



in the monographic revisions. It was also decided to defer discussions on the merits and suppression of species to the final revision.

#### ALSEODAPHNE Nees

##### **Alseodaphne khasyana** (Meissn.) Kosterm., *comb. nov.*

*Machilus khasyana* Meissner (basonym) in DC, Prodr. 15(1) : 42. 1864; Kostermans, Bibl. 911 no 48. 1964. — Typus: *Griffith 125* (= *U26U K.D.*), Khasya (K).

This species, which for a century was only known from one collection, has now been collected again.

W. BURMA. North Triangle, Hkinlum, alt. 1200 m, big tree in the gorge of Hkrang Hka, April, young fr., *Kingdon Ward 20661* (BM, K); Sumprabum, alt. 1000 m, March, fr., *Kingdon Ward 220U3* (BM, K), infructescence dense, up to 9 cm long, fruit 3.7 cm long, bright green (immature), polished, pedicels 10–12 mm long, swollen, 3–5 mm in diam., at apex 4–8 mm wide, leaves somewhat glaucous below.

##### **Alseodaphne oblanceolata** (Merr.) Kosterm., *comb. nov.*

*Beilschmiedia oblanceolata* Merrill (basonym) in Univ. Calif. Publ. Bot. 15: 84. 1929; Kostermans, Bibl. 140 no 170. 1964. — Typus: *Elmer 20894, 20931*.

#### BEILSCHMIEDIA Nees

##### **Beilschmiedia gynotrochioides** Kosterm., *spec. nov.*

Arbor in omnibus partibus glabris inflorescentiis exceptis ramulis strictis laevis nitidis foliis oppositis coriaceis oblongis obscure sensim acurninatis vel obtusis basi cuneatis utrinque laxe prominule reticulatis supra nervo mediano impresso costis filiformibus prominulis subtus nitidus nervo mediano prominulo laeve verruculato costis subpatentibus filiformibus prominulis utrinque 8–12 marginem versus arcuatis petiolis conspicuis supra subcanaliculatis laeve verruculatis paniculis axillares ramulis brevis-simis patentibus paucifloris sparse minutissime pulverulente pilosis.

TYPUS: *Chai S 18908* (L).

Tree, 20 m high, 20 cm diam., bark hoopmarked, dark brown and grey-mottled, smooth; all parts glabrous (except inflorescence); branchlets smooth, glossy, black (dried), stiff. Leaves opposite, coriaceous, oblong, 3 x 9–4 x 13 cm, shortly, gradually acuminate or obtuse, base cuneate; both surfaces glossy, laxly, prominulously reticulate; upper surface with impressed midrib and very slender, prominulous ribs; lower surface with somewhat prominent, verruculate midrib; lateral nerves 8–12 pairs, rather patent, very slender, near the margin arcuate, prominulous. Petioles 10–15 mm long, verruculate, above subcanaliculate. Panicles axillary,

narrow, up to 7 cm long, few-flowered, few and short, patent branches (up to 5 mm long), towards apex minutely, sparsely, pulverulently pilose. Flowers 3 mm in diam., tepals ovate, acute, concave, 2 mm, yellow (fresh); stamens 1–1.5 mm long; anther elongate ovate, merging into the very short, broad filament, provided with 2 large, sessile glands; outer stamens introrse, inner ones lateral; staminodes heart-shaped, acute, 0.5 mm; ovary glabrous; style short; stigma inconspicuous.

Resembles somewhat *Gynotrochus* or *Pellacalyx* of Rhizophoraceae.

SARAWAK. Bt. Raya, Kapit, hillside, mixed *Dipterocarp* forest, clay rich, shale derived soil, alt. 600 m, Nov., fl., *Chai S 18908* (L).

##### **Beilschmiedia oblonga** Kosterm., *spec. nov.*

Arbor ramulis apicem versus minutissime dense ferrugineo pulverulente pilosis ramis gracilis glabris griseis foliis alternantibus glabris chartaceis oblongis obtusis vel apiculatis basi cuneatis utrinque laxe prominule reticulatis supra nervo mediano costisque prominulis subtus nervo mediano subprominentibus costis utrinque ca 8 (5–9) erecto-patentibus gracilibus prominulis marginem versus arcuatis petiolis gracilis glabris longis paniculis brevis axillares dense ferrugineo minute lanuginosis paucifloris vix ramosis floribus pro genere magnis.

TYPUS: *bb 31807* (L).

Tree, branchlets towards apex minutely, densely, pulverulently rusty pilose; branches slender, glabrous, greyish, smooth. Leaves spirally arranged, glabrous, chartaceous, oblong, 4 X 9–4.5 x 11 cm, obtuse or apiculate, base cuneate, both surfaces laxly, prominulously reticulate; upper surface with prominulous midrib and ribs; lower surface with prominent midrib, lateral nerves ca 8 (5–9) pairs, slender, erect-patent, arcuate and running out towards the margin. Petioles slender, glabrous, 15–22 mm, cylindrical. Panicles axillary, hardly branched, densely, minutely rusty, lanuginose, up to 2.5 cm long, peduncle and branches slender. Flowers relatively large, densely, minutely, rusty lanuginose; tepals elongate ovate, 3–3.5 mm long; pedicels up to 3 mm long.

W. INDONESIAN BORNEO. Melawi, Tjatit, Melaban R. and Gurung Ulur R. divide, alt. 280 m, April, fl., *bb 3180V* (BO, L).

##### **Beilschmiedia phoebeopsis** Kosterm., *spec. nov.*

Arbor ramulis crassis apicem versus dense minutissime rufo sublanuginosis foliis aggregatis coriaceis obovato-ellipticis obtusis vel apiculatis basi acutis supra nitida glabra laevia nervis principalis impressis subtus pallida mox glabra nervo mediano valde prominentibus costis utrinque ca 8 suberecto arcuatis prominentibus axillis excavatis nervis secundariis parallelis laxis prominulis rete laxe prominulis petiolis longis

dense pilosis supra plana vel subcanaliculata inflorescentiis axillaris longe pedunculatis dense minutissime ferrugineo sublanuginosis ramulis paucis brevis fructus immaturus globosus.

TYPUS: *Ashton S 16551* (L).

Tree, 17 m high with low buttresses; bark greyish brown and grey lichen-mottled, smooth; branches stout with large, round, protruding leaf scars, at apex densely, minutely, rusty sublanuginose. Leaves clustered near the apex of the branchlets, coriaceous, stiff, obovate-elliptical, 7 x 18—11 x 23 cm, obtuse or very shortly apiculate-acuminate, base acute; upper surface glabrous (except the sunken midrib), glossy, smooth, main nerves impressed; lower surface paler (glaucous when fresh), soon glabrous (except on the main nerves), midrib strongly prominent, lateral nerves ca 8 pairs, rather erect, arcuate, prominent, axils excavate; secondary nerves prominulous, parallel, lax; reticulation lax, prominulous. Petioles densely, minutely, rusty sublanuginose, 15—30 mm long, flat or slightly channeled above. Inflorescences axillary, densely, minutely, rusty sublanuginose, consisting of a long peduncle (up to 16 cm) and an upper part of up to 5 cm with few, short (up to 1 cm) rather slender branches. Immature fruit globose, apiculate.

SARAWAK. Bintulu, Ulu Stirau, Labang, mixed Dipterocarp forest, alt. 20 m, yellow sandy clay, March, young fr., *Ashton S 16551* (K, L), leaves bluish green below with yellowish nerves.

***Beilschmiedia podagrica* Kosterm., spec. nov.**

Arbor magna ramulis cylindricis glabris foliis alternantibus glabris coriaceis vel chartaceis late ovato-ellipticis usque ad lanceolatis apice acuminatis vel sensim acuminatis basi cuneatus supra nitida laevia nerviis principalis prominulis subtus subopacis laevia vel sub lente obscure reticulatis nervo mediano prominentibus costis utrinque 4—7 suberectis arcuatis marginem versus arcuatim evanescentibus petiolis longis supra applanatis glabris; inflorescentiis strictis parvis axillaris vel terminalis obscure minutissime pilosis vix ramosis infructescentiis glabris non-ramosis strictis fructus globosus pedunculis parvis subincrassatis.

TYPUS: *Hartley NGF 12398* (L).

Large tree, 17—33 m high, 90—120 cm in diam.; outer bark dark brown or grey brown, slightly rough with many, shallow fissures; inner bark straw; sapwood yellow; heartwood lightbrown. Buttresses up to 1.5 m high, out 3 m, thick 5 cm. Branchlets glabrous, smooth or with few lentils, upper part subangular. Leaves spirally arranged, the upper ones sub-opposite; leafbuds grey, glossy, crusty; the flush densely, very minutely, adpressed pilose. Adult leaves glabrous, coriaceous or chartaceous, ovate-elliptical to lanceolate, 3.5 X 11—9.5 X 15 cm (in the specimen *Clemens 711* up to 16 x 20 cm), apex shortly acuminate or (in the narrow leaves) gradually acuminate, tip sharp, base contracted into the petiole, shortly

cuneate; upper surface glossy, primary nerves smooth, prominulous; lower surface more dull, smooth or obscurely, laxly reticulate; midrib prominent; lateral nerves prominent, 4—7 pairs, erect-patent, slightly arcuate towards margin where they run out arcuately; secondary nerves filiformous, lax, or invisible. Petioles glabrous, 2—3 cm long, flat above, broadened near the apex. Inflorescences axillary and sub-terminal, stiff, coarse, hardly branched (branches erect) with a lax, very minute (under high power lens) tomentum of adpressed hairs, up to 3 cm long. Flowers not present. Outer stamen 1/3 mm long, anther elongate-ovate, 2-celled, filament short, laxly pilose. Fruit globose, smooth, 12 mm diam. on a short thick, slightly enlarged peduncle, not differentiated from the infructescence branch.

One is tempted to refer this species to *Dehaasia*, because of the thick fruit peduncle, but the peduncles are not swollen and fleshy as in *Dehaasia*; moreover the virgate inflorescence points to *Beilschmiedia*. The straw coloured inner bark and the yellow sapwood point again to *Dehaasia*. Complete flowers are needed.

The sterile specimen *Clemens 711* has enormous leaves, but is in other respects certainly conspecific. The Biak specimen is a low altitude one.

TERRITORY OF NEW GUINEA. Morobe Distr., Sattelberg-, jungle above the mission, alt. 1100 m, ster., *Clemens 711* (A); E. Highlands, 2 miles W. of Omaura, alt. 2000 m, Nov., fr., *Hartley TGH 12.398* (L); ibid., July, young- fr., *Hartley TGH 11962* (L). PAPUA. S. Highlands Distr., near Tag-e, lake Kutubu, alt. 900 m, tree 08 m, bole 25 m, diam. 55 cm., ster., *Schodde 2167* (L), vernacular name "Masa" (Kutubu language); this name also used for *Cryptocarya hartleyi* Kosterm. W. IRIAN. Isl. Biak, near Mansforbo, alt. 55 m, ster., *BW 9658* (L).

CINNAMOMUM Sch.

***Cinnamomum cordatum* Kosterm., spec. nov.**

Arbuscula vel frutex in omnibus partibus glabris inflorescentiis exceptis ramulis angulatis foliis oppositis rigide coriaceis cordiformis apex obtusis vel late obscure obtuseque acutis basi cordatis supra laevia nerviis majoribus vix conspicuis subtus laevia nervo mediano prominulo nerviis basalibus incurvatis adscendentibus; infructescentiis axillaris foliis subaequilongis cupula obconica parte basali minutissime adpresse pilosa.

TYPUS: *Symington C.F. 32130* (K).

Shrub or treelet up to 7 m high, glabrous in all its parts except the inflorescence; branchlets smooth, glossy, angular. Leaves opposite, stiffly coriaceous, heartshaped, 2 x 3—4.5 x 6 cm, apex obtuse or obtusely obscurely acutish, base cordate; upper surface smooth, nerves hardly visible; lower surface smooth, midrib prominulous, the two main basal nerves starting from the petiole insertion, arcuately ascending to 3/4 the leaf blade length, lower down one pair of short, obscure accessory basal nerves;

lateral nerves none or a single one near the top quart of the leaf. Petiole thick, 4—5 mm long. Infructescences axillary, stiff, almost glabrous and unbranched, up to 5 cm long; fruit cup obconical, 1 cm long with remnants of tepals at the rim, minutely adpressed pilose towards the base.

Resembles *C. sessilifolium* Kanehira.

MALAY PENINSULA. Mt. Korbu (Kerbau) on open ridge tops above 1500 m, July, fr., *Symington C. F. 32130* (K, KEP); Frasers Hill, ridge beyond Pahang Bungalow, Sept., fr., *Symington F.D. 33231* (KEP).

***Cinnamomum rosselianum* Kosterm., spec. nov.**

Arbor mediocris in omnibus partibus glabris ramulis gracilibus nitidis atris (in sicco) foliis coriaceis suboppositis vel alternantibus utrinque nitidis dense prominuli areolatis breve late acuminatis basi cuneatis nervo mediano supra prominulo costis filiformibus prominulis subtus nervo mediano prominulis costis utrinque 5—8 filiformibus erecto-patentibus marginem versus arcuatim conjunctis petiolis pergracilis longis inflorescentiis axillaris parvis paucifloris vix ramosis tepalibus ovatis acutis antheris 4-locellatis exterioribus antheribus triangulari-ovatis introrsis filamentis sublatis aequilongis interioribus aequilongis antheris brevioribus extrorsis filamentis basin versus laterioribus brevioribus glandulis filamentis adnatis epibasalibus staminodiis conspicuis stipitatis ovario glabro stylo aequilongo stigmate truncato.

TYPUS: *Brass 281+19* (K).

Canopy tree, 6—8 m high, glabrous in all its parts; branchlets very slender, glossy, black (in sicco). Leaves subopposite and spirally arranged, coriaceous, ovate-elliptical, 1.5 x 3—3.5 X 6.5 cm, broadly, shortly acuminate, base cuneate, both surfaces glossy, densely, minutely, prominently areolate, upper surface with prominent midrib and very slender, prominent ribs, lower surface glaucous (fresh), midrib prominent, lateral nerves 5—8 pairs, filiformous, erect-patent, near the margin connected arcuately. Petioles very slender, 1—1.5 cm long. Inflorescences axillary, slender, few-flowered, up to 2 cm long, few-branched, branches up to 1 cm long. Tepals ovate-acute, 2—2.5 mm long; stamens equal, somewhat shorter than the tepals, outer ones with 4 ovate-oblong, introrse cells (the upper cells smaller), anthers as long as the rather broad filaments; inner anthers 2-celled, extrorse, smaller than the outer ones on filaments which are much broadened at base because of the adnate, small, stipitate glands; apex with a broad, sterile part; staminodes triangular-cordate, acute, stipitate; ovary glabrous, slightly sunk into the receptacle, as long as the style with truncate inconspicuous stigma. Fruit ellipsoid, 1 X 1.5 cm, apiculate; cup thin, flattish, 7 mm diam./; pedicel 8 mm, slightly ofconical.

ROSSEL ISLAND. S. slopes, canopy tree frequent in low scrubby forest of a ridge crest, alt. 700 m, fls. yellow, fr. unripe, *Brass 28410* (BM, K, L).

CRYPTOCARYA R. Br.

CRYPTOCARYA ACUMINATA Merr.

Cf. Kostermans, *Bibl. 383* no 16. 1964. — Typus: *Merritt 4342* (US), Mt. Halcon, Mindoro, June, fl.

Additional material: PHILIPPINES. *Gutierrez PNH 78101* (L), April—May, fr., Sierra Madre, Prov. Isabela, Luzon; *Bernardo F. B. 154?/4* (A), March, fl., Prov. Isabela, leaves up to 5.5 X 12.5 cm; *Ramos B.Sc. 22442* (A), Febr., fr., fruit ellipsoid, smooth, 17 x 20 mm; *Merritt F.B. 3673* (K), March, fl., fr., Bongabong R., Mindoro, *Whitford F.B. 1426* (US), buds & young fr.

CBYPTOCARYA ACUTIFLORA Bl. ex Nees

Cf. Kostermans, *Bibl. 383* no 2. 1964. — Typus: *Reinwardt s.n.*, Trogong, Java, "Kilinin" Sund. (L. 3 sheets).

New synonym: *Cryptocarya glaucescens* (non R. Br.) Koorders; cf. Kostermans, *I.e. 403* no 108b. — Typus: *Koorders 23548*.

Additional specimens: SUMATRA. Bangka. *Kostermans & Anta 585, 686, 820, 1181* (BO, L); *bb 34175* (BO, L); Tapanuli, *bb 26562* (BO, L); sine loc, *Forbes s.n.*, fr. (L, 3 sheets), *Krukoff 4167* (BO, L), *T. 890* (BO, L), *Lwmbach 1225* (BO, L). SAB AH. *SAN 24016, 2^580* (L).

***Cryptocarya ainikini* Kosterm., spec. nov.**

Arbor mediocris ramulis gracilis strictis glabris apicem versus minutissime pulverulente pilosis foliis alternantibus papyraceis glabris subovato-ellipticis distincte acuminatis basi subobtusis utrinque dense prominule reticulatis supra nervo mediano vix prominulo costis gracilis prominulis subtus nervo mediano prominentibus costis utrinque 5—8 prominulis erecto-patentibus vix vel subarcuatis petiolis distinctis infructescentiis axillaris terminalibusque minutissime pulverulente dense pilosis laxis fructus depresso-globulosus obscure costatis.

TYPUS: *BSIP 7177* (L).

Small tree, branches slender, glabrous, stiff, towards apex minutely, densely, pulverulently pilose. Leaves spirally arranged, papery, glabrous, subovate-elliptical, up to 8.5 X 19 cm, conspicuously acuminate (acumen up to 1.5 cm), base contracted into the ca 1 cm long slender petiole, obtuse; both surfaces densely, prominently reticulate; upper surface with hardly prominent main nerves; lower surface with prominent midrib, 5—6 pairs of erect-patent, prominent, hardly or slightly arcuate lateral nerves. Infructescences axillary and terminal, 3 cm (axillary), densely, minutely, pulverulently pilose, lax; fruit depressed globular, 12 x 15 mm, slightly ribbed.

SOLOMON ISL. S. E. New Georgia, Mango R., low, May, fr., *Bum-Murdoch's Coll., BSIP 7177* (L); N. Shortland Isl., May, fr., *Whitmore's Coll. BSIP 5852* (L), tree 7 m; N. W. Shortland Isl., Lagugo R., alt. 35 m, May, young fr., *Whitmore's Coll.*

*BSIP 5801* (L), tree 12 m, leaves 5 X 12—6 X 15 cm; New Britain, Keravat, alt. 70 m, Dec, buds, *Floyd NGF 6692* (L). TERRITORY OF NEW GUINEA. Morobe Distr., N. Side of Markham R., alt. 16 m, Aug., fr., *Hartley TGH 10599* (L), the fruit are different, this might be another species; Burap R., N. E. of Lae, April, fr., *Hartley TGH 10135* (L).

#### CRYPTOCARYA ALBIDA Kosterm.

Cf. Kostermans, Bibl. 384 no. 5. 1964. — *Litsea albida* (Kosterm.) Kosterm.; cf. Kostermans, I.e. 787 no 13. — Typus: *Brass 31120* (BM, K, US).

Additional specimens: TERRITORY OF NEW GUINEA. Goroka Subdistr., Upper Omahaiga (Omagaiga) Valley, alt. 2900 m, ster., *Pullen 566* (L); alt. 2700 m, Sept., fr., *Bobbins 874* (L), frequent; Asara-Mairifutica Divide at 2700 m, ster., *Pullen 475* (L); Morobe Distr., Salamau Rd., alt. 1800 m, Jan., after anthesis, *Womersley and Millar NGF 8738* (L); Boridi, alt. 1600 m, April, buds, *Carr 13347* (L).

#### CRYPTOCARYA ALLBNIANA C. T. White

Cf. Kostermans, Bibl. 384 no 6. 1964. — Typus: *Walker BSIP 4* (L), Guadalcanal, Malimba R., June, fl.

Additional specimens: TERRITORY OF NEW GUINEA. Morobe Distr., Busu R., alt. 130 m, Oct., fl., *van Roy en NGF 20111* (L); Oomsis Creek, 18 miles W. of Lae, March, buds, *Hartley TGH 10041* (L); Lae Botanic Garden, April, fl., *Womersley 5132* (L); *ibid.*, Sept., fr., *Millar NGF 11\*633* (L); Bunga R., 15 miles NE of Lae, Oct., fr., *Hartley TGH 12284* (L). W. IRIAN. Kebar valley, alt. 730 m, ster., *BW 7714* (L). PAPUA. N. Div., 3 km E of Kokoda, Iora R., Sept., fl., *Hoogland 3901* (L). SOLOMON ISL. Guadalcanal, Berande R., Low, Jan., buds, *Kajewski 2413* (L); S. W. Malaita, Are Are Distr., Kiu, Dec, fl., *Whitmore BSIP S853* (L).

#### *Cryptocarya alticola* Kosterm., *spec. nov.*

Arbor ramulis strictis griseo-scabiosis ramis dense lenticellatis foliis alternantibus crasse coriaceis junioribus minutissime dense rufo lanuginosis adultis glabris ellipticis vel oblanceolatis obtusis vel obscure late acuminatis basi cuneatis supra nitida nervo mediano piano costis graciles impressis nervis secundariis obscuris subimpressis, subtus opacis nervo mediano lato prominulo costis utrinque 6—9 erecto-patentibus marginem versus arcuatim evanescentibus nerviis secundariis parallelis per laxis obscuris reticulato deest petiolis conspicuis paniculis terminalis perdense minutissime fusco-rubro pulverulente pilosis.

TYPUS: *Hoogland and Pullen 615U* (L).

Tree, 28 m high; free bole 13 m, diam. 40 cm; bark ca. 11 mm thick, grey-brown with numerous longitudinal cracks, partly pustular; inner bark yellow-straw; wood straw. Branchlets stiff, covered with tiny white scabs, covering a very dense, extremely minute tomentum; branches with numerous, pale, small lenticels. Leaves spirally arranged, rigidly coriaceous, elliptical to oblanceolate, 2.5 x 5—4 X 9.5 cm, top obtuse or obscurely

shortly, broadly acuminate, base cuneate; upper surface glossy, midrib and the slender lateral nerves impressed, secondary nerves obscure, impressed; lower surface dull, in very young leaves with a very dense, minute, rusty lanuginose tomentum, often covered by grey, glossy scabs; adult leaves smooth, glabrous, midrib broad, prominulous, lateral nerves erect-patent, slightly arcuate, running out arcuately near the margin; secondary nerves faint, distant, parallel, prominulous. Petioles 10—15 mm long, flat above. Panicles multi-flowered, dense, terminal, up to 14 cm long, ramifications erect, stiff, lower ones up to 9 cm long; ultimate branchlets and flowers covered with a dark rusty, minute, subpulverulent, dense tomentum; flowers 4 mm long.

Related perhaps to *Cr. obovata* R. Br., which has fewer lateral nerves, different flowers and different tomentum.

TERRITORY OF NEW GUINEA. W. Highlands Distr., near Tomba village, S. slope of Mt. Hagen Range, alt. 2550 m, common tree, flowers fragrant, perianth reddish brown, stamens yellow, *Hoogland & Pullen 6154* (L).

#### CRYPTOCARYA AMPLA Merr.

Cf. Kostermans, Bibl. 384 no. 8. 1964. — Typus: *Ahem 463* (NY, US), Antipolo, Prov. of Rizal, Luzon, April, fr.; *Ahem 397* (NY), *ibid.*, Febr., fl.; *Ahem 2438* (NY, US), *ibid.*, Jan.-March, fl.

New synonyms: *Cryptocarya elliptifolia* Merr.; cf. Kostermans, I.e. 397 no. 81. — Typus: *Ramos B. Sc. 30330* (K, L, US), Cantaduanes, Nov., fr.

