *hildebrandii* Steen. II: 2
 — *lowii* Bail. II: 3
 — *minor* Bail. II: 3
 — *praeculta* (F. v. M.) Bail. II: 8, V
 — *rousselii* (Vieill.) Sleum. II: 5
 — *ternifolia* F. v. M. II: 3, V
 — *tetraphylla* Johns. II: 4
 — *verticillata* (F. v. M.) F. v. M. ex Benth. III
 — *vieillardii* (Brongn. & Gris) Sleum. II: 6
 — *whelani* (Bail.) Bail. II: 1, V
 — *youngiana* (Moore & F. v. M.) F. v. M. V: 1
Oreocallis III
Orites III
 "Rhopala" = *Roupala*
Roupala II, III, V
 — *attenuata* Jack V: 69
 — *bleasdalei* (F. v. M.) F. v. M. III
 — *cochininchinensis* (Lour.) R. Br. V: 87
 — *excelsa* Roxb. V: 34
 — *francoi* Guillaum. II, II: 7
 — *glabrata* Wall. V: 65
 — *moluccana* R. Br. V: 52
 — *moluccana* (non R. Br., non Roxb.) Jack V: 77
 — *moluccana* (nec R. Br., nec Jack) Roxb. V: 69
 — *ovata* Jack V
 — *robusta* Roxb. V: 65
 — *robusta* (non Roxb.) Spreng. V: 87
 — *rousselii* Vieili. II, II: 5
 — *serrata* R. Br. V, V: 33
 — *serrata* Roxb. V
 — *vieillardii* Brongn. Gris II: 6
 — — var. *longifolia* Brongn. & Gris II: 6
Rupala serrata Reinw. V: 65
Xylomelum salicinum A. Cunn. V