*Cryptocarya pacifica* Elmer; cf. Kostermans, I.e. 426 no. 235. — Typus: *Elmer 16758* (L, US), Irosin, Prov. Sorsogon, Luzon, July, young fr.

*Cryptocarya calelanensis* Elmer; cf. Kostermans, I.e. 390 no. 48. — Typus: *Elmer 11610* (L, LE, NY, US), Mindanao, Todaya (Mt. Apo), Distr. of Davao, Sept., fr.

Additional specimens: PHILIPPINES. Luzon, Prov. Camarines Sur, Pasacao, fr., *Ahem's Coll. 183* (US); Paracale, Nov. Dec, fr., *Ramos & Edano B.Sc. 83537* (US); Mt. Maquiling, Prov. of Laguna, Fbr., fl., *Villamil F. B. 20876* (US); Rizal Prov. Antipolo, Febr., fl., *Ramos B. Sc. 4.201,2* (US); Prov. Pampanga, Mt. Arayat, March, young fr., *Curran F.B. 17707* (US); Prov. Cagayan, April - May, fl., *Barros F.B. 21774* (US); Isl. Panay, Capiz Prov., Libacao, May - June, fr., *Martelino & Edano B.Sc. 35320* (US); Mindanao, Davao, Todaya (Mt. Apo), May, fl., *Elmer 10565* (LE, NY, US); Santa Cruz, May, fr., *Williams 2851* (US, 2 sheets).

#### CRYPTOCARYA ARGYROPHYLLA Allen

Cf. Kostermans, Bibl. 386 no. 22. 1964. — Typus: *Clemens 3566* (A), Morobe Distr., Yunzaing, July, fr. and *Clemens 4739* (A), *ibid.*, Ogeramngang, Dec, fl.

New synonym: *Cryptocarya subtrinervis* Kan. & Hat.; cf. Kostermans, I.e. 435 no. 289. — Typus: *Kanehira & Hatusima 12778* (A), Boemi, Nabire, March, young fr.

Additional specimens: PAPUA. Milne Bay Distr., Mt. Dayman, Maneau Range, alt. 1450 m, July, fr., *Brass 23,304* (A), slender tree, 8—10 m, frequent in oak forest

substage, leaves up to 7 X 13 cm; W. Highlands, Jinomy valley, alt. 600 m, June, fr., *Womersley & Millar NGF 8579* (L). TERRITORY OF NEW GUINEA. Aiyura, alt. 2000 m, ster., *NGF 1003*, (L) et *U57* (L), fr., Aug.; Morobe Distr., Skindewai, alt. 1800 m, Jan., fr., *Womersley & Millar NGF 8438* (L). W. IRIAN. Wissel Lakes, Motito, ster., *BW 8705* (L); Central Tamrau Range, alt. 880 m, Nov., fl., *van Royen & Slewmer 7764'*(L); perhaps also: Namtoo Mts, S. of Arfak, alt. 300 m, after anthesis, *Kostermans 2866* (BO, L).

***Cryptocarya atra* Kosterm., spec. nov.**

*Cryptocarya archboldiana* Allen in J. Arn. Arb. 23: 143. 1942, p.p. quoad spec. *Brass & Versteegh 131,19*.

Arbor ramulis glabris subangulatis sulcatis atris ramis saepe minute pustulatis foliis alternantibus glabris coriaceis subovato-ellipticis breve caudato-acuminatis basi in petiololum contractis supra nitida nervo mediano impresso costis filiformibus subimpressis subtus pallidiora in foliis adultis glabris, obscure reticulatis nervo mediano prominentibus costis utrinque 3—5 erecto-patentibus, adscendentibus, arcuatis prominentibus nerviis secundariis parallelis laxis prominulis petiolis gracilis canaliculatis. Paniculis terminalis glabris crassis, laxis rigidis foliorum longioribus fructus subovoideo-ellipsoideus glabris vix costatis.

TYPUS: *Brass & Versteegh 13119* (L).

Tree, 25—30 m high, 47 cm diam.; bark 19 mm thick, black, scaly, rough; wood brown. Branchlets glabrous, smooth, black, sulcate, subangular; in the flush the branchlets densely minutely aureo-sericeous. Leaves spirally arranged, coriaceous, subovate-ellipsoid, 1.8 X 3.5—4 X 8 cm, abruptly caudate-acuminate, acumen ca 5 mm long, base contracted into the 7—10 mm long, glabrous slender petiole; upper surface smooth (in the specimen *Brass & Versteegh 13562* obscurely, laxly reticulate), midrib impressed, lateral nerves filiformous, subimpressed; lower surface in young leaves minutely, densely sericeous; adult ones glabrous, midrib prominent, lateral nerves 3—5 pairs, erect-patent, arcuate, prominent, ascendent, connected by subhorizontal, parallel, lax secondary nerves. Petiole sulcate above. Infructescences terminal, stiff, thick, glabrous, up to 8 cm, broad; branches few, thick, stiff; fruit subovoid-ellipsoid, up to 12 x 15 mm, smooth or obscurely ribbed.

Very near to *Cr. sleumeri*, but this has much larger leaves which are in adult stage glabrous.

W. IRIAN. Idenburg R. 4 km S. W. of Bernhardcamp, alt. 850 m, March, fr., *Brass & Versteegh 131,19* (L); *ibid.*, alt. 225 m, ster., *Brass & Versteegh 13562* (A, L).

***Cryptocarya aurea* (Kosterm.) Kosterm., comb. nov.**

*Endiandra aurea* Kostermans (basionym) in Bull. bot. Gard. Buitenzorg, Ser. 3, 18: 442. 1950; *Bibl. Laur.* 483 no. 7. 1964.

Specimens examined: W. IRIAN. Arfak Mts., Angi Gita lake, ca 1800 m, small tree, up to 8 m high, Oct., buds, *Kostermans 2014* (= *bb 33649*), 2027, 2033, 2038, 2143, 2196, 233U (BO, L).

***Cryptocarya aureosericea* Kosterm., spec. nov.**

Arbor ramulis perdense minutissime adpresse pilosis, foliis alternantibus chartaceis late ellipticis vel subovato lanceolatis apice distincte acuminatis basi cuneatis supra mox glabra venis vix conspicuis subtus perdense aureo-sericea nervo mediano prominentibus costis utrinque 7 prominentibus suberecto-patentibus sensim arcuatis reticulatio laxe prominulo conspicuo; paniculis axillaris terminalisque dense sericeis floribus sessilibus dense sericeis.

TYPUS: *Whitmore's Coll. BSIP 3643* (L).

Tree, up to 30 m high and 60 cm in diam. Bole blackish brown, smooth, rugulose with fine vertical lines of lenticels, sometimes some hoop marks. Buttresses equal, thin and plankish, steep, up to 1.5 m. Slash: bark pink fawn with dark brown fibres set in discrete radial files; bark almost black near surface; wood yellowish fawn, soft, white, yellow within. Crown small with upturned limbs, flattish, diffuse, rather yellowish green. Branchlets with a minute dense layer of sericeous, yellowish brown hairs, branchlets often with transverse irregular raised bumpy rings, lenticels few, conspicuous. Leaves spirally arranged, chartaceous, broadly elliptic to ovate-lanceolate (in *BSIP H37*), up to 9 X 17 cm (4.5 X 12 cm in *BSIP 1437*); apex abruptly acuminate (in the ovate-lanceolate leaves the apex is less abruptly acuminate), acumen slender, up to 1 cm long, base cuneate, slightly tapered; young leaves golden sericeous on both surfaces; adult ones soon glabrous on the upper surface with hardly prominent slender main nerves; lower surface densely aureo-sericeous, midrib rather broad, prominent; lateral nerves 7 pairs, patent, rather erect, gradually arcuate, prominent, running out towards the margin; reticulation lax, faint. Petioles ca 1 cm long, sericeous. Panicles axillary and terminal, few-branched, up to 12 cm long; flowers sessile, densely sericeous; bracts caducous.

DISTRIBUTION: N. E. New Guinea, Solomon Isl.

SOLOMON ISL. New Georgia group, Kolombangara Isl., westcoast, Sandfly Harbour, ridge forest, alt. 200 m, Febr., fl., *Whitmore BSIP U9b* (L); *ibid.*, Merusu Cove, alt. 110 m, Febr., young fr., *Whitmore BSIP U37* (L); Santa Isabel, Allardyce Harbour, alt. 70 m, Jan., after anthesis, *Whitmore's Coll. 3643* (L); S. E. New Georgia, 80 m, May, buds, *Maenu'u BSIP 5190* (L); Bougainville Isl., Koniguru, Buin, alt. 900 m., fr., *Kajewski 2019* (A), fruit shining black with uneven surface, 1.3 cm long, diam. 1.5 cm, flattened at end, finely ribbed. TERRITORY OF NEW GUINEA. Morobe Distr., Buana Mts., alt. 100—150 m, July, buds, *Clemens 8538* (A); this and the following sterile specimens have larger leaves (up to 11 x 27 cm) but are identical in other respects. W. IRIAN. Isl. Japen, Serui, Mariattu, alt. 370 m, ster., 66 30418, 30369, 30457 (BO, L); *ibid.*, Sebosiar, *BW 10059* (L).

*Cryptocarya borneensis* Kosterm., *spec. nov.*

*Cryptocarya kurzii* Hk. f. var. *subsericea* Airy Shaw in Kew Bull. 1939: 535.  
— Typus: Richards 2U3 (K).

Arbor ramulis strictis dense minutissime rufo vel griseo sericeis foliis alternantibus coriaceis ellipticis acuminatis basi acutis supra glabra nitida nervo mediano piano subtus dense minutissime sericea nervo mediano prominentibus costis utrinque 6—7 suberectis prominulis paullo curvatis reticulatis obscuro petiolis longis paniculis axillaris terminalibusque dense minutissime aureo-sericeis densifloris foliis multo brevioribus fructus ellipsoidas laevibus nitidus.

TYPUS: SAN 16257 (L).

Tree, 20 m high; branchlets straight, rather slender, stiff, densely, minutely rusty or grey sericeous. Leaves spirally arranged, coriaceous, elliptical, 2.5 X 6—5 X 11 cm, distinctly acuminate, base acute; upper surface smooth, glossy, glabrous, except the flat midrib; lower surface densely, minutely sericeous, midrib prominent, lateral nerves prominent, rather erect, slightly arcuate, 6—7 pairs, reticulations rather obscure. Petioles slender 8—14 mm long, somewhat flattened above. Panicles narrow, axillary or terminal, densely, minutely golden sericeous, many-flowered, 3—5 cm (axillary) long; flowers circa 2.5—3 mm, sericeous, tube slender. Fruit ellipsoid, smooth, glossy, up to 9 X 14 mm.

SABAH. Bukit Suayo, 10 miles SSW of Sipitang, alt. 180 m, Sept., fr., Wood SAN 16257 (A, BO, BRI, K, KEP, L, SING). SARAWAK. Baram Distr., Miri R., fl., Hose 66 (L); Mt. Balapan, Ulu Tinjar, alt. 800 m, Nov., fls. yellowish, Richards 2U3 (A, K); Sg. Temulam, Aug., fr., SFN 3,5720 (K).

*Cryptocarya bullata* Kosterm., *spec. nov.*

Arbor parva ramulis dense rufo tomentellis ramis cylindricis subgracilis foliis alternantibus rigide chartaceis supra bullatis subovato-ellipticis vel lanceolatis subcaudato-acuminatis basi acutis supra mox glabra, nervo mediano costisque et nerviis secundariis impressis subtus nerviis flavo-brunneo tomentellis nervo mediano prominente costis utrinque 3—4 adscendentibus arcuatis prominentibus nerviis secundariis prominentibus laxis rete laxe prominentibus petiolis brevis tomentellis inflorescentiis axillaris brevis dense flavo brunneo tomentellis.

TYPUS: van Royen & Sleumer 7784 (L).

Treelet, 5 m high, stem 3 m, diam. 12 cm; branchlets rather slender, cylindrical, densely yellow-brown tomentellous; branches cylindrical, smooth. Leaves spirally arranged, rigidly chartaceous, subovate-elliptical, to lanceolate, 3 X 7—3.6 X 10 cm, caudate, rather gradually acuminate, base acute; upper surface soon glabrous, bullate between the impressed primary and secondary nerves; lower surface tomentellous on the nerves, midrib prominent; lateral nerves 3—4 pairs, prominent, ascendent, arcuate,

the lower pair often sub-basal and reaching 2/3 of the leaf blade length; secondary nerves lax, prominent; reticulation lax, prominent. Petiole 6—8 mm long, tomentellous. Inflorescences axillary, densely yellow-brown, tomentellous, up to 4 cm long.

W. IRIAN. Vogelkop Peninsula, Central Tamrau Range, S. slope, path Sudjak village to Mt. Kusemun near Aiwa R., riverine forest, alt. 840 m, Nov., buds, van Royen & Sleumer 778A (L).

## CRYPTOCARYA BURCKIANA Warb.

Cf. Kostermans, Bibl. 390 no. 45. 1964. — Typus: Key Isl., Warburg 20503 (A, K), fl.

Additional specimen: TANIMBER ISL. Young fr., Forbes 3366 (K, L).

## CRYPTOCARYA CAGAYANENSIS Merr.

Cf. Kostermans, Bibl. 390 no. 47. 1964. — Typus: Ponce F.B. 28U0 (A, K), Cagayan Prov., Luzon, May, fr.

Additional specimens: PHILIPPINES. Sierra Madra Mts, Isabela Prov., Luzon, April, fr., Guitierrez PNH 78283 (L). Borneo. SARAWAK. Baram Distr., Ulu Melinau near G. Api, alt. 130 m, July, fr., Anderson 4613 (L); Lundu, G. Gebong, Sematan, alt. 300 m, April, fl., Ilias Paie 133U8 (L); Kuching, Mt. Santubong, alt. 500 m, May, fr., Bujang 13477 (L). SABAH. Distr. Lemag, Sepiloring Hill, Kinabatangan, alt. 30 m, April, fl., SAN 35293 et 35252 (L); Balong area, 15 miles NE of Tawau, alt. 400 m, Oct., fr., SAN 16485 (L); Ranau, Mt. Kinabalu, below Sosopodon, alt. 1400 m, Aug., fr., San 38503 (L). KALIMANTAN. E. Kutei, Mt. Sekrat S of Sangkulirang, alt. 150 m, July, fr., Kostermans 5908 (BO, L); ibid., alt. 100 m, July, fr., Kostermans 5916 (BO, L); Sg. Menubar, NE of Sangkulirang, June, fr., Kostermans 5361 (BO, L), 5169 (BO, L) et 5030 (BO, L); Sg. Susuk, NE of Sangkulirang, alt. 10 m, June, fr., Kostermans 5566 (BO, L); W. Kutei, Pedohon R. near Tabang, April, fr., Kostermans 10609 (BO, L); Berau, Telukbajur, low, Nov., fr., Kostermans 21629 (BO, L); Loa Haur, W. of Samarinda, Sept., fl., Kostermans 9931 (BO, L); G. Lemukutan, fr., Hallier 333 (BO, L). CELEBES. Minahassa, ster., Koorders 17U80 (BO, L). MOLUC-CAS. Tanimbar Isl., Ilgnei Ottimer, ster., 66. 2U293 et 24367 (BO, L); Jamdena Isl., April, young fr., van Borssum Waalkes 3274 (BO, L), Pleyte 152 (BO, L), Buwalda 423U (BO, L); W. Ceram, Kairatu, June, fl., Kuswata & Soepadmo 5, 20 et 134 (BO, L); Jan., fl., Rutten 912U (BO, L). PAPUA. N. Distr. near Budi Barracks, Tufi Distr., alt. 75 m, Aug., buds, Hoogland U6&3 (A, L); Koitaki, alt. 500 m, July, fr., Carr 12872 (A, BM).

## CRYPTOCARIYA CAMPTODROMA Allen

Cf. Kostermans, Bibl. Laur. 390 no. 51. 1964.

Additional material: PAPUA. Centr. Distr., Sirimumu area, 3 miles S. of Sogeri, alt. 500 m, tree 4 m, bark smooth, light grey outside, creamer inside, wood pale cream, fls. green yellow, Sept., fl., Schodde 2995 (L); Sogeri, fr., Forbes 31i (L). W. IRIAN. Star Mts., Sibil valley, Betabib, 1200 m, Aug., fr., shrub 2.5 m, fruit a ribbed berry,

2 X 2.5 cm, Aug., *Kalkman & Nicolas 4547* (L); *ibid.*, May, *ifr.*, ellipsoid, ribbed, 3 x 4.5 cm, *Kalkman & Tissing 4130* (L).

*Cryptocarya carrii* Kosterm., *spec. nov.*

Arbor ramulis glabris gracilis in sicco nigris vel griseis foliis alternantibus chartaceis glabris (domatiis exceptis) ovato-lanceolatis acuminatis basi in petiolum gracilem contractis utrinque minute prominule areolatis nerviis majoribus supra prominulis in depressis subtus prominentibus costis utrinque 3 basalibus adscendentibus paniculis latis axillaribus terminalibusque dense flavo subadpresso pilosis pilis substrigosis floribus pilosis.

TYPUS: *Carr 14960* (L).

Tree, branchlets slender, glabrous, black (in sicco), smooth, towards apex densely, yellowish-grey, adpressed pilose. Leaves spirally arranged, chartaceous, almost glabrous, ovate-elliptical, 3.5 x 7—6 x 12 cm, apex acuminate with sharp tip, base contracted into the slender, 5—7 mm long, glabrescent, above channeled petioles, rounded or shortly cuneate; both surfaces densely, minutely, prominulously areolate, upper surface often smooth with filiform, slightly impressed main nerves; lower surface with prominent main nerves (sometimes with a few hairs near its base), lateral nerves 3 pairs, erect-ascending, arcuate, the lower pair subbasal, reaching 2/3 of the leafblade length, axils pilose. Panicles broad, many-flowered, axillary and terminal, up to 10 cm long, densely, minutely, dirty yellowish sub-adpressed pilose, the hairs rather strigose; flowers with a similar indumentum, 1.5 mm long.

TERRITORY OF NEW GUINEA. Boridi, secondary forest, alt. 1100 m, Nov., fl., *Carr 14960* (A, L).

CRYPTOCARYA CAUDATA Teschn.

Cf. Kostermans, *Bibl.* 391 no. 55a. 1964. — Typus: *Ledermann 9707* (L), 9785 (L), *Schlechter 20144* (UC), K. Wilhelmshand, Toricelli Mt., alt. 700 m, Oct., fl.

New synonym: *Cryptocarya bernhardiensis* Allen; cf. Kostermans, *I.e.* 388 no. 32a. — Typus: *Brass 12968* (L); para-typus: *Brass 13467*.

*Cryptocarya celebica* (Kds.) Kosterm., *comb. nov.*

*Alangium celebicum* Koorders (basonym) in *Meded. Lands PI. tuin* 19: 492. 1898; *Bloembergen in Blumea* 1: 288. 1953; *Van Steenis in Blumea* 12: 13. 1963.

In Leiden are represented: *Koorders 19627*, Menado, alt. 200 m (2 sheets); there are several small, loose fruit; of the largest fruit only the lower half is present, reconstructed it might have been 15 x 25 mm, ellipsoid. Another specimen, *Riedel s.n.*, Gorontalo, infructescence without fruit, is conserved at Kew.

Additional specimen: 66. 17177 (A, BO), ster., Manado, Amurang, alt. 200 m.

CRYPTOCARYA CINNAMOMIFOLIA Benth.

Cf. Kostermans, *Bibl.* 392 no. 58a. 1964. — Typus: *F.v. Mueller*, Rockingham Bay, Dallachy, fl. (K).

New synonym: *Cryptocarya tetragona* Allen; cf. Kostermans, *I.e.* 436 no. 297. 1964. — Typus: *Clemens 5447* (A), Morobe Distr., Oberamngang, Febr., fr.

Additional specimens: PAPUA. W. Distr., Oriomo R., June, fr., *McVeagh NGF 8280* (L); S. Highlands Distr., Lake Kutubu, Waseni Isl., alt. 800 m, Sept., young fr., *Schodde 2343* (L); Sogeri region, fr., *Forbes 800* (L).

*Cryptocarya cordifolia* Kosterm., *spec. nov.*

Arbor mediocris ramulis crassis minutissime ferrugineo sublanuginosis foliis alternantibus chartaceis magnis late ellipticis apice obtusis vel subemarginatis basi cordatis supra mox glabra laevia nerviis primariis prominulis subtus (in sicco) pallidioribus venis minute tomentellis nervo mediano magno dense puberulo prominente costis utrinque 17—19 patentibus strictis prominentibus marginem versus arcuatim evanescentibus reticulo laxo prominulo; petiolis brevis magnis; paniculis axillaribus perdense minutissime ferrugineo pilosis multifloris.

TYPUS: *Womersley NGF 17617* (L).

Tree, 8 m high, bole 3 m, 15 cm diam. Branchlets thick, densely, minutely ferrugineous-sublanuginose; terminal bud densely rusty tomentellous. Leaves spirally arranged, chartaceous, 16 X 30—20 x 37 cm, apex obtuse or subemarginate, base auriculate-cordate; upper surface soon glabrous, smooth midrib and lateral nerves hardly prominulous, lower surface paler (in sicco), midrib stout, strongly prominent, densely, minutely, rusty-woolly; lateral nerves 17—19 pairs, patent (except the erect-patent apical ones), prominent, straight, arcuate and running out near the margin; secondary and tertiary nerves prominulous, forming a rather lax reticulation; all veins minutely pilose. Petioles stout, densely, minutely rusty-pilose, 10—15 mm long. Panicles axillary, densely, minutely rusty pilose; branches few, manyflowered; flowers broad with ovate tepals.

Belongs with *Cr. magnifolia* Teschn. to the largest-leaved *Cryptocarya* species.

TERRITORY OF NEW GUINEA. Morobe Distr., Bumbu valley logging Rd., 10 miles from Lae, April, fl., *Womersley NGF 17617* (L).

CRYPTOCARYA CRASSINERVIA Miq.

Cf. Kostermans, *Bibl.* 394 no. 66a. 1964. — Typus: *Teijsmann s.n.*, Fort de Kock, Sumatra (U).

New synonym: *Cryptocarya edanoi* Merr.; cf. Kostermans, *I.e.* 397 no. 77. 1964. — Typus: *Ramos & Edano B. Sc. 36706* (A, K), Mt. Tubuan, Zamboanga Distr., Mindanao, Oct., fr.

## CRYPTOCARYA DEPRESSA Warb.

Cf. Kostermans, Bibl. 396 no. 72. 1964. — Typus: *Warburg 2057b* (A, BM), Isl. Ulu, Bismarck Arch., fr.

Additional specimens: MOLUCCAS. S. E. Ceram, Jan., fl., *Kornassi 8,15* (BO, L); E. Ceram, Kiandarat, ster., *bb 25871* (BO, L). TERRITORY OF NEW GUINEA. Morobe Distr., along Tymne-Wago Track, alt. 500 m, March, fl., *Hartley TGH 11376* (L); ridge above village of Yalu, alt. 130 m, March, fr., *Hartley TGH 9972* (L); *ibid.*, June, fr., *Hartley TGH 10316* (L); on Bulolo Rd., near Garagos Creek, May, fr., *Floyd NGF 72U* (L); Bumbu R., alt. 33 m, Sept., fr., *NGF 16687* (A, BRI, K, L); off Wau-Bulolo Rd., 10 miles from Wau, alt. 800 m, Dec, fl., *Frodin & Hill NGF 26331* (L); Bulolo-Watut Divide, alt. 900 m, Dec, fr. (L); Busu Bridge near Lae, Oct., fr., *White NGF 95U* (L); Madang Distr., lower Ramu-Atitau Area, alt. 70 m, Oct., fr., *Pullen 1196* (L). PAPUA. Aroa R., Lolorua Estate, Kairuku Subdistr., alt. 15 m, Aug., fr., *Pullen 3518* (L); N. Division, near Saga village, Yodda Valley, alt. 350 m, Sept., fr., *Hoogland S9Z7* (L); Veiya, March, fl., *Carr 11620* (A, L). W. IRIAN. Andai near Manokwari, ster., *BW 7,260* (L); Sidai near Manokwari, ster., *BW 6712* (L). SOLOMON ISL. S. W. Malaita, Are Are Distr., Dec, fl., *Lipaqeto BSIP 353U* (L); Guadalcanal, Sorvorhio Basin, Jan. fl., *Kajewshi 2700* (A, L).

*Cryptocarya endiandraefolia* Kosterm., *spec. nov.*

Arbor mediocris ramulis gracilibus glabris apicem versus minutissime dense pulverulente pilosis foliis alternantibus chartaceis glabris oblongis breve acuminatis basi acutis supra nitida laevia nervo mediano impresso costis filiformibus obscuris subtus opaca dense minutissime reticulata, nervo mediano prominentibus costis utrinque 7—9 gracilibus prominulis erecto-patentibus subarcuatis petiolis distinctis inflorescentiis axillaribus terminalibusque dense minutissime subadpresse ferrugineo pilosis.

TYPUS: *Hoogland 5131* (L).

Tree, 10 m high, 15 cm diam.; bark 5 mm thick, pale grey-brown, shallowly longitudinally fissured; inner bark pale brown; wood straw; branchlets slender, glabrous, towards apex densely, minutely, rusty pilose. Leaves spirally arranged, chartaceous, glabrous, oblong, 2.5 x 7—3.5 x 11 cm, apex shortly acuminate, base acute; upper surface smooth, midrib impressed, lateral nerves very slender, rather obscure; lower surface densely, very minutely reticulate; midrib prominent; lateral nerves 7—9 pairs, slender, erect-patent, slightly arcuate. Petioles 1—1.5 cm long, slender. Panicles axillary and terminal, dense, many flowered, up to 4 (axillary), 7 (terminal) cm long, densely, minutely sub-adpressed pilose. Flowers 1.5 mm long.

TERRITORY OF NEW GUINEA. Madang Distr., S. W. foothills of the Finisterre Mts, near Gurumbu village, alt. 750 m in tall, secondary forest, occasional, Aug., fl., *Hoogland 5151* (L); Sepik Distr., Wewak Angoram area, alt. 30 m, July, fl., *Pullen 1369* (L), leaves with longer acumen.

*Cryptocarya erectinervia* Kosterm., *spec. nov.*

Arbor ramulis glabris strictis saepe sulcatis apicem versus minutissime pulverulente pilosis foliis alternantibus coriaceis glabris ellipticis breve acuminatis vel subobtusis basi subrotundatis vel breve acutis supra nitida sublaevia nervo mediano costisque impressis subtus opaca laevia nervo mediano valde prominentibus costis utrinque 6—8 suberectis strictis prominentibus ad marginem arcuatis petiolis longis nee sulcatis paniculis axillaribus terminalibusque multifloris dense minute subadpresse pilosis.

TYPUS: *Kostermans 9908* (L).

Tree 20 m high, bole 12 m, diam. 60 cm; buttresses 50 cm high, out 50 cm; bark smooth, light brown, 0.5 mm; living bark 8 mm, light brown, inside paler; wood white with sweetish smell. Branchlets glabrous, glossy, yellowish grey or white, often sulcate, near apex minutely, pulverulently pilose. Leaves spirally arranged, coriaceous, glabrous, elliptical to subovate-elliptical, 3 X 11—6.5 x 20 cm, apex obtuse or shortly acuminate, base rounded, rarely shortly acute; upper surface glossy, smooth or obscurely, very densely, minutely reticulate, main nerves impressed; lower surface dull, smooth or (in the enumerated specimens) densely, minutely reticulate, the secondary veins more conspicuous, midrib strongly prominent; lateral nerves 6—8 pairs, rather erect, straight, prominent, at margin arcuate. Petioles up to 1.5 cm long, slender, flat or somewhat concave above. Panicles axillary and terminal, manyflowered, up to 10 cm long, densely, yellowish brown subadpressed pilose.

SABAH. Sipitang, Ulu Mendalong, 6 miles SSE of Malaman, Sept., fr., *Wood SAN 16761* (L); Ulu Lukutan, 8 miles ENE of Sipitang, alt. 70 m, Aug., fr., *SAN A b581* (L); Beaufort, Halogelat, Padas Gorge, Nov., fr., *SAN 39836* (L); Kinabalu, Tenompok, 1600 m alt., ster., *J. & M. S. Clem.ens 28595* (L); Ranau, Sg. Lotong, April, buds, *SAN 28929* (L); Sandakan, Kretam, May, fl., *SAN A 1862* (L); Lahad Datu, Segania Rd., Sept., fl., *SAN 29802* (L); Sandakan, Labuh Rd., March, young fr., *SAN U0011* (L); Tawau, Hot Spring, Maria Rd., March, fr., *SAN 3U076* (L). SARAWAK. Bako Nat. Park, Lintang path, freshwater swamp, Nov., fr., *S 18002* (L), fruit ellipsoid, smooth, up to 11 X 20 mm. E. INDONESIAN BORNEO. Loa Haur, W. of Samarinda, low, along river, Sept., buds, *Kostermans 9908* (BO, K, L), young leaves red. PHILIPPINES. So. Talisay, Real Quezon Prov., Luzon, June, fl., *Lagrimas PNH 34.858* (L); Tarlac Prov., Luzon, Cabatuan, Patling, W of Capas, alt. 350 m, Jan., fl., *Rojo 36* (L); Palawan Prov., Panacan, Aborlan, Victoria Mts., May, fl., *Sulit PNH 12322* (L).

## CRYPTOCARYA EUPHLEBIA Merr.

Cf. Kostermans, Bibl. 398 no. 88. 1964. — Typus: *Ramos 30576* (US), Cantaduanes, Nov. - Dec, fr.

New synonyms: *Cryptocarya loheri* Merr.; cf. Kostermans, I.e. 412 no. 162. — Typus: *Loher 12549* (A, K), Rizal Prov., Oct., fl.

*Cryptocarya foxworthyi* Elmer; cf. Kostermans, I.e. 402 no. 101. — Typus: *Elmer 17330* (L, US), Irosin, Mt. Bulusan, Prov. Sorsogon.

Additional specimen: PHILIPPINES. Dahican R., Prov. of Laguna, Luzon, Sept., fr., *Ramos B.Sc. 1127* (U, US), distributed as *Cr. lauriflora*.

CRYPTOCARYA FAGIFOLIA Gamble

Cf. Kostermans, Bibl. 398 no. 91. 1964. — Typus: *Forbes 218* (L, LE), Sogeri region, fl.

Additional specimens: TERRITORY OF NEW GUINEA. Sogeri region, young fr., *Forbes 650* (L); E. Highlands Distr., Kassam Gap, alt. 1460 m, Oct., fl., Brass 32287 (A, L); ibid., Kassam-Water Rice Rd., alt. 1125 m, Oct., fl., Brass 32319 (A, L). W. IRIAN. Hambar, N of Fak-Fak, limestone, 840 m, ster., BW 12184 (L). PAPUA. Centr. Distr., Kokoda trail, alt. 700 m, ster., *Schodde 2889* (L); perhaps also: *Schodde 2891* (L), Sept., buds, 1 mile S of Eilogo Plantation, Sogeri area, Central Distr., Papua.

*Cryptocarya filicifolia* (Kosterm.) Kosterm., *comb. nov.*

*Beilschndedia filicifolia* Kostermans (basonym) in *Reinwardtia* 5: 346, fig. 6. 1960.

Material with immature flowers, proves this to belong to *Cryptocarya*.

Additional material: WEST IRIAN. Bele R., 18 km N. E. of Lake Habbema, Nov., buds, Brass & Versteegh 11132 (BO, L), common tree of primary forest, 2400 m alt., tree 27 m, diam. 41 cm, crown not wide spreading, bark 10 mm thick, wood rose, fl. buds yellow green; Idenburg R., 18 km S. W. of Bernhard Camp, ster., Brass & Versteegh 12509 (L), rare tree on slope of ridge, 25 m high, 45 cm diam., bark black, rough, wood brown, leaves up to 4 X 16 with 20 and more pairs of patent, lateral nerves.

*Cryptocarya fluminensis* Kosterm., *spec. nov.*

Arbor humilis in omnibus partibus glabris floribus perparce minutissime pilosis exceptis foliis alternantibus papyraceis subobovato-vel subovato-ellipticis vel elongato ellipticis -brevissime acuminatis vel subobtusis basi rotundatis utrinque obscure laxe prominule reticulatis supra nervo mediano piano costis filiformibus vix prominulis vel subimpressis subtus nervo mediano prominente costis utrinque 7—9 erecto-patentibus vix arcuatis prominentibus paniculis axillaris gracilibus multifloris floribus parvis.

TYPUS: *Lam 7716* (L).

Tree, up to 8 m high; bark blackish or dark purplish brown with short and shallow, longitudinal fissures and round, brown lenticels; inner bark straw-brown; wood straw; branching horizontal, but not whorled, glabrous in all its parts, except the minutely, scantily pilose flowers. Branches slender, smooth, cylindrical. Leaves spirally arranged, papery, subobovate- to subovate-elliptical to elongate elliptical, 6 x 15—8 x 22 cm, top very shortly acuminate, subobtuse, base rounded; both surfaces obscurely, laxly reticulate; upper surface with flat midrib, ribs slender slightly impressed or prominent; lower surface with prominent midrib, lateral nerves 7—9 pairs, erect-patent, rather straight, prominent, curved

near margin. Petiole cylindrical, 8—13 mm long. Panicles axillary, slender, many-flowered, up to 8 cm long, the lower branches up to 2 cm long; flowers 1—1.5 mm long.

PAPUA. Near Port Moresby, E. of Brown R., alt. 25 m, Sept., fls. white, *Lam 7716* (A, L); ibid., alt. 200 m, Aug., fl., *Womersley & Lam NGF 6240* (L); Tufi Distr. near Budi Barracks, alt. 75 m, tree 4 m, leaves up to 10 X 46 cm, panicles up to 15 cm, *Hoogland 1586* (L); Laloki R., 15 miles E. of Port Moresby, alt. 30 m, Sept., buds, *Schodde 3071* (L).

CRYPTOCARYA FORBESII Gamble

Cf. Kostermans, I.e. 401 no. 99. 1964. — Typus: *Forbes 640*.

New synonym: *Cryptocarya myrdoides* Moore; cf. Kostermans, I.e. 421 no. 208. 1964. — The type specimen of this (*Forbes 410*) has smaller leaves, but conforms in all other respects.

TERRITORY OF NEW GUINEA. Sogeri region, fl., *Forbes HO* (BM, K, L, LE); ibid., fl., *Forbes 640* (BM, K, L, LE). W. IRIAN. Cycloop Mts., alt. 700 m, Nov., after anthesis, *Versteegh BW 932* (L), tree 25 m with 16 m bole, diam. 35 cm.

CRYPTOCARYA FUSCO-PILOSA Teschn.

Cf. Kostermans, Bibl. 402 no. 105. 1964. — Typus: *Ledermann 10127* (L), Sepik region, buds.

New synonym: *Cryptocarya impressivena* Kanehira & Hatusima; cf. Kostermans, I.e. 408 no. 135. — Typus: *Kanehira & Hatusima 12279* (A), Dalman, Nabire, March, fr.

Additional specimens: TERRITORY OF NEW GUINEA. Morobe Distr., Ogeramang, alt. 1900 m; Dec, buds, *Clemens 4615* (A). W. IRIAN. Wissel Lakes, Motito, alt. 1800 m, sapling, BW 8681 (L); 9 km NE of Lake Habbema, alt. 2800 m, Oct., fr., Brass & Versteegh 1-OU5 (BM, L); Star Mts., Mt. Antares, alt. 2360 m, July, fl., *Kalkman 4451* (L).

*Cryptocarya gigantocarpa* Kosterm., *spec. nov.*

Arbor ramulis crassis dense pulverulente rufo pilosis foliis alternantibus coriaceis late ellipticis apice acuminatis (?) basi in petiolum crassum contractis supra glabra nervo mediano (basin excepta) costisque et nerviis secundariis impressis, subtus glabra, nerviis pilosis exceptis, pallidioribus; nervo mediano costisque utrinque 7—9 suberectis valde prominentibus reticulatio valde prominentibus perconspicuis. Infructescentiis axillaribus foliis brevioribus crassis, fructus subglobosus magnis pedicellis brevis crassis obconicus.

TYPUS: *Versteegh BW 7482* (L).

Tree, 20 m high, bole ca 12 m, diam. 35 cm.; outer bark greyish brown, not or longitudinally fissured; inner bark orange-brown within; slash pink

or straw; branchlets stout, covered by a dense, pulverulent, rusty tomentum. Leaves spirally arranged, coriaceous, broadly elliptical, up to 11 x 24 cm; top not present any more, perhaps shortly acuminate, base rounded; upper surface, glabrous with impressed main nerves (except base of midrib); lower surface paler (in sicco), glabrous, but for the tomentellous nerves and veins; midrib strongly prominent; lateral nerves 7—9 pairs, rather erect, arcuate and running out near the margin; secondary nerves prominent, lax, parallel, tertiary and quaternary nerves forming a prominent reticulation. Petioles stout, up to 15 mm long. Infructescence axillary, hardly branched, stout, 5 cm long; fruit globose, brown, roughish, 4.5 cm in diam., pedicel obconical, 5 mm long and 5 mm in diam.

DISTRIBUTION: New Guinea, lowlands.

TERRITORY OF NEW GUINEA. Morobe Distr., between Busu and Butibun R., 10 miles N. of Lae, alt. 100 m, March, fl., *Hartley TGH 11348* (L), inflorescences up to 6 cm long, densely, minutely, yellow pilose, hardly branched, fls. sessile, broad, densely pilose, 2.5 mm high. WEST IRIAN. Near Manokwari, Momi, low, after fruiting, *Kostermans 216* (= 66 33424) (BO, L); et *171* (= 66 33392), ster. (BO, L), leaves up to 16 X 38 cm; near Oransbari, alt. 50 m, ster., *BW 1971* (L); Bari Creek near Oransbari, alt. 80 m, Dec, fr., *Koster BW 11949* (L), leaves 16 X 30 cm, fruit ovoid, 4 x 5 cm; Vogelkop, Oransbari, 50 km E. of Manokwari, secondary forest on stony clay, alt. 10 m. vernacular name "Menako" (Manikiong), Sept., fr., *Versteegh BW 7J,82* (L).

*Cryptocarya hartleyi* Kosterm., *spec. nov.*

Arbor ramulis glabris laevis atris (in sicco) foliis alternantibus coriaceis glabris ellipticis breve gracile acuminatis basi acutis supra laevia nervo mediano costisque impressis subtus opaca nervo mediano prominentibus costis erectis strictis prominentibus utrinque 5—6 marginem versus arcuatim evanescentibus nervis secundariis parallelis prominulis laxis horizontalis petiolis longis supra canaliculatis, inflorescentiis axillaribus ad innovationem ramulorum brevis sparse pilosis floribus glabris crassis.

TYPUS: *Hartley TGH 13186* (L).

Tree 16 m high, 40 cm in diam.; outer bark grey-brown, scaly, with shallow, horizontal grooves; inner bark reddish brown. Branchlets smooth, rather thick, glabrous, towards apex subangular, black (dried); the branchlets of the flush densely yellowish brown sericeous. Leaves glabrous (in the flush densely sericeous), coriaceous, spirally arranged, elliptical to narrowly elliptical, 2.5 x 10—8 X 16 cm (in the specimen *Schodde 2159* up to 7.5 x 18 cm), apex with a short, slender acumen, base acute; upper surface smooth, midrib and ribs impressed; lower surface dull, midrib prominent, lateral nerves 5—6 pairs, erect, straight, prominent, running out arcuately near the margin; secondary nerves lax, parallel, horizontal, prominulous. Petiole glabrous, 12—20 mm long, channeled above. Inflorescences axillary on thick, densely yellowish sericeous, 1.5—2 cm flush branches; the inflorescence itself almost glabrous or with sparse, adpressed hairs, up to

1.5 cm long, hardly branched; flowers glabrous, thick, dark brownish red (fresh), 3.5 mm long.

TERRITORY OF NEW GUINEA. E. Highlands near Perosa, about 18 miles S. W. of Okapa, alt. 1700 m, Sept., fl., fr., *Hartley 13186* (L); Morobe Distr., Mt. Shungol, 5 miles S. W. of Wagau, Dec, fr., *Hartley 12472* (L), outer bark reddish brown, warty and exfoliating in thin, small, papery plates, inner bark reddish brown, fruit subglobose, 22 x 25 mm, ribbed, hard, green, warty. PAPUA. S. Highland Distr. near Tage, Lake Kutubu, alt. 900 m, ster., *Schodde 2159* (L), tree 25 m, diam. 32 cm, bark redbrown, flaky, vernacular name "Masa" (Kutubu language); this name is used also for *Beilschmiedia podagrica*.

CRYPTOCARYA IDENIBURGENSIS Allen

Cf. Kostermans, Bibl. 407 no. 132. 1964.

New synonym: *Cr. gonioclada* Kan. & Hat.; cf. Kostermans, I.e. 404 no. 112.

The leaves of the flush are golden sericeous on their lower surface, adult leaves tend to be glabrous with a smooth pinkish grey lower surface.

Kanehira and Hatusima's specimen has most leaves obovate-elliptical, but also some with the normal elliptical shape; the typical aureous indumentum can still be seen on some parts.

Additional material: TERRITORY OF NEW GUINEA. E. Highlands Distr., Arau, alt. 1400 m, *Castanopsis* - Oak forest, Oct., fl., Brass 32066 (A, L), tree 15 m, leaves grey below, flowers brownish; Okapa Patrol Rd., *White NGF 9589* (L), Febr., post anthesis, leaves up to 11 X 26 cm; Arau, Oct., fl., Brass 32199 (A, L); Oct. fl., tree 20 m; Aiyura area, Dec, young fr., *NGF 1006* (L), tree 40 m high, 55 cm diam., branches ascending, bole 10 m, buttresses up to 130 cm with one or two shallow channels running up the bole, bark 8 mm, outer brownish; lenticels small and arranged in longitudinal lines, here and there fine, longitudinal cracks present; inner bark green on the back, within pale brown, indistinctly speckled, darkens rapidly on exposure; sapwood corrugated, undefined; wood a pale yellow brown with a few, broad rays; leaves glaucous to whitish beneath, when crushed emitting a strong odour, fruit with similar odour, vernacular name "Monda" (Chimbu); Boridi, alt. 1600 m, *Carr 13032* (A, L), Sept., buds, tree 27 m; Boridi, alt. 1700 m, *Carr 13,245* (A, L), Sept., buds. W. IRIAN. Dalman, Nabire, Febr., fr., alt. 500 m, *Aga, this forest, Kanehira & Hatusima 12231* (A); Angi Gita lake, 1900 m alt., *Kostermans 2025 et 2072* (BO, L), ster., saplings of 8 and 15 m respectively.

CRYPTOCARYA IMPRESSA Miq.

Cf. Kostermans, Bibl. 407 no. 134. 1964. — Typus: sine coll. 1005, Payakombo, "Mohdang apie apie", fr. (U).

New synonym: *Cryptocarya infectoria*, var. *opaca* Meissn.; cf. Kostermans, I.e. 408 no. 136a. — Typus: *Maingay 1250* (K, L), Malacca, fl.

*Cryptocarya venosa* Meissn. ex Hooker f.; cf. Kostermans, I.e. 439 no. 313. — Typus: *Griffith 4277* (LE, U).

Additional specimens: INDONESIA BORNEO. Berau, ster., 66. 19059 (BO, L); Nunukan Isl., ster., *Kostermans* 8932, 8965, 9008 (BO, L); *ibid.*, Nov., fr., *Kostermans* 8703, 8724 (BO, L); Balikpapan Distr., Sg. Wain, ster., 66. 34386 (BO, L).

CRYPTOCARYA INFECTORIA (Bl.) Miq.

Cf. *Kostermans*, Bibl. 408 no. 136a. 1964. — Typus: Arch. Ind., Herb. Waitz, fl., fr. (L, 3 sheets).

New synonyms: *Cryptocarya murrayi* F. v. M.; cf. *Kostermans*, I.e. 421 no. 207. 1964. — Typus: *F.v. Mueller*, Rockingham Bay, buds (A, LE).

*Cryptocarya villarii* Vidal; cf. *Kostermans*, I.e. 439 no. 316. 1964. — Typus: *Vidal* 520 (K, L), buds, Mt. Arayat, Prov. Bulacan, Luzon.

*Cryptocarya obtusifolia* Merr.; cf. *Kostermans*, I.e. 424 no. 225a. 1964. — Typus: *McClure* CCC 8581 (K), May, fr.; *Wang* 33357 (K), July, f 1.

CRYPTOCARYA INTERMEDIA Elmer

Cf. *Kostermans*, Bibl. 408 no. 138. 1964. — Typus: *Elmer* 13948 (L, LE, US), Cabadbaran, Mt. Urdaneta, Prov. Agusan, Mindanao, Sept., fr.

New synonym: *Cryptocarya lanceolata* Merr.; cf. *Kostermans*, I.e. 411 no. 149 b (non *Cr. lanoeolata* (P. & S.) Guil., I.e. no. 194 a, which name antedates Merrill's by two years). — Typus: *Paraiso* F.B. 25098 (US), Prov. Ilocos Norte, Luzon, Febr., fr.

Additional specimens: PHILIPPINES. Luzon, Prov. Ilocos Norte, Nov., fr., *Merritt & Darling* F. B. 13906 (US); Prov. Ilocos Sur, Jan., fr., *Paraiso* F. B. 23623 (US); Prov. Union, Febr., fr., *de la Peña* F. B. 25105 (US); Mindanao. Distr. of Lamao, May, after anthesis, *Aeuna* F.B. 24053 (US), distributed as *Cr. mindanaensis*; Prov. Zamboanga, Tetuan, fr., *Quadras* 314 (US); Negros, July - Sept., young fr., *Tamesis* F.B. 20683 (US).

*Cryptocarya invasorum* Kosterm., spec. nov.

Arbor ramulis glabris atris (in sicco) apicem versus dense minutissime ferrugineo pulverulente pilosis foliis alternantibus chartaceis ellipticis vel Subovato-ellipticis longe sensim acuminatis basi in petiolum contractis breve acutis supra glabra nitida nerviis principalis subimpressis subtus opaca laxa minutissime pulverulente sublanuginosa nervo mediano prominente costis utrinque 5—6 suberecto patentibus subarcuatis prominulis nerviis secundariis subprominulis laxis petiolis gracilis inflorescentiis axillaribus perdense flavo-brunneo minutissime sublanuginosis floribus subumbellatis dense pilosis.

TYPUS: *Buwalda* 4236 = 6.6. 24291 (L).

Tree; branchlets rather slender, cylindrical, glabrous, towards apex minutely, densely, rusty, pulverulently pilose. Leaves spirally arranged chartaceous, elliptical to subovate-elliptical, 3 x 11—5.5 X 15 cm long-acuminate with sharp tip, base contracted into the petiole, shortly acute; upper surface glabrous, smooth, main nerves slightly impressed (midrib at base not impressed); lower surface dull, paler, midrib prominent; lateral

nerves 5—6 pairs, patent, rather erect, slightly curved, towards margin running out arcuately; secondary nerves lax, faint. Petiole slender, 5—8 mm, densely, minutely sublanuginose. Inflorescences axillary, more or less resembling an umbel, consisting of a slender glabrous peduncle of up to 3 cm long, topped by ascendent branches, up to 2 cm long, the flowers more or less in one plane; flowers 2—3 mm with a short calyx, like<sup>1</sup> the inflorescence densely, yellowish brown, minutely sublanuginose.

MOLUCCAS. Tenimber Islands (Timor Laut), Isl. Yamdena, *Melaleuca* and primary forest, 15 km E.N.E. from Ottimer, Apr., after anthesis, *Buwalda* 4592 = 6.6. 24386 (A, BO, L); *ibid.*, March, fl., *Buwalda*, 4286 = 6.6. 24291 (BO, L); Aru Isl., Isl. Koproor, opposite Dosinamalau, young fr., *Buwalda*, 5005 = 6.6. 25295 (BO, L). W. IRIAN. Adi Isl., Kaimana Distr., alt. 20 m, *Moll BW* 11510 (L), tree 27 m, diam. 42 cm, outer bark 1 mm, dark brown, smooth, inner bark light brown within, slash 10 mm, lightbrown, fruit purplish red, vernacular name "Avies" (Biak); *ibid.*, March, fr., *Moll BW* 9901 (L), tree 26 m, outer bark 0.5 mm, black, shallowly fissured, not flaky, inner bark brown within, slash 6 mm, brown, fruit ellipsoid, 20 X 12 mm, smooth, green (immature); *ibid.*, marshy, alt. 10 m, March, fr., *Moll BW* 9898 (L), tree 30 m, diam. 46 cm, buttresses up to 2.5 m high, 2, m out, 13 cm thick, outer bark 15 mm, black, smooth, inner bark brown within, slash 13 mm, brown, fr. green; Inanwatan, Muturi (Steenkool), May, fr., 66 32656 (BO, L), leaves up to 10.5 X 18 cm; Manokwari, For. Res. Tafelberg, alt. 120 m, Jan., fl., *Sohram*, *BW* 5995 (L). Perhaps also: TERRITORY OF NEW GUINEA. Morobe Distr., Bulolo, alt. 800 m, May, buds, *Havel NGF* 9132 (L) and 9117 (L). SOLOMON ISL. Santa Ysabel, Allardyce Harbour, secondary forest, Jan., fl., *Whitmore's Coll.* BSIP 3594 (L); Kolokofa R., April, fl., *Beer's Coll.* BSIP 5140 (L); Guadalcanal, Tina R., Nov., buds, *Womersley & Whitmore* BSIP 1152 (L); Mt. Austen, alt. 300 m, Febr., fr., *Whitmore* BSIP 2545 (L); *ibid.*, Dec, buds, *Kere* BSIP 5029 (L); Konga, 20 miles. S.E. of Honiara, March, buds, *Whitmore* BSIP 750 (L); New Georgia, Baga Isl., Febr., buds, *Whitmore's Coll.* BSIP 2906 (L); Tita R., April, fl., *Murdoch's Coll.* BSIP 6980 (L); Bougainville, Torakino, fl., *Mair*, 809 (L).

*Cryptocarya iridescens* Kosterm., spec. nov.

Arbor ramulis dense minutissime pulverulente adpresse pilosis foliis alternantibus chartaceis ellipticis acuminatis basi breve acutis utrinque prominule subobscure dense reticulatis supra glabra nitida nervo mediano piano vel subimpresso costis filiformibus planis subtus sub-iridescens sparse minutissime adpresse pilosis nervo mediano prominentibus costis utrinque 7—8 suberectis prominentibus strictis marginem versus arcuatis petiolis distinctis pilosis supra plana paniculis axillaribus foliis brevioribus multifloris dense minutissime adpresse pilosis.

TYPUS: *Brass* 25857 (L).

Tree, 25 m high.; branchlets very minutely, densely, adpressed pilose. Leaves spirally arranged, chartaceous, elliptical, 6.5 x 16.5—9 x 21 cm, acuminate, base shortly acute, both surfaces prominulously, rather densely

reticulate; upper surface glabrous, glossy, midrib slightly impressed, lateral nerves slender, faint; lower surface laxly, very minutely, adpressed pilose (tomentum dense on main nerves), the surface covered with microscopical, white dots in minute circles, which causes a kind of iridescence, midrib prominent, lateral nerves 7—8 pairs, prominent, straight, rather erect, at margin arcuate. Petioles 10—13 mm long, densely, very minutely, adpressed pilose, flattened above. Panicles axillary, many-flowered, densely, minutely, adpressed pilose, 10 cm long; flowers 2 mm long with slender, 0.75 mm long tube.

NORMANBY ISL. Lebudowa R., bank, alt. 60 m, Dec, fls. white, *Brass* 25857 (L). TERRITORY OF NEW GUINEA. Area between the Busu and Butibum R., about 10 miles from Lae, March, fl., *Hartley TGH 11361* (L); S. side of Busu R., alt. 50 m, Nov., buds, *Hartley TGH 12395* (L); Oomsis logging area near Lae, alt. 170 m, Dec, fl., *Millar NGF 1U13* (L); Isuarava, alt. 1500 m, Febr., buds, *Carr 15503* (L); New Britain, Jacquinot Bay, ster., *Mair 170* (L).

CRYPTOCARYA KAMAHAR Teschn.

Cf. Kostermans, Bibl. 409 no. 140. 1964. — Isotype specimen: *Schlechter 18311* (K), from K. Wilhelmsland, Keneyia region; the terminal inflorescence is 17 cm long, the partial and axillary ones up to 9 cm.

New synonym: *Cr. awreobrunnea* Allen; cf. Kostermans, I.e. 387 no. 26, represented at Leiden by the specimen: *Brass 14072*, April, fl., Idenburg R.

Additional specimens: TERRITORY OF NEW GUINEA. Sattelberg, Heldsbach, 800 m, Oct., fr. (fruit abnormal), *Clemens 676* (A, L); Gurumbu, Madang Distr., alt. 1000 m, Aug., fr. (fruit abnormal), *Henty & Sayers NGF 20561* (L), tree 15 m, diam. 25 cm, bark smooth, greyish brown, with raised lenticels, inner bark orange brown; aromatic, sticky exudate; wood straw, leaves dark green with yellowish green veins; Isuarava, 1200 m, ster., *Carr 15926* (L); Morobe, Boana, ster., *NGF 14868* (L).

*Cryptocarya lancilimba* Kosterm., *spec. nov.*

Arbor parva ramulis juvenilis minutissime dense ferrugineo pilosis ramulis mox glabris gracilibus foliis alternantibus chartaceis lanceolatis nervo mediano subtus exceptis glabris utrinque perdense conspicue areolato-reticulatis apice longe acuminatis basi breve acutis supra subnitida nervo mediano costisque impressis subtus glaucescentia nervo mediano valde prominentibus laxe minute ferrugineo pilosis costis utrinque 13—19 subpatentibus prominulis marginem versus arcuatim evanescentibus petiolis distinctis infructescentiis brevis axillaris dense pilosis subracemiformibus fructus globosus.

TYPUS: *Lagrimas PNH 399J>7* (L).

Small tree, 5 m high, 6 cm in diam.; young branchlets densely, minutely rusty pilose; branches slender, soon glabrous, smooth. Leaves spirally arranged, chartaceous, glabrous (except the midrib below), narrowly

lanceolate, 1 X 8—2 x 18 cm, apex obscurely long-acuminate, base acute, both surfaces densely, prominulously areolate-reticulate; upper surface rather glossy, midrib and lateral nerves impressed; lower surface glaucous (whitish when fresh), midrib strongly prominent, laxly, minutely rusty tomentellous; lateral nerves (13—)17—19 pairs, rather patent, slightly curved, strongly curved and running out near the margin, prominent. Petiole 3—5 mm, sulcate above. Infructescences axillary, densely, minutely ferrugineous-pilose, unbranched, 2.5 cm long; fruit globose, glossy, 8 mm in diam.

PHILIPPINES. Luzon, Cagayan Prov., Santa Monica, Claveria, alt. 10 m, Nov., fr., *Lagrimas PNH 39947* (L).

CRYPTOCARYA LANUGINOSA (Tesch.) Kosterm.

Cf. Kostermans, Bibl. 411 no. 151. 1964. — Typus: *Ledermann 9894*, K. Augusta R., Lager 18 (not seen).

Additional specimens: Sepik region, f 1, *Ledermann 9848* (L). PAPUA. Alola, alt. 2000 m, Jan., buds, *Carr 14199* (A, L) and *UU5* (A, L). TERRITORY OF NEW GUINEA. E. Highlands, Okapa area, alt. 1900 m, Sept., fr., *Brass 31771* (K, L). W. IRIAN. Bele R., 18 km NE of Lake Habbema, alt. 2350 m, ster., *Brass & Versteegh 11H0* (A, L); locality not indicated, fl., *Eyma 5374* (BO, L).

CEYPTOCAEYA LEDERMANNII Teschn.

Cf. Kostermans, Bibl. 412; no. 157. 1964. — Typus: *Ledermann 12U31* (not seen).

New synonym: *Cryptocarya wngica* Kan. & Hat.; cf. Kostermans, I.e. 385 no. 13. — Typus: *Kanehira & Hatusima 13982* (A, BO).

Additional specimens: TERRITORY OF NEW GUINEA. 8 miles NW of Wabag, near govnt. sawmill, alt. 2900 m, ster., *Sounders 1046* (L); E. Highlands, along Kainantu-Okapa Rd., alt. 2000 m, *Hartley TGH 12119* (L). PAPUA. Boridi, Oct., buds, *Carr 14550* (L); S. Highlands, W. slope of Mt. Giluwe above Klareg, alt. 2900 m, ster., *Schodde 2082* (L); S. Highlands Distr., Ibiwara, alt. 2700 m, ster., *Kalkman 4903* (L); Goroka Subdistr., Asaro-Marifutica Divide, alt. 3000 m, ster., *Pullen 377* (L). W. IRIAN. Arfak Mts, Angi Gita lake, ster., *Kostermans 2018* (BO, L), *2012* (BO, L), *2016* (BO, L); *2017* (BO, L); *2006* (BO, L); Febr., fl., *BW 249* (A, L).

*Cryptocarya longepetiolata* Kosterm., *spec. nov.*

Arbor magna ramulis perdense minutissime rubro-fusco sublanuginosis foliis alternantibus chartaceis ellipticis vel subovato-ellipticis acuminatis basi in petiolum contractis acutis supra leavia glabra nervo mediano exceptis nerviis planis subtus dense minutissime atro-rubro sublanuginosa glabrescentia nerviis exceptis sub lente dense areolata costis utrinque 6—8 erecto-patentibus substrictis marginem versus arcuatim evanescentibus prominulis nerviis secundariis parallelis obscuris petiolis

longis infructescentiis axillaris terminalibusque dense atro-rubro minutissime sublanuginosis.

TYPUS: *NGF 1378* (L).

Large tree, up to 47 m high, crown spreadingly branched, foliage pale; bole 32 m, unbuttressed but flared slightly at the base to 120 cm and with a few, shallow channels, diam. 90 cm.; bark 7—12 mm, outer brownish, pustular, lenticels present near the butt, lenticellate lines above, near the top of the bole somewhat fissured; inner bark green in the back, indistinctly speckled, pale brown within; sapwood 7.5 cm, pale straw, poorly defined; heartwood straw. Branchlets very densely, minutely, blackish brown sublanuginose, towards apex subangular. Leaves spirally arranged, chartaceous, elliptical to subovate-elliptical, 3 x 8—5 X 11 cm, acuminate, base contracted into the petiole, shortly acute; upper surface smooth, glabrous, except for the subsistent tomentum on the midrib, main nerves flat; lower surface densely, minutely brown sublanuginose, glabrescent, except on the nerves; midrib prominent; lateral nerves 6—8 pairs, erect-patent, straight, running out arcuately near the margin. Petiole slender, 1—2 cm long, densely minutely pilose, above flattened. Infructescences axillary and terminal, up to 11 cm long, loose, densely, minutely dark brown sublanuginose; flowers 2 mm long, calyx short, petals ovate.

Resembles *Cr. alleniana*, but easily distinguished by the blackish brown tomentum.

PAPUA. Milne Bay, rather swampy, alt. 10 m, *L. S. Smith NGF 1378*, March, fl., fr., (L), distributed as *Cr. alleniana*. TERRITORY OF NEW GUINEA. Bulolo valley, Morobe Distr., alt. 1200 m, June, fr., *Floyd, Havel & Womersley NGF 5293* (L); Bougainville Isl., Tuareruku village, W. of Toiunonapu Plantation, alt. 100m, July, fr., *van Boyen NGF 16445* (K), tree 30 m, fruit subovoid-ellipsoid, ribbed, 1.5 x 2.5 cm.

#### CRYPTOCARYA LUCIDA BI.

Cf. Kostermans, Bibl. 413 no. 168. 1964. — There are two type sheets at Leiden, both sterile, one marked: *Korthals*, G. Sakoembang, Borneo; the other marked Celebes with an interrogation mark. Both sheets belong certainly to the same gathering and the indication Celebes is wrong.

New synonym: *Cryptocarya ramosii* Merr.; cf. Kostermans, I.e. 431 no. 261. — Typus: *Ramos B.Sc. 33071* (A, K), Aug., fr., ellipsoid, smooth, 13 X 15 mm, Bangui to Claveria, Ilocos Norte Prov., Luzon; *Ramos B.Sc. 33346* (A, K), Aug., fl., Mt. Palimlin, Ilocos Norte, Luzon.

Additional specimens: *Ramos B.Sc. 394-82* and *39574* (A), April, fl., Puloan, Mindoro; *J. & M.S. Clemens 40218* (A), Aug., fl., Mt. Kinabalu, Penataran Basin, alt. 1500 m.; *Mabesa F.B. 23815* (K), March-April, fr., Mt. Maquiling, Prov. of Laguna, Luzon.

#### CRYPTOCARYA MAGNIFOLIA Teschn.

Cf. Kostermans, Bibl. Laur. 415 no. 176. 1964.

An isotype specimen (*Ledermann 9751*) in the Leiden herbarium shows slight differences with Teschner's description: The branchlets are very thick and have an extremely minute dense sublanuginose rusty tomentum. I would prefer to call the leaves stiffly chartaceous and not coriaceous. The lower surface is glabrous except the very dense very minute rusty tomentum on the main nerves. The panicle is 19 cm long and has a dense sericeous yellowish indumentum.

#### CRYPTOCARYA MEDICINALIS C. T. White

Cf. Kostermans, Bibl. Laur. 416 no. 184. 1964.

The species is only known from the specimen *Walker BSIP 243*. It may be recognized by the peculiar odour, still present in dried material, which is due to the same chemical substance as that of *Cryptocarya massoya* Kosterm. This is apparently the active agent for which the plant is used medicinally.

#### *Cryptocarya microcos* Kosterm., *spec. nov.*

Arbor ramulis minutissime dense ferrugineo sublanuginosis foliis alternantibus chartaceis glabrescentibus subovato ellipticis ad lanceolatis longe acute acuminatis basi breve acutis utrinque obscure dense areolato-reticulatis supra nitida nerviis primariis subimpressis subtus glauca nervo mediano costisque utrinque 4 suberectis adscendentibus prominentibus petiolis brevis infructescentiis axillaris dense minutissime ferrugineo sublanuginosis parvis vix ramosis fructus subglobosis costatis glabris.

TYPUS: *Cel/II-342* (L).

Tree, branchlets slender, towards apex densely, minutely dark rusty sublanuginose; leaves spirally arranged, glabrescent, chartaceous, subovate-elliptical to lanceolate, 2 X 7—4 X 13 cm, gradually long-acuminate with sharp tip; both surfaces rather obscurely, densely areolate-reticulate; upper surface with slightly impressed, slender main nerves; lower surface glaucous, midrib prominent, lateral nerves 4 pairs, erect, ascendent, slightly arcuate, the lowest pair basal or sub-basal. Petiole 3—6 mm long. Infructescences axillary, densely, minutely, dark rusty sublanuginose, up to 3 cm long, hardly branched, stiff; fruit subglobose, ribbed, smooth, 10 mm diam.

Resembles *Cr. enervis* Hk. f., but has more triplinerved leaves, shorter petioles and a different indumentum.

CELEBES. Distr. Malili, Usu, alt. 25 m, March, fr., *Cel/IV-122* (BO, L); *ibid.*, alt. 100 m, April, fr., *Cel/11342* (BO, L).

## CRYPTOCARYA MINDANAENSIS Elmer

Cf. Kostermans, Bibl. 418 no. 195. 1964. — Typus: *Elmer 13269* (L, LE).

Additional material: *Wenzel 2835 et 2859* (A), May fl., Surigao, distributed as *Cr. lauriflora*; *Wenzel 2861*, May, fl. (A), Surigao, leaves 6.5 X 14 cm; *Vidal 1691* (K), fr., San Miquel de Mayumo, Prov. Nueva Ecija, leaves up to 6 X 12 cm, acuminate, 10 pairs of lateral nerves.

## CRYPTOCARYA MINUTIFOLIA Allen

Cf. Kostermans, Bibl. 419 no. 198. 1964. — Typus: *Brass 4741* (US).

This is perhaps the highest mountain species of New Guinean Lauraceae.

Additional material: NEW GUINEA. Main Range, N. W. of Crap, alt. 2800 m, Jan., fl., *Carr 15233* (A, L), fls. cream; Centr. Div., Murray Pass, Wharton Range, June-Sept., fr. *Brass 4741* (US) (A, L), Morobe Distr., Mt. Kaindi, alt. 2300 m, common in upper zone of *Nothofagus* forest, densely foliated subcanopy tree, May, ster., *Brass 29711* (A); Goroka subdistr., E. Highlands, Asaro-Mairifutica Divide, alt. 3150 m, tree 20 m, vernacular name "Yip mara" (Hagen: Wankl), Sept., post anthesis, *Pullen 431* (L), the leaves are in this specimen up to 2 X 4 cm.

## CRYPTOCARYA MULTINERVIS Teschn.

Cf. Kostermans, Bibl. 420 no 205. 1964. — Typus: *Ledermann 10286* (L), buds, Sepik region.

New synonym: *Cryptocarya sulcata* Allen, p.p., cf. Kostermans, I.e. 435 no. 291, quoad *Clemens 1769* (A, L), Morobe Distr., Wareo, alt. 800 m, Febr., fl., fr.

Additional specimens: PAPUA. *Sehodge 2847* (L), Aug., after anthesis, Sirinumu Area, 7 miles S of Sogeri, alt. 500 m; *NGF 3278* (A, L), N. Div., Ioma, fr. TERRITORY OP NEW GUINEA. Morobe Distr. Sattelberg, Jan., fl., *Clemens 1758* (L); *Hartley TGH 11883* (L), March, fl., Morobe Distr., Tymne-Wago Track, alt. 500 m; *Hartley TGH 11388* (L), *ibid.*, March, fr.

## CRYPTOCARYA MULTIPANICULATA Teschn.

Cf. Kostermans, Bibl. Laur. 421 no 206. 1964. — Typus: *Schlechter 17878*.

New synonym: *Cryptocarya cordata* Allen; cf. Kostermans, I.e. 393 no 62; add: Record in Trop. Woods 81: 18. 1945.

Tree 20—40 m, diam. up to 40 cm. Bark reddish brown, smooth or exfoliating in thin, papery plates; inner bark straw, turning reddish brown with red and black hairlike veins. Sapwood yellowish white to pinkish, heartwood (if present) brownish white. Buttresses up to 60 cm, out 40 cm, thick 6 cm (*NGF 8205*, *TGH 10558*, *BW 8483*).

USE: Leaves are heated and applied to sore eyes by natives (*Kajewski 2213*); fruit are used as a relish with certain foods (*Waterhouse 324*).

VERNACULAR NAMES: Watagi (near Babo, W. Irian); Yorcon (Waria dialect, Mori R.); Tukura (New Britain); Nubiri (Teop name, New Britain);

Menako (Manikiong, Vogelkop); Kafu (Berik, W. of Hollandia); Walas (Bilia), Bof (Amele), Lumpai (Dumpu), Mont (Faita), enumerated by *Saunders 555*.

Additional specimens: TERRITORY OF NEW GUINEA. Morobe Distr., Oomsis Creek, alt. 300 m, 18 miles W. of Lae, July, fr., *Hartley TGH 10558* (L); *ibid.*, July, fl., *Hartley TGH 10458* (L); Bulolo, alt. 1200 m, July, (fl., *Havel NGF 9193* (L); *ibid.*, June, young fr., *Floyd NGF 7503* (L); Madang Subdistr., Ramu valley, 5 miles from Taita airstrip, alt. 200 m, ster., *Saunders 555* (L); Trans-Busu Timber Lease near Lae, ster., *NGF 5754* (L), leaves up to 16 X 24 cm, apiculate. PAPUA. Centr. Div., Mori R., alt. 70 m, Oct., fr., *Donald NGF 8.205* (A, L). W. IRIAN. 200 km W. of Hollandia near Ureb bivouac, alt. 50 m, ster., *BW 848.3* (L). NEW BRITAIN. Nodup Area, Gazelle Pen., fr., *Waterhouse 324* = *Yale Ser. 28621* (A, fragment). SOLOMON ISL. Bougainville Isl., Tembu, Marmaromino, alt. 50 m, common tree, buds, *Kajewski 2213* (A, L). MOLUCCAS. Morotai Isl., Sangowo R., alt. 30 m, young fr., *Kostermans U49* (BO, L).

*Cryptocarya nigra* Kosterm., spec. nov.

Arbor ramulis gracilibus perdense minute atro rubro sublanuginosis foliis alternantibus pergamentaceo-chartaceis ovato-ellipticis breve conspicue acuminatis basi in petiolum longum gracilium dense pilosum contractis supra glabra nitida obscure perdense subareolata nervo mediano prominulo dense pilosa costis filiformibus obscuris planis subtus dense minute atro-brunneo sublanuginosa nervo mediano prominentibus costis utrinque 5—6 gracilibus prominulis arcuatis erecto-patentibus nerviis secundariis conspicuis prominulis parallelis laxis reticulatio dense vix prominulis paniculis terminalis multifloris laxis gracilis dense ferrugineo sublanuginosis floribus dense minute flavo-brunneo sublanuginosis.

TYPUS: *Muas 13371* (L).

Tree, 27 m high, 40 cm diam.; bark greyish brown, smooth; branchlets slender, very densely, minutely, blackish brown sublanuginose. Leaves spirally arranged, thinly chartaceous, ovate-elliptical, 2.5 X 5.5—4 X 7 cm, distinctly acuminate (acumen ca 5 mm), base contracted into the petiole, often unequal; upper surface glossy, glabrous, obscurely, densely, minutely subareolate, midrib prominulous with subpersistent indumentum, ribs faint, slender, flat; lower surface densely, minutely, blackish brown sublanuginose, glabrescent, midrib prominent, lateral nerves 5—6 pairs, erect-patent, arcuate, slender, prominulous, secondary nerves conspicuously, parallel, lax, prominulous, reticulation dense, actual surface glaucous. Petioles slender, densely pilose, 10—14 mm long. Panicles terminal, slender, lax, many-flowered, few-branched, up to 9 cm; flowers densely, minutely, yellow-brown sublanuginose, up to 3 mm long, subtended by small, sub-subulate bracts.

SARAWAK. Seria Distr., Bukit China, Balai Ringin P. F., March, fl., *Muas 13371* (K, L); Kuching, Setapok Forest Res., alt. 30 m, ster., *Hamsawi 4766* (L), tree

25 cm diam. on podsolized soil, leaves up to  $5 \times 10$  cm. SABAH. Temburong, Mile  $1\frac{1}{4}$  Bangar-Batu Apas Rd., alt. 50 m, March, after anthesis, *SAN 17104* (A, BO, BRI, K, KEP, L), tree 30 m, petioles up to 18 mm long; Beaufort Hill, Febr., fl., *Meijer SAN 24805* (L), inflorescences axillary and terminal, leaves up to  $4 \times 9$  cm. INDONESIA. BORNEO. Sg. Wain Distr., N. of Balikpapan, alt. 50 m, ster., *Kostermans 4151* (BO, L), common tree of 15 m, bark smooth, wood white, leaves up to  $6 \times 12$  cm. SUMATRA. Riouw, Karimon, low, ster., *bb 17406* (BO, L); Indragiri Upper Lands, Belimbing, low, ster., *bb 28562* (BO, L), leaves up to  $5 \times 10$  cm.

#### CRYPTOCARYA NITENS (Bl.) K. & V.

Cf. Kostermans, Bibl. 422 no 213. 1964. — Typus: Java, Sawarna, sine coll., ster., Mugmal sive Hoerhoe ngoengoeck (L).

New synonyms: *Cryptocarya areolata* Gamble; cf. Kostermans, l.c. 386 no 19. — Typus: *King's Coll. 6017* (K, L), *6171* (K, L), *8630* (K).

*Cryptocarya bubongana* Gamble, cf. Kostermans, l.c. 389 no 44. — Typus: *King's Coll. 10570* (K), Ulu Bubong, July, fr.

*Cryptocarya paucinervia* Gamble, cf. Kostermans, l.c. 428 no 246. — Typus: *Forbes 2588* (K, L, LE).

#### *Cryptocarya nothofagetorum* Kosterm., spec. nov.

Arbor mediocris ramulis gracilibus apicem versus dense minute rufo tomentellis ramis glabris griseis graciles foliis alternantibus rigide chartaceis glabrescentibus minute dense conspicue areolatis nerviis primariis supra impressis subtus pallidiora nervo mediano dense ferrugineo tomentellis mox glabris prominentibus costis utrinque 3—5 subrectis arcuatis prominentibus nerviis secundariis perlaxe reticulatis prominulis petiolis gracilis dense tomentellis supra vix aplanatis infructescentiis brevissimis axillaris parte basalibus exceptis subglabris, gracilis fructus (immaturus) ellipsoideus.

TYPUS: *Hartley TGH 12115* (L).

Tree 10 m in *Nothofagus* forest; outer bark grey, smooth, inner bark orange brown; branchlets slender, cylindrical, towards apex densely minutely rusty tomentellous; branches glabrous, slender, smooth, grey. Leaves spirally arranged, rigidly chartaceous, glabrescent, obovate-elliptical,  $1.5 \times 3.5$ — $4 \times 9$  cm, shortly, pointedly acuminate, base acute; both surfaces densely, minutely, prominulously areolate (very conspicuous on lower surface), upper surface with impressed main nerves, lower surface paler, midrib with tardily disappearing tomentellous pilosity, strongly prominent, lateral nerves 3—5 pairs, rather erect, arcuate, prominent, secondary nerves forming a prominulous, very lax reticulation. Petioles cylindrical, 8—10 mm, densely, minutely rusty tomentellous, hardly flattened above. Infructescences axillary, slender, hardly branched, up to 1.5 cm long; the basal part densely tomentellous, the actual inflorescence practically glabrous (a few, very tiny adpressed hairs); fruit few, ellipsoid,  $4 \times 7$  mm (immature), smooth.

TERRITORY OF NEW GUINEA. Kainantu-Okapa Rd., E. Highlands Distr., alt. 2000 m, in beech forest, July, young fr., *Hartley TGH 12115* (L).

#### CRYPTOCARYA NOVOGUINEENSIS Teschn.

Cf. Kostermans, Bibl. 422 no 216. 1964.

New synonym: *Cr. archboldiana* Allen; cf. Kostermans, l.c. 386 no. 18. — Type specimen: *Brass & Versteegh 14110* (A).

A specimen *Ledermann 10419* is represented in Leiden. The type specimen *Ledermann 6957* is perhaps not extant any more. Our specimen conforms well with Teschner's description, except for the description of the petioles, which is said to be minutely lanuginose, whereas in our specimen it is minutely sericeous.

Additional material: TERRITORY OF NEW GUINEA. Morobe Distr., Oomsis, alt. 150 m, April, fl., fr., *Brass 29190* (A, L), large tree associated with *Anisoptera* forests of foot hills, leaves greyish below, slightly aromatic, fls. cream; *ibid.*, April-May, fr., *Wright NGF 11131* (A, L); *ibid.* near Butibum R., 7 miles N of Lae, May, young fr., *Hartley TGH 11854* (L), tree 13 m, 30 cm diam., outer bark grey-brown, slightly scaly, inner bark straw, leaves blue green glaucous below, fruit green, hard. Perhaps also (leaves not glaucous and nerves less prominent below): PAPUA. *Schodde 3127* (L), fl. Sept., Subitana Area, Sogeri plateau, Centr. Distr., alt. 700 m, tree 31 m, diam. 40 cm, bark smooth, mid grey outside, midbrown inside, wood mid cream, leaves pale and duller below, fls. light greenish cream; Koitaki, alt. 500 m, July, ster., *Carr 12879* (NY).

#### CRYPTOCARYA OLIGOCARPA Merr.

Cf. Kostermans, Bibl. 425 no. 229. 1964. — Typus: *Ramos & Pascasio B. Sc. 34716* (A), Surigao Prov., Mindanao, June, fr. (A).

Additional material: PHILIPPINES. *Cenabre, Gellidon & Paras F. B. 27866* (K), Jan.-Febr., fr., Palawan Isl., distributed as *Cr. euphlebica* Merr. (type specimen not seen); Bataan Prov., Luzon, July, fl., *Pascual F. B. 18823* (A); Mt. Maquiling, Laguna Prov., Luzon, Febr., fr., *Canicosa PNH 9616* (L).

#### *Cryptocarya ovato-caudata* Kosterm., spec. nov.

Arbor ramulis glabris apicem versus minutissime pulverulente pilosis foliis alternantibus glabris rigide chartaceis ovatis longe acuminatis basi in petiolum gracilem contractis utrinque obscure reticulatis supra nervo mediano basin versus applanato apicem versus subimpresso costis gracillimis subtus nervo mediano prominente costis utrinque 5—6 erecto-patentibus arcuatis prominentibus petiolis supra planis paniculis axillaris terminalibusque multifloris dense minutissime sublanuginosis fructibus magnis.

TYPUS: *BW 3163* (L).

Tree, up to 22 m high, bole 14 m, diam. 50 cm; branchlets glabrous except the minutely, pulverulently pilose apex. Leaves spirally arranged,

stiffly chartaceous, glabrous, ovate, 3 x 8.5—5.5 X 15 cm, apex long and gradually acuminate, base contracted into the 6—10 mm long, above flattened, slender petiole; both surfaces obscurely reticulate, above midrib flattened towards base, subimpressed towards apex, lateral nerves faint; lower surface with prominent midrib, lateral nerves 5—6 pairs (not counted those in the acumen), erect-patent, prominent, slightly arcuate. Panicles axillary and terminal, densely, minutely, grey, sublanuginose (high power lens!), up to 10 cm long, slender; flowers 2 mm long. Fruit smooth, ellipsoid, laterally flattened, up to 2.5 x 4.5 cm.

W. IRIAN. Bomberai Peninsula, Budidi R., Distr. Fak-Fak, low, periodically inundated, fls. yellowish green, fruit smells of cajuput oil, *BW 313U* (L); *ibid.*, June, 11., *BW 3163* (L); Sauwah, Asmat region, S. Division, periodically inundated, ster., *BW 6603* (L).

**Cryptocarya pachyphylla** Kosterm., *spec. nov.*

Arbor ramulis crassis glabris foliis alternantibus rigide coriaceis glabris ovatis obscure breve acuminatis basi breve acutis supra laevia nitida nervo mediano costisque impressis subtus dense minute reticulata nervo mediano prominentibus eostis utrinque 3—5 prominentibus suberectis arcuatis petiolis crassis latis paniculis fructiferis terminalis virgatis striatis latis glabris apicem versus minutissime pilosis fructus immaturus.

TYPUS: *Bmss & Versteegh 11985* (A).

Tree 23 m high; branchlets thick, smooth, glabrous. Leaves spirally arranged, very stiffly coriaceous, glabrous, ovate, up to 6.5 x 9 cm, obscurely, shortly acuminate, base shortly acute; upper surface glossy, smooth, main nerves impressed; lower surface minutely reticulate, midrib prominent, lateral nerves 3—5 pairs, prominent, rather erect (the lower ones often ascending), arcuate, secondary nerves parallel, prominulous. Petioles thick, up to 1 cm long, flattened and broadened towards apex above. Infructescence terminal, up to 15 cm long, paniculate, coarse, stiff, glabrous, except the minutely pilose- apices. Fruit immature.

WEST IRIAN. Idenburg R., 15 km SW of Bernhard Camp, alt. 1750 m, frequent, Jan., fr., *Brass & Versteegh 11985* (A, L).

**Cryptocarya parallelinervia** Kosterm., *spec. nov.*

Arbor ramulis perdense minutissime adpresse pilosis pilis strigosis foliis alternantibus rigide chartaceis subovato-ellipticis apice late acuminatis basi acuminatis supra glabra laevia nerviis principalis impressis subtus griseis (in sicco) junioribus dense minutissime sericeis adultis glabris axillis costarum barbellatis exceptis nervo mediano costisque utrinque 4—5 suberectis paulo arcuatis prominentibus nerviis secundariis conspicuis parallelis horizontalis prominulis paniculis brevis axillaris terminalibusque dense minutissime adpress ferrugineo pilosis floribus pilosis.

TYPUS: *Carr 12878* (A).

Tree, branches smooth, brown or black (dried), rather slender; branches densely, minutely adpressed pilose, hairs rather coarse. Leaves spirally arranged, stiffly chartaceous, subovate-elliptical, 3.5 x 10—6 x 13 cm; apex shortly, broadly acuminate, base acuminate; upper surface smooth, main nerves impressed; lower surface in young (flush) leaves with a dense tomentum of tiny, adpressed, rather coarse, silky hairs, adult leaves glabrous, except the barbellate axils of the lateral nerves, grey (in sicco), midrib prominent, lateral nerves 4—5 pairs, rather erect, rather straight, prominent, near the margin arcuate; secondary nerves conspicuous, parallel, horizontal, prominulous. Petioles 10—15 mm long, rather slender, flat above. Panicles axillary and terminal, 2.5—6 cm long, densely, minutely, adpressed, ferrugineously pilose, many-flowered. Flowers 2—3 mm, adpressed pilose, calyx short; tepals ovate.

TERRITORY OF NEW GUINEA. Koitaki, alt. 500 m, July, buds, *Carr 12878* (A, L); Boridi, alt. 1300 m, fl., *Carr 1U335* (A, BM); *ibid.*, Oct., buds, *Carr 1315%* (BM, L); Morobe Distr., Sattelberg, Hill forest, alt. 1100 m, Febr., buds, *Clemens 1824*. (A), tree, diam. 10—15 cm, leaves pale beneath; *ibid.*, Febr., buds, *Clemens 1887* (A); perhaps also: *BW 2272*, Sarmi, ster., alt. 8 m (L).

**Cryptocarya patentinervis** F. v. M. ex DC. var. **glabra** Kosterm., *var. nov.*

Ab species typicum differt foliis ramulisque glabris

TYPUS: *Hartley TGH 12165* (L).

As no fruit are available for further comparison I have referred the following specimens to *Cr. patentinervis* as a variety, pending a definite decision.

TERRITORY OF NEW GUINEA. Base of Kratka Range, 12 miles S. of Aiyura, E. Highlands, Aug., fl., *Hartley TGH 12165* (L), tree 10 m, diam. 15 cm in beech forest at 2000 m alt.; Kainantu-Okapa Rd., *Hartley TGH 12151* (L), tree 10 m in beech forest, alt. 2000 m, outer bark grey-brown, quite smooth, inner bark reddish brown, pale glaucous below. W. IRIAN. Kebar Valley, alt. 770 m, stony and clayey soil, ster., *BW 7095* (L), rather common, tree 15 m, diam. 40 cm, buttresses up to 1 m, out 15 m, thick 4 cm, outer bark grey, smooth, inner bark yellow-brown, slash brown, sapwood lightbrown, no heartwood, leaves up to 5 X 14 cm.

**Cryptocarya percrassa** Kosterm., *spec. nov.*

Arbor ramulis cylindricis indumentum dense rufum minutissime pulverulentum perobscurum obtectis foliis alternantibus rigide coriaceis glabris supra laevia nitida nervo mediano costisque impressis subtus pallida laeve vel obscure dense areolata nervo mediano prominente costis utrinque 5—8 erecto-patentibus substrictis marginem versus arcuatim evanescentibus prominulis petiolis distinctis; paniculis axillaris terminalisque perdense minutissime flavo lanuginosis; floribus dense pilosis.

TYPUS: *NGF 4051* (A).

Tree 20 m high, 30 cm diam., outer bark dark brown, flaky; living bark orange brown; sapwood and heartwood straw coloured; branches cylindrical, smooth, towards apex with a hardly visible, very dense, pulverulent, grey or rusty tomentum. Leaves spirally arranged, glabrous, rigidly coriaceous, subovate-elliptical, 4x 9—6 x 13 cm; apex obscurely acuminate, base cuneate; upper surface glossy, smooth, midrib and lateral nerves impressed; lower surface paler, smooth, midrib prominent, lateral nerves 5—8 pairs, erect-patent, rather straight, near the margin running out arcuately. Inflorescences axillary and terminal, densely, minutely, yellowish sublanuginose, 3—9 (axillary) to 11 cm (terminal), many-flowered; flowers densely, minutely sublanuginose, 3 mm long.

TERRITORY OF NEW GUINEA. Morobe Distr., Bulolo, alt. 1200 m, on the flat land, planting area, Jan., fl., *Fryaf 4051* (A); *ibid.*, June, young fr., *Richardson 4086* (L), tree 27 m, diam. 45 cm, large, spreading crown, slight buttresses up to 120 cm, bark 12 mm, brown with slightly reddish tinge outer, blaze brown, light brown against the wood, wood straw coloured, a few walnut streaks, no heartwood, hacks off easily but would not quarter with axe; *ibid.*, July, fl., *Floyd 5239* (L), tree 20 m, diam. 30 cm, leaves shining green above, dull glaucous with yellow veins beneath, fls. yellow brown; *ibid.*, Oct., fr., *McViegh & Ridgwell NGF 7340* (A, L).

#### CRYPTOCARYA PERGAMENTACEA Allen

Cf. Kostermans, Bibl. 428 no 249. 1964.

Additional material: W. IRIAN. Genofa Mt., Distr. Fak-Fak, stony, clay soil, alt. 800 m, ster., *BW 10Z8.4* (L), scarce, tree 30 m, diam. 40 cm, bark strongly peeling, not fissured, greyish brown outside, brownish, yellow within, slash brownish yellow; used as medicine against many diseases.

#### *Cryptocarya pergracilis* Kosterm., *spec. nov.*

Arbor mediocris ramulis gracilibus glabris laevis foliis alternantibus subcoriaceis glabris lanceolatis caudato-acuminatis basi cuneatis utrinque obscure dense reticulatis supra nervo mediano costisque planis subtus nervo mediano prominentibus costis utrinque 7—9 pergracilis obscuris prominulis erecto-patentibus petiolis gracilibus glabris. Inflorescentiis axillaribusque subglabris, gracilibus parvis subpaucifloris floribus calyx dense minutissime adpresso pilosis tepalibus ovatis parce pilosis.

TYPUS: *Carr 1VT71* (L).

Tree, 10 m tall; branchlets glabrous, slender, smooth, black (dried). Leaves spirally arranged, subcoriaceous, glabrous, lanceolate, 1.5 x 5—3 x 9 cm, apex caudate, acumen slender, blunt, base cuneate; both surfaces densely, rather obscurely (more conspicuous on the lower surface), densely reticulate; midrib and ribs flat on the upper surface (except the basal part of the midrib, which might be subimpressed); lower surface with prominulous midrib and rather obscure, slender, erect-patent, 7—9 pairs of erect-patent lateral nerves. Petioles glabrous, slender, 5—10 mm, slightly concave above. Panicles axillary and terminal, lax, rather few-flowered,

up to 5 cm long, basal part glabrous, slender, branches few, up to 1 cm long, slender, towards apex sparsely, minutely, adpressed pilose; flowers 2.5 mm long on a very short pedicel; calyx densely, minutely, adpressed pilose; tepals ovate, partly pilose.

TERRITORY OF NEW GUINEA. Boridi, alt. 1800 m, Oct., fl., *Carr U606* (A, BM, L), flowers cream; *ibid.*, 1500 m, Nov., fl., *Carr 14771* (L), flowers white; *ibid.*, Sept., buds, *Carr 13373* (NY). W. IRIAN. Vogelkop Pen., path to Arfak Mts, alt. 1000 m, ster., *Kostermans 2015* (BO, L).

#### CRYPTOCARYA PERLUCIDA Allen

Cf. Kostermans, Bibl. 428 no 250. 1964. — Typus: *Clemens 4076* (A), Morobe Distr., Yunzaing, alt. 1600 m, Sept., fl.

Additional specimen: K. Wilhelmsland, 1200 m, Disolore (?), ster., *Sohlechter 19614* (K).

#### *Cryptocarya pulchrinervia* Kosterm., *spec. nov.*

Arbor ramulis percrassis angulatis minutissime dense ferrugineo pilosis, foliis alternantibus rigide coriaceis elongato ovato-oblongis vel oblongis, supra glabra nerviis impressis subtus perdense conspicue prominente reticulatis rufo-fusco pilosis, petiolis crassis brevis; infructescentiis crassis fructus elongato-ovatis costatis magnis.

TYPUS: *Kostermans 1334.7* (L).

Tree, 15—30 m high, bole up to 17 m high, 45 cm in diam. Bark light redbrown, thin (0.5 mm), smooth or scaly; living bark 10 mm, pale yellow to light reddish brown; cambium yellow. Wood white, hard. Branches stout, angular or subangular, densely, minutely rusty pilose. Leaves spirally arranged, stiffly coriaceous, elongate ovate-oblong, 5 x 21 (6 X 30) to 13 X 22 cm (in the inflorescence 3 x 9 cm), apex obscurely acuminate or obtuse to emarginate, base rounded, upper surface glabrous, glossy, midrib, lateral, secondary and tertiary nerves impressed; lower surface densely, conspicuously prominently reticulate, dark rusty pilose, midrib stout, prominent, lateral nerves 11—17 pairs, rather patent, arcuate near the margin, strongly prominent. Petiole stout, 1 cm long, densely, minutely pilose. Panicles lax, wide, minutely, densely, pilose, up to 22 cm long with stout, sulcate axis. Flowers sessile, densely, minutely grey adpressed pilose. Infructescences axillary and terminal, up to 22 cm long, stout, few-branched, glabrescent. Fruit elongate ovoid, up to 4 cm long and 2.5 cm in diam. with broad protruding ribs; apex narrowed.

DISTRIBUTION: Borneo

The species is somewhat related to *Cr. crassinervia*, but is easily distinguishable by the enormous fruit, the dense reticulation and the elongate leaves.

SABAH. Sandakan, Mile 8, alt. 30 m, Jan., buds, *Rodin BNBFD U85* (L); *ibid.*, Bettotan, July, fr., *Boden Kloss SFN 18980* (A, K, L, LAE); *ibid.*, alt. 50 m, Aug., fl., *BNBFD 3639* (K, L); near Forestry Camp, Mile 5, Lungmanis For. Res., alt. 15 m, June, fr., *Charrington & Kapis SAN 1781U* (A, BO, BRI, K, L, SING); *ibid.*, Feeder 2, Oct., fl., *Whitmore SAN 17653* (A, BO, BRI, K, KEP, L, SING); Sg. Binuang Camp, Kretam, June, fr., *Singh SAN 30671* (K, L); Lahad Datu, 15 miles along railway from Chin Lik's Camp, N. Borneo Timber Co. Concession area, Kretam, alt. 7 m, May, fr., *Wood SAN A U753* (K, L); Mile 15 Kennedy Bay Timber Co. Rd., 15 miles E.S.E. from Lahad Datu, alt. 25 m, March, fl., *Wood SAN 16081* (A, BO, BRI, K, KEP, L, SING); Sg. Taliwas, Lahad Datu, alt. 70 m, riverbank, Nov., fl., *Agama SAN 37223* (K, L); Sepilok For. Res., alt. 33 m, Nov., fl., *Kapis SAN 17269* (A, BO, BRI, K, L, SING); Semporna, N. of Agric. Sta., June, young fr., *Singh SAN 263U* (K, L); Tawau, Ulu Balung, Nov., fr., *Aban SAN 32522* (K, L); mile 15, Quoin Hill Rd., July, fr., *Aban SAN 305U* (K, L); Cpt. A, Subcpt. 13., Bombay-Burma T. C. License area, Kalabahan, 30 miles W. N. W. of Tawau, alt. 70 m, April, fl. *Wood SAN A 1033* (A, KEP, MEL, SING); mile 15, Apas Rd., May, fr. (abnormal), *Aban SAN 30009* (K, L); Segaliud, Lokam For. Res., Sekong Camp, alt. 40 m, March, post anthesis, *SAN 349U* (K, L). E. INDONESIAN BORNEO. Sangkulirang Distr., Mt. Medadem, N. of Sangkulirang, limestone, alt. 200 m, Aug., fr., *Kostermans 133U7* (A, BO, CANB, K, L, P, SING); *ibid.*, Aug., fl., *Kostermans ISU37* (A, BO, CANB, K, L, P, SING); W. Kutei, Segoi R., June, young fr., *Kostermans 9672* (BO, K, L); Berau, Mt. Has Bungaan, alt. 300 m, Sept., buds, *Kostermans 13S57* (A, BO, K, L).

*Cryptocarya pullenii* Kosterm., spec. nov.

Arbor mediocris ramulis junioribus dense minutissime pulverulente brunneo pilosis dense prominule lenticellatis ramis verrucosis foliis alternantibus rigide coriaceis glabris ellipticis emarginatis vel obtusis vel brevissime inconspicue acuminatis basi rotundatis supra nitida bullata nerviis primariis impressis subtus nervo mediano valde prominentibus costis utrinque 7—8 erecto patentibus marginem versus arcuatis prominentibus nerviis secundariis parallelis laxis prominulis petiolis brevis paniculis axillaris terminalibusque foliorum subbreviorum perdense minutissime sericeis floribus pro genera grandis.

TYPUS: *Pullen 6591* (K).

Tree, 13 m high; bark brown with many lenticels, blaze yellow brown with lauraceous smell (*Pullen*); young branchlets very densely, minutely, pulverulently brown pilose with numerous, prominent, elongate lenticels. Leaves spirally arranged, glabrous, rigidly coriaceous, elliptical, 2.5 X 5 (near the inflorescence)—6 x 11 cm, obtuse, emarginate or obscurely, shortly acuminate, base rounded; upper surface smooth, bullate, glossy, midrib, ribs and secondary nerves impressed; lower surface more dull, midrib strongly prominent, lateral nerves 7—8 pairs, erect-patent, prominent, arcuate towards the margin; secondary nerves prominent, parallel, lax. Young leaves very minutely, laxly pulverulently pilose on the lower surface (denser on midrib). Petiole 5—10 mm long, rather thick, partly narrowly channeled above. Panicles axillary and terminal, densely, minutely

sericeous, stiff, up to 9 cm long, with few, short branches; flowers many, 3 mm long, sericeous, calyx short.

PAPUA. Gulf Distr., Head of Lohiki R., N. of Ivana, alt. 1700 m, local name "Ko-ohèh" (Nauti language), March, fl., *Pullen 6591* (A, K, L, LAE).

*Cryptocarya renicarpa* Kosterm., spec. nov.

Arbor ramulis gracilibus laxè minutissime pulverulente pilosis, foliis alternantibus ovato-lanceolatis glabris rigide chartaceis longe caudato acuminatis basi acutis utrinque opacis subtus (in sicco) pallidioribus supra laevia subtus nervo mediano costisque utrinque 3—5 adscendentibus prominentibus nerviis secundariis gracilis horizontalis prominulis, petiolis brevis; infructescentiis axillaris terminalisque dense minutissime pulverulente brunneo pilosis vix ramosis, fructus glaber reniformibus.

TYPUS: *Beer's Coll. BSIP 7684* (L).

Tree; branchlets slender with a rather lax pulverulent, minute indumentum. Leaves spirally arranged, glabrous, rigidly chartaceous, subovate-lanceolate or ovate-lanceolate, 2 x 8—4 X 12 cm; apex caudate-acuminate (acumen up to 2 cm long with narrow, blunt tip), base acute; both surfaces dull, lower one pale (in sicco), above smooth, lower one with prominent midrib and 3—5 ascendent pairs of lateral nerves, secondary nerves spaced, slender, horizontal, prominulous. Petiole 6—8 mm long, glabrous, flat above. Infructescences axillary and terminal, hardly branched, densely brown pulverulently pilose, up to 7 cm (terminal) or 4 cm (axillary) long; fruit glabrous, glossy, smooth, transversally reniformous, up to 3 cm wide and 2 cm high.

DISTRIBUTION: Solomon Isl.

The reniform fruit, broader than high, is not common in *Cryptocarya*. So far it is only known in some Australian species.

SOLOMON ISL. N. Santa Ysabel, Potoro Bay, Aug., fr., *Beer's Coll. BSIP 768k* (L); *ibid.*, Moloforu Bay, *Beer's Coll. 7387*, July, fr. (L); Malaita near Heho R., tree 33 m, spur roots running into rounded flanges high on the trunk, bark brown, roughened by numerous longitudinally arranged lenticels, ster., *Walker & White BSIP 81* (L).

*Cryptocarya resinosa* Kosterm., spec. nov.

Arbor ramulis gracilibus minutissime dense ferrugineo adpresso pilosis ramis glabris laevis cylindricis subgracilis foliis alternantibus chartaceis subovato-ellipticis conspicue acuminatis basi in petiolum gracilem contractis supra glabra sublaevia nervo mediano costisque filiformibus prominulis subtus juniora minutissime adpresso pilosa adulta glabra, dense reticulata (sub lente) nervo mediano prominentibus costis utrinque 3—4 (—5) suberectis subarcuatis prominulis saepe costis subbasalibus adscen-

dentibus infructescentiis axillaris minutissime dense adpresse pilosis late paniculatis foliis longioribus fructus ellipsoideus resinoso-punctatus.

TYPUS: *Versteegh BW 4-666* (L).

Tree up to 28 m high, 40 cm in diam.; branchlets slender, densely, minutely, adpressed, ferruginously pilose; branches slender, glabrous, smooth. Leaves spirally arranged, subovate-elliptical, 3.5 x 8—6 X 14 cm, apex distinctly acuminate, base contracted into the petiole, shortly acute; upper surface rather smooth, the filiform midrib and lateral nerves prominulous; lower surface densely reticulate (high power lens), in young leaves sparsely, minutely, adpressed pilose, glabrescent, midrib prominent, lateral nerves 3—4(—45) pairs, prominulous, rather erect, slightly arcuate, sometimes ascendent subbasal ribs. Petiole slender, 5—10 mm, flattened above. Panicles axillary, minutely, densely, adpressed pilose, up to 14 cm long, loose, few-branched, lower branches up to 5 cm long, the ultimate branchlets (up to 3 mm) bearing the ripe fruit, thickened (3 mm diam.); fruit ellipsoid, up to 18 x 25 mm, at base with a short (4 mm) neck; covered with, white resinous (?) spots.

The species is outstanding by a white exudate which not only shows on the fruit as white spots but also on the leaves, where these are broken.

W. IRIAN. Salawati Isl., Kaloal, alt. 0 m, inundated in the wet season, rather common, ripe fruit black, *Versteegh BW U666* (A, BO, CANB, L, LAE, MELB, P, SING); Manokwari, Vogelkop, Prafi, alt. 150 m, Febr., young fr., *Bouwer BW 357* (L); Distr. Hollandia, Sekoli plane, alt. 75 m, ster., *BW 7530* (L), bark smooth, dark brown, brownish yellow inside, slash brown, sapwood brownish yellow; Distr. Kaimana, Fak. Fak, Nov., buds, *BW 51A6* (L).

#### CRYPTOCARYA RETICULATA Bl.

Cf. Kostermans, *Bibl.* 431 no 263a. 1964. — Typus: *Korthals* s.n., G. Sakumbang-, Borneo, ster. (L) and sine collector, Java, ster., "Huru medang lalakina" Sund. (which simply means: male Lauraceae!) (L).

These specimens represent *Phoebe grandis* (Nees) Merr.

*Cryptocarya rhizophoretum* Kosterm., *spec. nov.*

Arbor humilis glabris parte perjuvenilis pulverulente minutissime dense pilosis exceptis foliis alternantibus subcoriaceis elongato ovato-ellipticis longe acutis vel subacuminatis basi brevissime cuneatis utrinque prominule laxe obscure reticulatis nervo mediano supra impressa subtus prominente costis utrinque 7—8 erecto-patentibus subcurvatis marginem verse saepe adscendentibus evanescentibus nerviis secundariis parallelis laxis prominulis petiolis longis supra subcanaliculatis; infructescentiis axillaribus terminalibusque non ramosis fructus ellipsoideus magnis laevis nitidus.

TYPUS: *Gray & Floyd 8042* (L).

Tree 7 m high, 12.5 cm in diam., glabrous, except the youngest flush, which is densely, minutely pale-brown pulverulently pilose. Branchlets rather slender, smooth, black (in sicco). Leaves spirally arranged, subcoriaceous, elongate ovate-elliptical, 4 X 12—6.5 X 18 cm, apex gradually long-acute or subacuminate with slender tip, base shortly cuneate; both surfaces rather inconspicuously, laxly reticulate; midrib impressed on upper, prominent on lower surface, lateral nerves 7—8 pairs, erect-patent, slightly curved, running out near the margin; secondary nerves lax, parallel, prominulous. Petioles 15—20 mm long, slightly, narrowly channeled above. Infructescences axillary and terminal, up to 5 cm long, hardly branched; fruit ellipsoid, glossy, black-purplish, 27 x 55 mm, hardly narrowed at base, top obtuse.

PAPUA. Gulf Div., Kikori subdistr., Aird Hills, transition zone of *Myristica-Excoecaria-Brugniera gymnorhiza* transition forest, July, fr., *Gray & Floyd 804-2* (A, K, L).

#### CRYPTOCARYA RUGULOSA Hk. f.

Cf. Kostermans, *Bibl.* 433 no 273. 1964. — Typus: *Maingdy K.D. 1262* (K, L), Malacca, June, fl (= *Maingay 2b66*).

New synonym: *Cryptocarya longepaniculata* Gamble; cf. Kostermans, *I.e.* 412 no 163. — Typus: *Haviland and Hose 3295* (K, L). — *Cryptocarya longepedunculata* Merr. (sphalm.), cf. Kostermans, *I.e.* 413 no 164.

Additional specimens: SARAWAK. Distr. Simanggang, Tj. Keranji, Saribas, April, fl., *Anderson 12850* (BO, K, L, SING); Lepak For. Res., peat swamp, *Anderson 8062* (BO, L), May, fl.; Binatang, Sg. Semup, Isl. Bruit, March, fr., *Sanusi 13102* (K, L, SAN, SAR); *ibid.*, Sept., fr., *Anderson 9005* (K, L); *ibid.*, *Samisi 9282* (L), Nov., fr.; Kuching, fl., *Native Coll. U60* (BM); April, fl., *Hewitt s.n.* (BM).

#### *Cryptocarya ruruvaiensis* Kosterm., *spec. nov.*

Arbuscula ramulis dense minutissime ferrugineo tomentellis, foliis alternantibus coriaceis oblongis apice breviter acuminatis basi rotundatis utrinque glabris dense prominule areolatis nervo mediano supra impressa subtus prominentibus costis filiformibus prominulis patentibus marginem versus arcuatim evanescentibus petiolis brevis; paniculis brevis axillaribus minutissime rufo pilosis glabrescentibus floribus calyx gracilis sepalibus glabris longioribus.

TYPUS: *Whitmore BSIP 298A* (L).

Shrub, 3 m tall; branchlets densely, minutely rusty tomentellous. Leaves spirally arranged, coriaceous, glabrous, oblong, 2 x 7.5—3 x 9 cm, apex shortly acuminate, base rounded; both surfaces densely prominently areolate, midrib slightly impressed on upper, prominent on the lower surface; lateral nerves 7—8 pairs, slender, prominulous on both sides, straight, rather patent towards the margin, running out arcuately. Petioles glabrescent, 5—6 mm long. Panicles narrow, axillary, up to 3.5 cm, hardly

branched, minutely rusty pilose, glabrescent. Flowers sessile, glabrous; tube slender, 1 mm; tepals 1.5—2 mm.

An outstanding species by leafshape and reticulation. The inflorescences are attacked by a fungus and I suspect that in normal condition they are more pilose.

SOLOMON ISL. S. E. Choiseul, ultrabasic outcrop across bay from Ruruvai, sea level, inside edge of mangrove, fls. pale green, not scented, Febr., *Whitmore BSIP 2984* (L).

CRYPTOCARYA SAMARENSIS Merr.

Cf. Kostermans, Bibl. 433 no 275. 1964. — Typus: *Ramos B.Sc. 17531* (K), fr. Samar, cited by Merrill (Enum. 2: 202. 1923) as *17351*.

Additional material: PHILIPPINES. *Ramos & Edano B.Sc. 36635* (K), Oct., fr., Mt. Tubuan, Zamboanga Distr., Mindanao, fruit ellipsoid, smooth, 12 X 30 m, with conspicuous neck at the base; *Mendoza PNH 4.1938* (L), June, fl., Tungao, Agusan Prov., Mindanao, leaves up to 4.5 x 15 cm, long acuminate, 9 pairs of lateral nerves; panicles axillary, not branched, up to 8 mm long.

*Cryptocarya schoddei* Kosterm., *spec. nov.*

Arbor ramulis dense minutissime pulverulente atro rufo sublanuginosis foliis alternantibus rigide chartaceis vel coriaceis subovato-ellipticis, vel ellipticis abrupte graile acuminatis basi breve acutis utrinque dense prominule reticulatis supra glabra nervo mediano vix prominulo costis filiformibus vix impressis subtus sub lente sparse minutissime adpresse pilosis nervo mediano prominulo costis utrinque 5(—6) subadscendentibus paullo arcuatis prominulis petiolis conspicuis paniculis axillaris terminalibusque dense minutissime rufo sublanuginosis floribus sparse minutissime sericeis.

TYPUS: *Schodde 2470* (L).

Tree, ca 5 m high; branches rather thick, stiff, densely, minutely, dark rusty sublanuginose. Leaves spirally arranged, rigidly chartaceous or coriaceous, subovate-elliptical, 4 x 9—6 X 12 cm (in the flush elliptical, up to 6.5 x 19 cm), abruptly acuminate, acumen slender, up to 1 cm long, base shortly acute, often unequal, densely prominulously reticulate on both surfaces; upper surface glabrous, midrib hardly prominent, ribs slender, somewhat impressed; lower surface sparsely, minutely, adpressed pilose (high power lens!), the tomentum longer and denser on the main nerves midrib prominulous, lateral nerves 5(—6) pairs, rather erect, somewhat ascendent, slightly curved, prominent. Petioles 1—2 cm long, glabrescent. Panicles axillary and terminal (5—10 cm, axillary, up to 10 cm, terminal ones), stiff, densely, minutely, rusty sublanuginose, the ramifications lax, the minutely sericeous flowers densely clustered.

PAPUA. S. Highlands Distr., Lake Kutubu, alt. 900 m, Oct., buds, *Schodde 2407* (L); perhaps also, but leaves much smaller, Isuarava, alt. 1200 m, Febr., after anthesis, *Carr 15789* (A). MOLUCCAS. Morotai, June, fr., *Kostermans, bb 33877* (BO, L); *ibid.*, May, ster., *Kostermans Ml* (BO, L); *BW 11812* (L), fr.

CRYPTOCARYA SCORTECHINII Gamble

Cf. Kosterman, Bibl. 434 no 281. 1964. — Typus: *Scortechini 568, 619* (K); *King's Coll. 6281, 6297, 6298* (L), *6871, 8686, 10895*.

Additional material: SARAWAK. Kuching Distr., Semengoh For. Res., March, fl., *Ghazalli & Asah S 12829* (BO, K, L, SAN, SING); March, buds, *Ghazalli S. 13409* (BO, K, L, SAN, SING); April, fl., *Bojang S. 14622* (A, BO, K, L); Aug., fr., *Rosli S 3379* (BO, K, L, SAN); Nov., fr., *Zen 13023* (A); April, fr., *Asah 5312* (L).

*Cryptocarya sericeo-triplinervia* Kosterm., *spec. nov.*

Arbor mediocris ramulis minute dense flavo-brunneo pilosis foliis alternantibus rigide coriaceis ovatis acuminatis basi cuneatis supra glabrescentia opaca nerviis principalis impressis subtus perdense flavo-brunneo sericeis costis utrinque 3 prominentibus adscendentibus principue basalibus infructescentiis brevis axillaribus perdense minutissime pilosis fructus ellipsoideus.

TYPUS: *Kostermans 2011* (L).

Tree 12 m, bole 5 m diam. 45 cm with broad crown; branchlets minutely, densely, yellowish brown tomentellous. Leaves spirally arranged, rigidly coriaceous, ovate, distinctly acuminate, base cuneate, 2 X 4.5—3 X 7 cm; upper surface tardily glabrescent, main nerves impressed; lower surface very densely, yellowish brown sericeous, midrib prominent, lateral nerves 3 pairs, prominent, ascendent, the lowest or second lowest reaching % of the leaf blade length, slightly arcuate, running out arcuately near the margin; secondary nerves obscure. Petiole densely tomentellous, 7—10 mm long, above flat or slightly concave. Infructesences axillary, densely, minutely tomentellous, up to 6 cm long, with few, stiff branches; fruit smooth, ellipsoid, 8 X 12 mm.

W. IRIAN. Arfak Mts., Angi Gita lake, lake shore forest, alt. 1800 m, Oct., fr., *Kostermans 2011* (BO, L); *ibid.*, tree 4 m, ster., *Kostermans 2276* (BO, L); *ibid.*, tree 9 m, ster., *Kostermans 2318* (BO, L); *ibid.*, Oct., fr., *Kostermans 2031* (BO, L), shrub 3 m.

*Cryptocarya sleumeri* Kosterm., *spec. nov.*

Arbor parva ramulis gracilibus dense minutissime subadpresse pilosis foliis alternantibus rigide coriaceis ovatis vel lanceolatis caudatis basi breve acutis juvenilis perdense flavo-brunneo sericeis adultis supra glabra laevia nervo mediano costisque filiformibus impressis subtus minutissime dense sericeis (sub lente) areolatis nervo mediano prominentibus costis

utrinque 3—4 adscendentibus subarcuatis prominentibus venis vix conspicuis petiolis gracilis supra concavis inflorescentiis axillaris terminalibusque parvis dense subadpresse minutissime pilosis.

TYPUS: *van Roy en & Sleumer 7929* (L).

Tree 8 m high, trunk 5 m, diam. 10 cm; branchlets slender, rather stiff, densely, very minutely, subadpressed pilose. Leaves spirally arranged, rigidly coriaceous ovate to lanceolate, 1.5 X 3.5—3 x 6.5 cm, apex caudate (acumen slender, up to 10 mm long, obtuse, apiculate), base acute; upper surface smooth, glabrous, the filiformous midrib and lateral nerves impressed; lower surface very minutely, densely sericeous densely areolate (under high power lens) soon glabrescent, midrib prominent, lateral nerves 3—4 pairs erect, ascendent, prominent, slightly arcuate, towards margin running out arcuately, secondary veins very slender or invisible. Petiole slender, 6—9 mm long, concave above, glabrescent. Inflorescences axillary and terminal, densely, minutely yellowish brown subadpressed pilose, up to 4 cm long.

W. IRIAN. Vogelkop Peninsula, Mt. Nettoti, S. slope, path Andjai-Wekari R. in *Conifer-Nothofagus* forest, alt. 1750 m, leaves dark olive green above, bluish grey below, Nov., buds, *van Royen & Sleumer 7929* (L); Angi Gita Lake, outlet, Tilaan R., alt. 1800 m, ster., *Kostermans 2151* (BO, L).

*Cryptocarya splendens* Kosterm., *spec. nov.*

Arbor ramulis lenticellatis dense minutissime flavo pilosis foliis alternantibus coriaceis subovato-ellipticis acuminatis basi acutis supra mox glabra nervo mediano costisque impressis subtus perdense aureo sericeis costis utrinque 5—9 suberectis ad marginem curvatis evanescentibus prominentibus prominentibus, petiolis conspicuis, paniculis axillaris terminalisque dense aureo pilosis brevis floribus sessilibus.

TYPUS: *Carr 15557* (L).

Tree, 25 m high and 50 cm diam. (specimen *Saunders 998* and *NGF 4426*) or 3 m high (*Brass 30593*). Crown very small. Bark dark grey, finely fissured; inner bark straw-brown; wood white. Branchlets angular, sulcate, densely, minutely rusty or golden pilose. Leaves spirally arranged, stiffly coriaceous, ovate-elliptical to subovate-elliptical, 1.5 x 4—3 X 9 cm (*Brass 30593*: 4.5 X 12"cm); apex acuminate with sharp tip, base acute; upper surface soon glabrous, dull, smooth, obscurely, densely reticulate; main nerves impressed; lower surface densely golden sericeous (sometimes indumentum subadpressed); midrib strongly prominent; lateral nerves (5—)9 pairs, strongly prominent, rather erect, straight, at margin curved and running out; secondary nerves faint, parallel, horizontal. Petioles 5—14 mm, flattened above. Panicles axillary and terminal, densely, minutely rusty pilose, up to 6 cm (the axillary ones 1—4 cm); flowers sessile, 1—1.5 mm, densely, minutely pilose.

VERNACULAR NAME: Wank (Enga), Be'pa (Aiyura dialect).

DISTRIBUTION: New Guinea.

Characterized by the stiff leaves with suberect lateral nerves, impressed on the upper surface and the short panicles.

NEW GUINEA. Boridi, alt. 1600 m, Aug., fl., *Carr 13346* (A, BM, L); Isuarave, alt. 1600 m, Pebr., fl., *Carr 15557* (A, BM, L); Lala R., alt. 1500 m, Febr., fr., *Carr 15686* (A, BM, L), fruit ellipsoid, 7 X 15 mm, top notched; E. Highlands Distr., Mt. Wilhelm, E. slope, alt. 2600 m, July, fr., *Brass 30593* (L); W. Highlands Distr., ca 1 mile E. Porgerapos, Wabag'-Kompian Rd., alt. 2600 m, ster., *Saunders 998* (L), axils of lateral nerves subbarbellate; Centr. Highlands, Aiyura, alt. 2000 m, June, fr., *Womersley NGF 44.26* (L).

*Cryptocarya strictifolia* Kosterm., *spec. nov.*

Arbor ramulis subrugulosis crassis dense minutissime pulverulente ferrugineo pilosis foliis alternantibus rigide coriaceis ellipticis vel subovato-ellipticis apiculatis basi breve acutis vel subrotundatis supra glabra nitida laevia nervo mediano et costis et nerviis secundariis impressis subtus glauca minutissime (sub lente) adpresse pilosa glabrescentia nervo mediano valde prominente costis utrinque (6—)8—10(—14) erecto-patentibus prominentibus strictis vel paullo arcuatis nerviis secundariis plurimis parallelis prominentibus reticulatio laxa prominulo petiolis dense minutissime pulverulente pilosis crassis nee vel parte apicale anguste sulcatis paniculis axillaribus terminalibusque dense minute flavo brunneo sublanuginosis.

TYPUS: *bb 31686* (L).

Tree, up to 26 m high and 40 cm diam.; bark brownish or whitish grey, smooth, cracked into minute particles; living bark 10 mm, rather hard, brittle, chocolate colour; wood white. Branchlets stout, rather rough, densely, minutely pulverulently, rusty pilose. Leaves spirally arranged, very rigidly coriaceous, elliptical to subovate-elliptical, 5 X 10—5.5 X 14 cm (in other specimens up to 8 x 27 cm), apiculate, base rounded to shortly acute; upper surface glabrous, smooth, glossy, midrib, ribs and secondary nerves conspicuously impressed; lower surface glaucous, minutely (high power lens!) adpressed pilose, glabrescent, midrib strongly prominent, ribs (6—)8—10 (in other specimens up to 14) pairs, erect-patent, prominent, straight or somewhat arcuate, secondary nerves conspicuous, parallel, prominent, rather numerous, reticulation prominulous. Petioles densely, minutely, pulverulently rusty pilose, not channeled or the apical part above obscurely slit-like channeled, ca. 1 cm long. Panicles axillary and terminal, densely, minutely, yellow-brown sublanuginose, multiflowered, up to 10 cm long, rather narrow; flowers 2 mm long, densely pilose. Fruit ellipsoid to ellipsoid-subglobose, 1.5 x 2.5 cm.

SUMATRA. Palembang Distr., Lematang ulu, alt. 150 m, ster., *Lambach 1323* (L); Lematang ilir, Semangus For. Res., alt. 75 m, April, fl., *bb 31686* (BO, L); *ibid.*, ster., *bb 31935* et *32251* (BO, L); Gunungmegang, ster., *bb 34989* (BO, L); Isl. Rupert, E. coast Sumatra, low, common tree, April., buds, *Bruinier 13* (BO, L), leaves up to 8 X 19 cm with 14 pairs of lateral nerves; Karolands, Tongkoh, alt. 1575 m, Aug.,

fr., 66 7197 (BO, L); Isl. Bangka, S. part, Mt. Pading near Lobok Besar, alt. 30 m, Oct., fr., *Kostermans & Anta 1054* (BO, L); near Perlang, alt. 300 m, ster., 66 34126 (BO, L); Mentawai Isl., Siberut Isl., low, fr., 66 17478, fruit up to 18 x 22 mm. SABAH. Ranau, alt. 1000 m., Poring-Malumad Path, Oct., fr., *San 26723* (L). INDONESIA BORNEO. E. Kutei, Menubar R., alt. 20 m, ster., *Kostermans 5151* (BO, L); W. Kutei, Belajan R. near Long Bleh, alt. 60 m, April, fr., *Kostermans 10362* (BO, L); Sg. Bambang, S. E. of Samarinda, alt. 20 m, ster., *Kostermans 6113* (BO, L), leaves up to 8 X 27 cm; Djembajan R.; low, ster., 66 26257 (BO, L); Balikpapan Distr., Mentawir, alt. 60 m, marshy, Febr., (fr., *Kostermans 1008,5* (BO, L); Muan near Sg. Riko, ster., *Kostermans 4093* (BO, L); S. Borneo, Sampit, Keminting near Kuala Kuajan, alt. 30 m, ster., *Kostermans 8054* (BO, L), common as pioneer in secondary vegetation, petioles up to 2 cm long; Puruktjahu, alt. 150 m, ster., 66 21164 (BO, L).

*Cryptocarya subbullata* Kosterm., *spec. nov.*

Arbor parva ramulis gracilibus dense minute rufo tomentellis innovationibus dense minuteque rufo strigosis foliis alternantibus papyraceis obovato-ellipticis perconspicue acuminatis basi rotundatis supra glabra nitida sub-bullata nervo mediano costisque profunde impressis subtus dense minuteque reticulatis nervo mediano prominentibus pilosis costis utrinque ca 9 suberectis prominentibus substrictis marginem versus arcuatis petiolis brevis dense tomentosis paniculis axillaribus parvis brevissime pauce ramosis dense minuteque ferrugineo tomentellis floribus parvis dense pilosis.

TYPUS: *Hoogland 4-545* (L).

Small tree, ca 7 m high, 3 m bole, 10 cm diam.; bark ca 4—5 mm thick, grey-brown with faint, short, longitudinal fissures, inner bark red-brown; wood straw; branchlets slender, densely, minutely rusty tomentellous; end bud densely, minutely rusty strigose. Leaves spirally arranged, papery, obovate-elliptical, 4 X 12—6 X 15 cm, conspicuously, abruptly acuminate (acumen ca 1 cm), base rounded with incurved margins; upper surface smooth, glossy, glabrous, main nerves deeply impressed; lower surface densely, minutely reticulate, glabrous (except the main nerves), midrib prominent; lateral nerves ca 9 pairs, erect-patent to suberect, rather straight, near the margin arcuate, prominent. Petioles 5—8 mm, densely, rusty tomentellous. Panicles axillary, narrow, densely, minutely, rusty tomentellous, 0.5—3 cm long with few, short (up to 5 mm) branches and persistent narrow, tomentellous bracts and bracteoles. Flowers densely adpressed pilose, 2.5 mm long; calyx short.

PAPUA. N. Distr., Tufi Subdistr., near Budi Barracks, alt. 75 m, dense forest, Aug., fl., *Hoogland 4545* (L), flowers creamy.

CRYPTOCARYA SUBFALCATA Allen

Cf. Kostermans, Bibl. 435 no 288. 1964. — Typus: *Clemens 3907* (A), Morobe Distr., Yunzaing, alt. 1500 m; para-typus: *Clemens 3772* (L).

Additional specimen: TERRITORY OF NEW GUINEA. Morobe Distr., Wau-Salamaua Rd., alt. 1800 m, Jan., fl., *Womersley & Millar NGF 8492* (L).

CRYPTOCARYA SUBVELUTINA Elmer

Cf. Kostermans, Bibl. 435 no 290. 1964. — Typus: *Elmer 11737* (L, LE), Sept., fl., Todaya, Mt. Apo, Mindanao.

New synonym: *Cryptocarya oligophlebia* Merr.; cf. Kostermans, I.e. 425 no 230. — Typus: *Reillo 16155* (K), Aug.-Sept., fr., Basilan (not *Reillo 16155* of the same locality and date in A, which represents *Cr. ilocana* Vid.).

? *Cryptocarya pallida* Merr.; Kostermans, I.e. 426 no 238a. — Typus: *Ahem 594, 566* (not seen), Zamboanga.

Additional material: CELEBES. Locality not indicated, ster., *de Vriese & Teijsman* s.n. (L) et id., ster., *de Vriese* s.n. (L); Menado, Donggala, ster., 66 17059 (BO, L); Menado, Waleo, alt. 800 m, June, fr., 66 14334 (BO, L); Minahassa, ster., *Koorders 17451* (L); Isl. Batjan, ster., *de Vriese & Teijsman* s.n. (L). PHILIPPINES. Zamboanga del Norte, Mindanao, fr., *Frake PNH 38-072* and *38348* (L); Surigao, May, fl., *Wenzel 2602* (K).

*Cryptocarya sulavesiana* Kosterm., *spec. nov.*

Arbor ramulis minutissime dense sericeis foliis alternantibus subovato-lanceolatis coriaceis acuminatis supra glabra opaca nervo mediano gracilis prominulo costis subimpressis subtus dense minutissime sericeis nervo mediano costisque utrinque 6—8 subarcuato erecto-patentibus prominulis, apex subacuminatis, basi in petiolum contractis; paniculis axillaris terminalisque dense minute sericeis brevis multifloris floribus sessilibus sericeis.

TYPUS: *Cel/III-46* (L).

Tree; branchlets minutely densely adpressed pilose. Leaves spirally arranged, subcoriaceous, subovate-lanceolate, 2.5—8 X 4.5—16 cm, apex obscurely acuminate with sharp tip, base subrounded; upper surface smooth, dull, midrib prominent, slender, lateral nerves faint, slightly impressed; lower surface densely, minutely sericeous, midrib prominent, lateral nerves 6—8 pairs, suberect-patent, slightly arcuate, running out towards the margin. Petioles 8—10 mm, flattened above. Panicles axillary and terminal, densely, minutely sericeous, up to 6 cm long, many flowered; flowers sessile, 2 mm, sericeous.

DISTRIBUTION: Central Celebes.

Related to *Cr. aureo-sericea* Kosterm., but differs by the stiffer, narrower leaves, the shorter inflorescences and the larger flowers.

CELEBES. Malili, Usu, Kawata, Sept., fl., *Cel/III-46* (BO, L).

CRYPTOCARYA SULCATA Allen

Cf. Kostermans, Bibl. 435 no 291. 1964. — Typus: *Clemens 3450* (A); specim. *Clitens 1769* (A) exclud. (= *Cr. multinervis* Teschn.).

Additional specimen: TERRITORY OF NEW GUINEA. E. Highlands Distr., Wanatabi, 15 miles SW of Okapa, alt. 1600 m, Sept., fl., *Hartley TGH 13132* (L).

*Cryptocarya sumatrana* Kosterm., *spec. nov.*

Arbor ramulis glabris apicem versus minutissime dense rufo pulverulente sublanuginosis ramis lenticellatis foliis alternantibus chartaceis glabris ellipticis vel subobovato ellipticis utrinque obscure minutissime areolatis apice breve acuminatis basi acutis supra nitida nervo mediano subimpresso costis filiformibus planis subtus opacis nervo mediano prominibus costis utrinque 8—10 erecto-patentibus strictis graciles prominulis nerviis secundariis laxis parallelis prominulis petiolis cylindricis conspicuis infructescentiis axillaris terminalibusque glabris laxis paucis ramosis fructus cylindricus (immaturus) costatis.

TYPUS: *bb* 8798 (L).

Tree, branches lenticellate; branchlets smooth, glabrous, the apical part with a dense, very minute, pulverulent, sublanuginose tomentum. Leaves spirally arranged, chartaceous, elliptical to subovate-elliptical, 4 X 10—6.5 X 14 cm, shortly pointedly acuminate, base acute, both surfaces densely, minutely, obscurely areolate; upper surface glossy with impressed midrib, lateral nerves very slender, rather obscure; lower surface dull, midrib prominent, lateral nerves 8—10 pairs, erect-patent, straight (arcuate near the margin), slender, prominent, secondary nerves faint, parallel, prominulous. Petioles glabrous (in leaves of the flush pulverulently sublanuginose), cylindrical, 7—13 mm long. Infructescences axillary and terminal, glabrous, lax, with few, rather erect, straight branching, up to 10 cm long; immature fruit ellipsoid, ribbed, 5 x 9 mm.

DISTRIBUTION: South & Central Sumatra and Java.

SUMATRA. Bencoolen, Lais, Talang Benal, alt. 250 m, March, young fr., *bb* 8798 (BO, L); Redjang, Mt. Kaba, June, fr., *bb* 2265 (BO, L); Palembang, Lematang Ilir, alt. 75 m, Dec, jfr., *T. 834* (BO, L), ripe fruit globose, 2 cm diam., ribbed. JAVA. Bantam, Mt. Karang, June, fl., *Koorders 3457* (BO, L).

*Cryptocarya sumbawaensis* Kosterm., *spec. nov.*

Arbor ramulis glabris apicem versus minutissime pulverulente adpresse ferrugineo pilosis foliis alternantibus chartaceis vel rigide chartaceis glabris subovato-ellipticis obtusis basi breve acutis supra laevia nitida nervo mediano piano subtus dense minute reticulata nervo mediano paucis prominentibus costis utrinque 6—8 erecto-patentibus arcuatis prominulis petiolis longis paniculis axillaris terminalibusque dense minutissime aureo-sericeis parvis.

TYPUS: *Kostermans 19200* (L).

Tree, up to 30 m high, 40 cm diam.; bark smooth or cracked, reddish brown, 1 mm thick, living bark darker, 5—10 mm; branchlets glabrous with scattered lenticels, the flush or utmost apex minutely, pulverulently, adpressed pilose. Leaves spirally arranged, glabrous, chartaceous to thickly chartaceous, subovate-elliptical, 3 x 7—6 x 16 cm, obtuse, base shortly acute; upper surface usually smooth, glossy, midrib flat; lower surface

densely, minutely reticulate, midrib slightly prominent; lateral nerves 6—8 pairs, erect-patent, arcuate, prominulous. Petioles glabrous, up to 1.5 cm, channeled above. Panicles axillary and terminal, 4—6 cm, many-flowered, densely aureous-sericeous; flowers 2—2.5 mm.

Related to *Cr. glaucescens* R. Br.

W. SUMBAWA. Mt. Batulante, path from Batudulang- to Pusu, wet forest, common, Oct., fl., *Kostermans 19086* (A, BO, CANB, K, L, LE, G, P); trail from Batudulang to summit, alt. 800 m, April, young fr., *Kostermans 18-287* (A, BO, BRI, CANB, K, KOP, L, LE, G, P, SING, US); trail from Batudulang to Punik, slightly drier forest, alt. 700 m, Nov., fl., *Kostermans 19200* (A, BO, CANB, C, K, P, KOP.).

*Cryptocarya tesselala* Kosterm., *spec. nov.*

Arbor parva ramulis glabris laevis foliis alternantibus chartaceis glabris late ellipticis utrinque perdense prominule areolatis breve acuminatis basi rotundatis nervo mediano costisque supra piano subtus prominentibus costis utrinque 9—10 suberecto-patentibus strictis marginem versus arcuatim evanescentibus. Infructescentis axillaris brevis non ramosis minutissime perobscure pulverulente pilosis fructus subovoideo-ellipsoideus costatis glabris.

TYPUS: *Brass 28279* (L).

Tree 10 m; branchlets slender, smooth, lightbrown or grey; terminal leafbud obscurely, densely, minutely, pulverulently brown pilose. Leaves spirally arranged, glabrous, thinly chartaceous, broadly elliptical, 12 x 25—13 x 26 cm, apex shortly acuminate, tip pointed, base rounded; both surfaces densely, conspicuously, prominulously areolate, midrib and the 9—10 pairs of primary nerves hardly raised on upper, prominent on lower surface; lateral nerves erect-patent, rather straight, arcuately running out towards the margin. Petiole up to 25 mm long, slightly concave above. Infructescence axillary, unbranched, slender, 3 cm long, obscurely, densely, minutely, pulverulently brown pilose. Fruit subovoid-ellipsoid, ribbed, smooth, 25 X 17 mm (immature), top notched.

ROSSEL ISL. Abaleti, rainforest substage, alt. 50 m, leaves greyish below, fr. unripe, *Brass 28279* (L).

## CRYPTOCARYA TEYSMANNIANA Miq.

Cf. *Kostermans*, *Bibl.* 436 no 298. 1964. — Typus: *Teijsmann H.B. 3643*, fr. (U), Toeboean, Oganoeloe, Palembang, vernacular name "medang taai andjieng", which means dog shit medang; the man giving this vernacular name was pulling Teijsmann's leg.

New synonyms: *Cryptocarya elliptilimba* Merr.; cf. *Kostermans*, *I.e.* 397 no 82. — Typus: *Ehner 20478* (L), *20&SS* (L), *21014* (A, L).

*Cryptocarya elmeri* Merr.; cf. *Kostermans*, *I.e.* 397 no 83. — Typus- *Elmer 211,02* (A, L).

*Cryptocarya everettii* Merr. cf. Kostermans, Ie. 398 no 89. — Typus: *Everett 4236* (US), Negros, fl. Apr.

Additional specimens: MALAY PENINSULA. Ulu Gombak For. Res., April, fr., *Key. 99005* (L); *ibid.*, March, fr., *Kep. 99384* (L); SABAH. Tawau, Kalabakan, Nov., fr., *SAN A 4U3* (L); mile 12y<sub>2</sub> Rd. Kalabakan, July, fr., *SAN 30U9* (L); Balung R., alt. 400 m, July, fr., *SAN 37121* (L); *ibid.*, Nov., fr., *SAN 17174* (L); Quoin Hill Rd., Sept., fl., *SAN 31213*; Membalun For. Res., alt. 60 m, Sept., fr., *SAN 47418* (L); Apas Rd., Sept., fl., *SAN 31254* (L); Kawa Rd., alt. 50 m, Sept., fr., *SAN 40531* (L); Umasumas, May, fl., *BNBFD 4897* (K, L); Sandakan, Gomantong For. Res., July, fl., *SAN 38178* (L); Labuk Rd., Jan., fr., *SAN J,8U28* (L); Lahad Datu, 160 m alt., July, fl., *SAN 18391* (L); Sipitang, alt. 800 m, Sept., fl., *SAN 16623* (L); Tenom, Padas Gorge, Sept., fr., *SAN 198.50* (L). SARAWAK. Lundu, alt. 1200 m, April, fr., *Paie 13636* (L). INDONESIAN E. BORNEO. Balikpapan Distr., Mt. Beratus, alt. 650 m, ster., *Kostermans 7568* (BO, L), *7320* (BO, L), *7649* (BO, L).

#### CRYPTOCARYA TOMENTOSA Bl.

Cf. Kostermans, Bibl. 436 no 301a. 1964. — Typus: Borneo, sine coll., ster. (L). New synonym: *Cryptocarya fuliginosa* Elmer, cf. Kostermans, Ie. 402 no 102. — Typus: *Elmer 8531* (L, LE), Baguio, Luzon.

Additional specimens: PHILIPPINES. *Elmer 5897* (K), March, fr., Baguio; *Miranda F.B. 24155* (L), July, young fr., Olutanga Isl.

#### CRYPTOCARYA VERRUCOSA Teschn.

Cf. Kostermans, Bibl. 439 no 314. 1964.

The type specimens *Ledermann 10097* and *8714* were not available for examination and might not be extant any more. The specimens, enumerated here, agree with the description, except for some minor points; the leaves should be minutely lanuginose, in our specimens the adult leaves are glabrous, the young ones densely, minutely sericeous. The conspicuous character, stressed by Teschner, the pale warts (lenticels) on the branchlets and basal part of inflorescence, are conspicuous.

W. IRIAN. Mioswaar, Ransiki, S. of Manokwari, ster., *BW 1263* (L), tree 14 m, diam. 36 cm, vernacular name "Menako" (Manikiong language); *ibid.*, *BW 121.3* (L), ster., tree of 24 m, diam. 50 cm; *ibid.*, June, fl., *Koster BW 1235* (L); *ibid.*, fr., June (abnormal fr.), *Koster BW 1229* (L), tree 19 m tall, 45 cm diam.; *ibid.*, June, buds, *Koster BW 1260* (L), tree 22 m, diam. 62 cm; Beriat, 12 km S. of Teminabuan, alt. 10 m, April, buds, *Kalkman BW 624.6* (L), tree 26 m, bole 20 m, diam. 52 cm, buttresses up to 1.5 m, bark greenish grey, shallowly fissured, sapwood 5 cm, white, heartwood pink, vernacular name "Orofon" (Tehid language); *ibid.*, secondary forest, April, fl., *Versteegh 4937* (L), tree 30 m, diam. 45 cm, buttresses symmetrical, 1 m high, bark grey, wood white, no heartwood, fls. yellow; Warsamon valley, E. of Sorong, alt. 40 m,

ster., *BW 12290* (L), rather common tree of 30 m, bole 14 m, diam. 40 cm, buttresses very low, outer bark 0.5 mm, lightbrown, smooth, inner bark white within, slash 4 mm, brown, wood light brown, vernacular name "Kalaso" (Mooi); *ibid.*, ster., *BW 12283* (L), outer bark 0.5 mm, brown, not fissured, strongly peeling with large flakes, inner bark pink within, slash 5 mm, red, wood pink; *ibid.*, ster *BW 12266* (L), outer bark 0.5 mm, lightbrown, not fissured, little peeling, inner bark pink within, slash 10 mm, brown, sapwood 6 cm, yellowish, heartwood pink; Kebar, Asiti, alt. 445<sup>1</sup> m, ster., *BW 11369* (L), tree 13 m, diam. 21 cm, vernacular name "Niesaam" (Kebar); S. W. of Bernhard Camp, alt. 800 m, *Brass & Versteegh 13200* (A, L), ster., frequent tree of 30 m, diam. 43 cm, bark 8 mm, grey, fairly rough, sapwood rose, heartwood redbrown; *ibid.*, ster., *Brass & Versteegh 13585* (A, L), tree of 201 m, bark 6 mm, grey brown, wood redbrown. TERRITORY OF NEW GUINEA. S. side of Busu R., about 12 miles N. of Lae, Morobe Distr., Nov., fl., *Hartley TGH 12396* (L).

#### *Cryptocarya viridiflora* Kosterm., spec. nov.

Arbor mediocris ramulis gracilibus dense minutissime rufo sublanuginosis foliis alternantibus papyraceis subobovato-oblongis acuminatis basi acutis supra glabra (nervo mediano piano excepta) obscure areolata costis subimpresis subtus glauca sparse minutissime pilosa, prominule reticulata nervo mediano prominentibus costis utrinque 8—10 erecto-patentibus substrictis marginem versus arcuatis prominentibus paniculis axillaris terminalibusque dense minute rufo sublanuginosis multifloris floribus glabris glaucis.

TYPUS: *Maenu'u BSIP 6052* (L).

Tree, 13 m high, 35 cm diam., bole crooked; buttresses thick, steep, to 120 cm; bark white, smooth; wood hard, pale brown; living bark hard, dark brown. Branchlets rather slender, densely, minutely, rusty sublanuginose. Leaves spirally arranged, papery, elliptical to subobovate-elliptical, 6 X 12—7 x 15 cm, shortly acuminate, base acute, unequal; upper surface obscurely areolate, glabrous except the flat midrib, ribs slightly impressed; lower surface sparsely, minutely pilose, midrib prominent; lateral nerves 8—10 pairs, erect-patent, hardly arcuate (except at margin) prominulously reticulate. Petioles ca 1 cm, densely sublanuginose. Panicles axillary and terminal, densely orange-rusty sublanuginose 9 (axillary) to 17 (terminal) cm long, many-flowered, lateral branches up to 2 cm. Flowers glabrous, glaucous, green, scented, inside of tepals pilose at base.

SOLOMON ISL. SE New Georgia, Viru Harbour, low, June, fl., young fr. (ribbed), *Maenu'u BSIP 6052* (L). TERRITORY OF NEW GUINEA. Oomsis Creek, 18 miles W. of Lae, alt. 300 m, July, fl., *Hartley TGH 10557* (L); perhaps also: MOROTAI ISL. Mt. Sangowo, 800 m, May, fr., common, *Kostermans 1013* (BO, L).

#### CRYPTOCARYA WEINLANDII K. Schum.

Cf. Kostermans, Bibl. 439 no. 317. 1964. — Typus: *Weinland 220* (L, LE), fl., Finschhafen.

Additional specimens: SOLOMON ISL. Bougainville Isl., Korawai Hills, W. of Toiumonapu Plantation, *Pometia coriacea* forest, July, fr., *van Roy en NGF 1636 k* (A, K, L), tree 10 m, diam. 7.5 cm; Guadalcanal, Mt. Austen near Honiara, alt. 300 m, March, fr., *Whitviore BSIP 781* (L); *ibid.*, Dec, young fr., *Kere BSIP 5027* (L); E. San Cristobal, 3 miles W. of Wainoni, Huni R., low, Aug., fl., *Whitmore 6337* (K). PAPUA. Centr. Div., 0.5 mile N. of Flowers's sawmill, June, fr., *Gray NGF 7170* (L). TERRITORY OF NEW GUINEA. Sepik R. near the yellow river, Oct., young fr., *Womersley NGF 3911* (L); Morobe Distr., Bulolo logging area, alt. 800 m, April, buds, *Havel NGF 11190* (L); Morobe Distr., Umi R., Markham valley, alt. 480 m, Nov., fl., *Brass S2659, 32666* (A), lower leaf axils barbellate; Madang Distr., Josephstaal, alt. 80 m, Sept., fl., *White NGF 10243, 10SO6* (L). W. IRIAN. Kebar valley, alt. 730 m, ster., *BW 7712* (L).

*Cryptocarya womersleyi* Kosterm., spec. nov.

Arbor ramulis laevibus crassis apicem versus minutissime pulverulente pilosis foliis alternantibus coriaceis glabris ellipticis obscure acuminatis basi breve acutis utrinque dense reticulatis supra nervo mediano piano costis filiformibus subtus pallidiora nervo mediano prominentibus costis utrinque 6—8 prominentibus erecto-patentibus vix arcuatis petiolis subcylindricis paniculis axillaris ramiflorisque dense minutissime adpresse pilosis foliis brevioribus fructus ellipsoideus obscure costatis.

TYPUS: *Womersley NGF 7815* (L).

Tree, branchlets rather thick, stiff, smooth, towards apex minutely, pulverulently pilose. Leaves spirally arranged, coriaceous, glabrous, elliptical, obscurely shortly acuminate, base shortly acute; upper surface obscurely, densely reticulate, midrib prominent (near apex subimpressed), ribs filiformous, prominent or slightly sunk; lower surface pale, midrib prominent, lateral nerves prominent, erect-patent, slightly arcuate, 6—8 pairs. Petioles up to 15 mm long, hardly flattened above. Panicles axillary, many-flowered, up to 8 cm long, densely, minutely adpressed pilose; infructescences ramiflorous, stiff, up to 10 cm long; fruit ellipsoid, up to 9 x 12 mm, smooth, obscurely ribbed.

TERRITORY OF NEW GUINEA. Morobe Distr., Bulolo Valley, Partep Creek, Lae-Wau Rd., alt. 800 m, Nov., buds, fr., *Womersley NGF 7815* (L).

CRYPTOCARYA WRAYI Gamble

Cf. Kostermans, Bibl. 441 no 323. 1964. — Typus: *Wray 3853* (K), Mt. Bubun, alt. 1600 m, March, fr.

New record: BRUNEI. Summit of Mt. Pagon Periok, rugged, exposed knife-edge sandstone ridge, shrub, April, fr., *Ashton Brun. 2388* (L).

*Cryptocarya xylophylla* Kosterm., spec. nov.

Arbor ramulis glabris nigris (in sicco) laevis foliis alternantibus percrassis glabris bullatis triplinervis plerumque longe acuminatis lanceolatis

basi cuneatis supra opaca nervo mediano costis nerviis secundariisque parallelis impressis subtus subglauca nervo mediano prominente nerviis binis basalibus usque ad apicem foliorum adscendentibus parum arcuatis nerviis basalibus accessoriis ad dimidio foliorum lamina adscendentibus nerviis lateralis deest vel binis adscendentibus nerviis secundariis parallelis horizontalis prominentibus petiolis brevis; paniculis axillaris terminalibusque multifloris apicem versus perdense minutissime flavo sublanuginosis floribus minutis.

TYPUS: *Carr 13786* (L).

Tree 17 m high, 27 cm in diam. in lower moss forest; outer bark reddish brown; branchlets glabrous, smooth, black (dried). Leaves spirally arranged, very rigidly coriaceous, glabrous, lanceolate to subovate-lanceolate, 1 X 4—2.5 X 6 cm, apex as a rule long-acuminate with slightly emarginate, thickened tip, base cuneate; upper surface bullate, midrib, ribs and the parallel, horizontal secondary nerves impressed; lower surface subglauous, lamina deeply concave between the main nerves, midrib prominent, the almost basal pair of lateral nerves slightly arcuate, ascending to almost the top of the leaf, accessory basal nerves (lower down) often reaching half the leaf blade length, lateral nerves none or one on either side, strongly ascending, straight, secondary nerves parallel, prominent, horizontal; the 2 main basal nerves sometimes with arcuate, distant nerves at the marginal side. Petiole 2—4 mm long, flat above. Panicles axillary and terminal, up to 2 cm (axillary) to 6 cm (terminal), the main peduncle and branches glabrous, the remainder densely, minutely, yellowish sublanuginose; flower buds yellowish green, 1.5 mm long, densely, minutely sublanuginose. Fruit hard, blue black (not seen).

In the para-type specimen the leaves are 3.5 x 11 cm.

DISTRIBUTION: Mossy forest at high altitudes.

Above the Gap, alt. 2700 m, buds, *Carr 1378-6* (A, L). TERRITORY OF NEW GUINEA. Morobe Distr., summit of Mt. Kaindi near Edie Creek, alt. 2650 m, May, buds, *Hartley TGH 11830* (L).

CRYPTOCARYA ZOLLINGERIANA Miq.

Cf. Kostermans, Bibl. 441 no 327a. 1964. — Typus: *Zollinger 1507* fU), fl., Java. New synonyms: *Cryptocarya tenuifolia* Ridley; cf. Kostermans, I.e. 436 no 296. 1964. — Typus: *Ridley s.n.* (K), March, fl., Ulu Gombak.

*Cylicodaphne fusca* Blume; cf. Kostermans, I.e. 448 no. 15. — *Litsea fusca* (Bl.) Boerl.; cf. Kostermans, I.e. 821 no. 150. — Typus: *Praetorius s.n.*, Sumatra, ster. (L, 2 sheets), leaves with large axillar galls. — In *Cryptocarya* this specific epithet is already occupied.

Additional material: MALAY PENINSULA. 2nd mile Mawai Jemaluang Rd., April, fl., *Corner SFN 32872* (A, BO, K, L, SING); Febr., fr., *Corner SFN 28971* (K); April, fr., *Corner SFN 29289* (K); Phytochem. Survey, Oct., buds *1818* (K). INDONESIA. BORNEO. Nunukan Isl., March, young fr., 66 34547 (BO, L).

## ENDIANDRA R. Br.

**Endiandra minutiflora** Kosterm., *spec. nov.*

Arbor mediocris in omnibus partibus glabris innovatione inflorescentiisque exceptis ramulis gracilibus strictis laevis foliis alternantibus chartaceis ellipticis brevissime late acuminatis basi cuneatis supra obscure laxe reticulata vel sublaevia nervo mediano costisque impressis subtus prominule laxe reticulata nervo mediano prominentibus costis utrinque 6—7 erecto-patentibus paullo arcuatis prominulis petiolis longis supra canaliculatis paniculis axillaris persparse minutissime pulverulente pilosis mox glabris foliis brevioribus pedunculis sublongis subgracilis ramis paucis brevibus floribus minutis tepalibus ovatis acutis staminibus 3 antheris extrorsis depresso-ovatis glandulis basalibus adest ovario non vidi.

TYPUS: *Floyd, Gray & Middleton NGF 8073 (A).*

Tree, 10—12 m high, 15 cm diam., glabrous in all its parts except the minutely sericeous endbud and the inflorescences; branchlets smooth, rather slender, straight, cylindrical, at apex obscurely, laxly, minutely pilose. Leaves spirally arranged, chartaceous, elliptical, 5 X 12.5—8.5 x 18 cm, broadly, shortly acuminate, base cuneate; upper surface obscurely, laxly reticulate, main nerves impressed; lower surface laxly, prominently reticulate, midrib prominent, lateral nerves 6—7 pairs, prominent, erect-patent, slightly arcuate. Petioles 2—3 cm long, narrowly channeled above. Panicles axillary, obscurely, very laxly, pulverulently pilose, glabrescent, up to 10 cm long, peduncle 2—5 cm, rather slender, branchlets few, stiff, up to 2 cm long (basal ones), bracts minute, subpersistent under the flowers; flowers 3 mm diam., glabrous, pedicel 1.5 mm, sparsely pilose; tepals ovate, acutish, 1.5 mm long; stamens 3, anthers depressed ovate, acute, cells 2, large, extrorse; basal glands globose. Ovary not seen.

Only a single mature flower was available for dissection and this was partly malformed.

PAPUA. Gulf Distr., A. P. C. logging area, Seribi R. near Middletown, July, 1961, *Floyd, Gray & Middleton NGF 8065, 8073 (A).*

## ENDIANDRA SPHAERICA Allen

*Endiandra sphaerica* Allen in J. Arn. Arb. 23: 150. 1942; Kostermans, New and Crit. Mai. Pl. 4: 31. 1955; in Reinwardtia 4: 31. 1956; Bibl. Laur. 495 no 80. 1964.

The type specimen *Brass 7512 (A, BM, K, L)* represents *Beilschmiedia novoguineensis* Teschner, whereas the loose fruit, after which the specific epithet was created, belong to a species of *Prunus (Pygeum)*. The fruit have indeed a persistent calyx, but the sepals are different in number from those of Lauraceae.

**Endiandra whitmorei** Kosterm., *spec. nov.*

Arbor mediocris ramulis subangulatis glabris laevis foliis alternantibus chartaceis vel rigide chartaceis glabris subobovato-ellipticis brevissime obscure acuminatis vel obtusis basi cuneatis utrinque laxe prominule reticulatis supra nervo mediano piano costis filiformibus subtus glaucus nervo mediano prominentibus costis utrinque 5—6(—8) erecto-patentibus gracilibus strictis marginem versus arcuatim evanescentibus petiolis longis paniculis axillaris glabris vix ramosis gracilibus floribus longe pedicellatis staminibus 3, introrsis.

TYPUS: *Whitmore BSIP 1756 (K).*

Tree, reaching 17 m with deep, dense, dark green crown; equal plank buttresses up to 160 cm; bark smooth, rugose, with a fine pattern of vertical cracks, grey, small, fawn lenticels; slash: wood cream, tinged pink inwards, bark orange brown, firm, fibrous with cream radial fingers. Branchlets glabrous, angular; end bud minutely sericeous. Leaves spirally arranged, chartaceous to stiffly chartaceous, subobovate elliptical, 4 X 9—7 X 13 cm, obtuse or obscurely, shortly acuminate, base cuneate, both surfaces laxly, prominently reticulate, upper surface with flat midrib and filiformous ribs, lower surface glaucous, midrib prominent, lateral nerves 5—6 pairs, erect-patent, straight, towards margin running out arcuately. Petioles 15—20 mm long, hardly flattened above. Panicles axillary, almost glabrous, narrow, lax, up to 7 cm long, consisting of a slender peduncle and few, slender, up to 1.5 cm long branchlets, flowers glabrous, 2—3 mm; tepals ovate, acute; stamens 3, elongate-ovate, 2-celled, extrorse, basal glands conspicuous; filaments very short, pilose; staminodes conspicuous; ovary glabrous with a short style and inconspicuous stigma. Fruit obtuse, ellipsoid, 2.5 x 4.5 cm, cotyledons pink.

Resembles *E. gillespiei* A. C. Smith.

SOLOMON ISL. Santa Cruz group, Vanikoro, middle ridge, 500 m, April, fl., young fr., *Whitmore BSIP 1756 (K)*; *ibid.*, Lawrence valley, May, buds, *Whitmore BSIP 1807 (K)*; W. Choiseul, Roke R., March, fl., *Whitmore's Coll. BSIP 5U07 (L)*, flowers yellow, not scented; slopes of Mt. Komboro, alt. 150 m, March, fr., *Whitmore BSIP U0U1 (K, L)*, fruit smooth, ellipsoid, 1.5 X 3 cm.

## LINDEEA Thunb.

**Lindera kinabaluensis** Kosterm., *spec. nov.*

Arbor? in omnibus partibus glabris innovatione exceptis ramis griseis suberosus ramulis laevibus subgracilis atris (in sicco) foliis alternantibus coriaceis rigidis oblongis brevissime acutis vel subacuminatis basi in petiolum contractis brevissime cuneatis utrinque laxe prominule reticulata vel supra laevia nervo mediano supra plana vel obscure impresso costis obscuris saepe subimpressis subtus nervo mediano prominulo costis pergracilibus subpatentibus subarcuatis prominulis petiolis brevis umbellulae pedunculis

gracilis longis ramulis brevissimis axillaribus impositus plerumque singularis.

TYPUS: *SFN 26578* (K).

Tree (?) glabrous in all its parts, the minutely adpressed rusty pilose endbuds excepted; branches grey, corky; branchlets smooth, glossy, reddish brown. Leaves spirally arranged, stiffly coriaceous, oblong, 3 x 4—4 X 11 cm to broadly elliptical, 5.5 X 9.5 cm, very shortly acute or obscurely acuminate, base contracted into the petiole, shortly cuneate, both surfaces laxly, prominulously reticulate or smooth above; upper surface with flat or scarcely impressed midrib and very slender, obscure, often slightly impressed lateral nerves; lower surface with prominulous midrib; lateral nerves slender, prominulous, rather patent, somewhat arcuate, 6—9 pairs. Petiole 5—7 mm long, flattish above. Umbels (4 mm in diam. just before anthesis) on slender, 1—2 cm long peduncles, which are (usually only one) placed on axillary shortened branchlets of 5 mm long.

SABAH. Mt. Kinabalu, Marai Parai, 1700 m, March, buds, *Clemens 82362* (BM, K); *ibid.*, alt. 1400 m, March, buds, *SFN 26578* (K, SING); Ranau, above Kamarango, alt. 2500 m, Febr., buds, *Meyer SAN 29258* (K, L), open, grassy places with *Leptospermum* and *Calamus*; Colombon R., 3000 m, July, buds, *J. & M.S. Clemens 35102* (BM); Marai Parai, alt. 1600 m, March, buds, *Clemens 31897* (BM).

*Lindera novoguineensis* Kosterm., *spec. nov.*

Arbor humilis ramulis gracilibus junioribus cum foliis perdense rufo tomentosus foliis alternantibus pergamentaceis subovato-ellipticis caudato-acuminatis basi breve acutis utrinque (sub lente) dense areolatis, supra glabra, nerviis primariis impressis exceptis subtus glauca (in vivo) nervo mediano prominentibus costis subbasalibus binis adscendentibus costis utrinque 3 prominentibus marginem versus arcuatis nerviis secundariis conspicuis parallelis horizontalis petiolis distinctis inflorescentiis glomerulatis sessilibus axillaribus floribus dense pilosis.

TYPUS: *Brass 12802* (L).

Slender tree, 4—8 m high, 6 cm in diam.; branchlets slender, cylindrical, the young ones densely rusty tomentose. Leaves alternate, thin, papery, subovate-elliptical, 2 X 6.5—4 x 10 cm, caudate-acuminate, tip sharp, base shortly acute, both surfaces (high power lens) densely reticulate; young leaves very densely, rusty adpressed pilose; adult leaves on the upper surface glabrous (except the sunken main nerves); lower surface glaucous (fresh), main nerves densely tomentose, midrib prominent, two subbasal nerves prominent, ascending to 2/3 of the leafblade length; lateral nerves 3(—4) pairs, rather erect and ascendent, slightly arcuate, prominent, secondary nerves prominulous, parallel, horizontal, rather lax. Petiole slender, densely tomentellous, 5—10 mm long. Inflorescences glomerulate, sessile, axillary; flowers yellowish, densely adpressed pilose; fruit blue-black, ellipsoid to subglobular, 3—5 mm diam., apiculate, smooth, seated

on a shallow cupule, surrounded by the remnants of the perianth, peduncle slightly obconical, 5 mm, pilose.

DISTRIBUTION: New Guinea, Morotai Isl., Isl. Batjan, at higher altitudes.

W. IRIAN. 6 km S. W. of Bernhard camp, Idenburg R., 1200 m, Febr., fl., *Brass 12802* (L); Vogelkop, Arfak Mts, Angi Gita Lake, alt. 1900 m, Oct., fl., fr., *Kostermans 2007* (BO, L); *2163* (BO, L); *2298* (BO, L), leaves up to 4 X 13 cm, *2309* (BO, L); S. slope of Mt. Nettoti, path Andjai-Wekari R. in *Conifer-Nothofagus* forest, Nov., fl., *van Royen & Sleumer 7885* (L). MOLUCCAS. Morotai Isl., Mt. Para-Para, alt. 1000 m, May, fr., *Kostermans 1239, 1298* (BO, L); Isl. Batjan, S. slope of Mt. Sibela, alt. 1000 m, ster., *66 232U7* (BO, L).

LITSEA Lam.

*Litsea acuminata* (Tesehn.) Kosterm., *comb. nov.*

*Tetradenia acuminata* Teschner (basonym) in Engl. bot. Jahrb. 58: 392. 1923; cf. Kostermans, *Bibl.* 1364 no 2. 1964. — *Neolitsea acuminata* (Tesehn.) Merr., cf. Kostermans, *I.e.* 1036 no. 2. — Typus: *Ledermann 9742* (L).

*Litsea amaroideocarpa* Kosterm., *noun, nov.*

*Lindera grandifolia* Stapf (base) in Trans. Linn. Soc, ser. 2, 4: 220. 1894; Kostermans, *Bibl.* 752 no 50a. 1964. — Typus: *Haviland 1334*(K), Kinabalu, Penokok, alt. 1000 m.

Additional specimens: SABAH. Mt. Kinabalu, Penibukan, E. Dahobong R., forest ridge, alt. 1300 m, Nov., young fr., *J. & M. S. Clemens 50076* (L) et March, buds, *J. & M. S. Clemens 32069* (L).

*Litsea barringtonioides* Kosterm., *spec. nov.*

Arbor mediocris ramulis crassis griseis glabris foliis chartaceis glabris subverticillatis spathulatis magnis obtusis basi auriculatis supra plerumque laevia, nervo mediano lato piano vel subimpresso, costis gracilibus impressis subtus dense obscure reticulata nervo mediano valde prominentibus costis utrinque 20—25 subpatentibus strictis prominulis marginem versus arcuatim evanescentibus nerviis secundariis laxis prominulis petiolis brevis vel longis crassis inflorescentiis ramifloris racemiferis perdense minutissime adpresse pallide-brunneo pilosis brevis umbellis magnis breve pedunculatis fructus depresso-globosus apiculatus cupula subplana parva pedicello crasso.

TYPUS: *Kostermans 13261* (L).

Tree, 8—15 m; bark smooth, soft, pale brown or white, 1 mm thick; living bark 5—10 mm, pale dirty yellow or brownish; sapwood 2.5 cm, white; heartwood dirty yellow with cigarboxwood smell. Branchlets very thick with large leafscars and decurrent leaf spurs, starting from either side the petiole forming a characteristic pattern of angular, elongate-ovate

figures; endbud densely, minutely, adpressed pilose. Leaves subverticillate, chartaceous, glabrous (in young leaves, under high power lens some sparse minute, adpressed hairs on the lower surface), spatulate, 11 x 38—18 X 47 cm, top obtuse, base gradually acute and auricled; upper surface usually smooth, midrib flat or slightly impressed, lateral nerves slender, subimpressed; lower surface densely, minutely reticulate, midrib strongly prominent, lateral nerves 20—25 pairs, rather patent, slender, rather straight, near margin arcuate, secondary nerves prominulous, laxly reticulate. Petioles thick, 5—40 mm long. Inflorescences on the branches, densely, minutely pale brown, adpressed pilose, racemiform, main peduncle up to 2.5 cm long bearing the shortly peduncled (3 mm), large (1 cm diam.) umbels; florets tomentose; stamens small, filaments slender, long, tomentose. Fruit depressed globose, up to 2 cm diam., 12 mm high, above flattened with a marked point; cup thick, small, shallow, 10—12 mm diam. at apex, merging into a thick, 10—15 mm long, crusty, brown pedicel.

INDONESIAN E. BORNEO. W. Kutei, Telen R., alt. 700 m, Oct., male fl., *Enderit 4615* (BO, L); E. Kutei, Menubar R. region near Sangkulirang, 20 m alt., loamsoil and lime, ster., *Kostermans 5198* (BO, L); Mt. Medadem, N. of Sangkulirang, alt. 100 m, sandstone and limestone, July, fr., *Kostermans 13261* (A, BO, K, L); Berau, Mt. Has Mapulu, alt. 400 m, limestone, Sept., female fl., *Kostermans 14-000* (A, BO, K, L, SING).

*Litsea casearioides* Kosterm., *spec. nov.*

Arbor in omnibus partibus glabris foliis junioribus inflorescentiis exceptis ramulis cylindricis laevibus vel striatis foliis alternantibus chartaceis ellipticis breve acuminatis basi rotundatis vel subcordatis supra obscure dense parallele reticulatis nervo mediano prominulo basin versus impressis costis filiformibus subtus sublaevia nervo mediano prominulo costis utrinque 13—18 prominulis erecto-patentibus substrictis marginem versus arcuatis foliis perjunioribus dense minutissime adpresse pulverulente pilosis petiolis brevis canaliculatis inflorescentiis brevissimis axillaribus dense minutissime adpresse pilosis griseis pedunculis umbellatis gracilibus glomeratis.

TYPUS: *SAN 19047* (L).

Tree, 12—19 m high, diam. up to 12 cm; bark smooth, flaky, 0.5 mm; living bark 5 mm, light brown or pink, soft; cambium grey; sapwood white. Branchlets longitudinally striate, glossy, rather slender. Leaves spirally arranged, chartaceous, elliptical, shortly acuminate, base rounded or subcordate; upper surface smooth or with a dense parallel pattern of secondary nerves, midrib prominulous, at base impressed, ribs filiformous, lower surface rather smooth, midrib prominulous, lateral nerves 13—18 pairs, prominulous, erect-patent, rather straight, arcuate towards margin. The unfolded leaves of the flush densely, minutely, pulverulently, adpressed pilose; this pilosity sometimes found on the main nerves of the lower surface of young leaves. Petioles up to 12 mm long, narrowly channeled

above. Inflorescences short, axillary, densely, minutely pulverulently, adpressed, grey pilose; peduncles (immature) slender, up to 5 mm long, clustered.

SABAH. Sandakan, Tumudong Camp, Dec, buds, *James Ah Wing SAN 1904-7* (I.). INDONESIA E. BORNEO. Balikpapan Distr., Sg. Wain, N. of Balikpapan, alt. 10 m, periodically inundated along rivulet, tree with 60 cm high buttresses, ster., *Kostermans 4184* (BO, L).

*Litsea clarissae* (Tesch.) Kosterm., *comb. nov.*

*Tetradenia clarissae* Teschner (basionym) in Engl. bot. Jahrb. 58: 390. 1923; cf. Kostermans, Bibl. 1366 no 13. — *Neolitsea clarissae* (Tesch.) Merr.; cf. Kostermans, I.e. 1039 no 24. — Typus: *Ledermann 6704* (L).

*Litsea formanii* Kosterm., *spec. nov.*

Arbor ramulis angulatis perdense minutissime pulverulente sericeis foliis alternantibus rigide chartaceis ellipticis obtusis basi cuneatis utrinque laxe prominule reticulatis supra glabra nitida nervo mediano impresso costis filiformibus planis subtus dense minutissime sericeis nervo mediano prominentibus costis utrinque (9—)11 erecto-patentibus prominentibus strictis marginem versus arcuatis petiolis longis supra plana infructescentiis ramifloris dense minutissime pulverulente pilosis pedunculis umbellulorum sessilis cupulis parvis pedicellis distinctis.

TYPUS: *Forman 271* (K).

Tree 20 m high, 30 cm diam.; branchlets angular, densely, very minutely pulverulently sericeous. Leaves spirally arranged, rigidly chartaceous, elliptical, 6 x 12—9 X 22 cm, obtuse, base cuneate; both surfaces laxly, prominulously reticulate; upper surface glossy, glabrous, midrib impressed, ribs faint; lower surface densely, minutely sericeous, midrib prominent, lateral nerves (9—)11 pairs, prominent, erect-patent, rather straight, towards margin arcuate. Petioles glabrescent, 1.5—3 cm long, flat or slightly channeled above. Infructescences ramiflorous, densely, very minutely sericeous, consisting of fascicles of peduncled umbels; peduncles 1.5—2 cm long; cup semi-globose, 3—4 mm diam. at apex, thin, 1.5—2 mm deep on a ca 5 mm long, hardly thickened pedicel; fruit immature.

N. CELEBES. N. slope of Mt. Klabat, alt. 600 m, June, fr., *Forman 271* (K).

LITSEA GRANDIS Hk. f. var. JAVANICA (Meissner) Boerl.

Cf. Kostermans, Bibl. 828 no 179. 1964. — *Tetranthera grandis* var. *javamca* Meissner; cf. Kostermans, I.e. 1398 no. 101. *i*

In Kew there is a specimen *Teysniann* s.n. Java, fl., which is *Litsea castanea* Hk. f.!

***Litsea lanceolata* (Bl.) Kosterm., comb. nov.**

*Aperula lanceolata* Blume (basionym) in Mus. bot. Lugd. bat. 1(23) : 367. 1851; Kostermans, Bibl. 93 no. 8. 1964. — *Lindera lanceolata* (Bl.) Boerl.; cf. Kostermans, I.e. 755 no 63. — Typus: *Blume* s.n., Java, buds (L, 4 sheets).

New synonym: *Litsea sarawacensis* Gamble; cf. Kostermans, I.e. 875 no 407.

***Litsea lithocarpoides* Kosterm., spec. nov.**

Arbor (?) in omnibus partibus glabris innovationibus inflorescentiisque exceptis ramulis subangulatis foliis alternantibus rigide coriaceis oblongis obtusis basi in petiolum contractis utrinque laevis sub lente obscure areolatis supra nitida nervo mediano piano costis filiformibus subimpressis subtus nervo mediano prominulo costis utrinque 3—5 obscuris filiformibus arcuatis petiolis distinctis racemis axillaris brevissimis vel umbellis subsessilis ebracteatis umbellis paucis breve pedunculatis minutissime sericeis.

TYPUS: /. & M.S. *Clemens* 33823 (L).

Tree (?) in all its parts glabrous except the minutely grey-sericeous endbuds and inflorescences; branchlets towards apex subangular. Leaves spirally arranged, rigidly coriaceous, oblong, 2 X 3—3 x 5 cm, obtuse, base contracted into the 5—7 mm long petioles, which are broadened and flat near the apex above; both surfaces smooth (under a high power lens densely, minutely, obscurely areolate); upper surface glossy, midrib flat, ribs obscure, slender, subimpressed; lower surface with prominent midrib, lateral nerves obscure, slender, arcuate, 3—5 pairs. Racemes axillary, very short (up to 3 mm) or umbels subsessile, ebracteate, bearing a few, shortly peduncled (up to 3 mm), minutely sericeous umbels.

SABAH. Mt. Kinabalu, Colombon R., alt. 3150 m., June, buds, *J. & M. S. Clemens* 33823 (K, L).

***Litsea melchioriana* (Teschn.) Kosterm., comb. nov.**

*Tetradenia melchioriana* Teschner (basionym) in Engl. bot. Jahrb. 58: 389. 1923, cf. Kostermans, Bibl. 1369 no 34. 1964. — *Neolitsea 'melchioriana* (Teschn.) Merr.; cf. Kostermans, I.e. 1044 no 63. — Typus: *Ledernumm* 9980, 10H2 (L).

***Litsea meyeri* Kosterm., spec. nov.**

Arbor parva vel frutex ramulis apicem versus minutissime dense rufo sublanuginosis ramis gracilibus glabris griseis laevibus foliis alternantibus glabris chartaceis anguste ellipticis vel anguste subobovato-ellipticis distincte acuminatis basi longe cuneatis utrinque (supra obscure) dense prominule reticulatis supra nervo mediano costisque filiformibus subplanis subtus nervo mediano prominulo costis utrinque 7—9 erecto-patentibus prominulis gracilibus subarcuatis petiolis longis gracilibus racemis axillaris perdense minute ferrugineo sublanuginosis saepe longis umbellis pedunculatis pedunculis ante anthesin bracteis angustis longis acutis basalibus.

TYPUS: *Meijer* 5081 (L).

Shrub or tree, up to 3 m high, bole 1 m, diam. 15 cm, outer bark roughish, 0.1 mm thick; inner bark light ochre; branchlets towards apex densely, minutely rusty sublanuginose; branches glabrous, rather slender, smooth, grey. Leaves spirally arranged, glabrous, chartaceous, narrowly elliptical to narrowly subobovate-elliptical, 3.5 x 12—4.5 x 19 cm, apex acuminate with sharp tip, base long-cuneate; both surfaces (above rather obscurely), densely, prominulously reticulate; upper surface with flat midrib and filiform ribs; lower surface pale, midrib prominent, lateral nerves 7—9 pairs, erect-patent, prominent, slightly curved (the apical ones more and all more towards the margin). Petioles glabrous, slender, slightly thicker towards base, 2—3 cm long. Racemes of umbels axillary, densely, minutely, rusty lanuginose, 3—16 cm long, the umbels dropping after anthesis, hence only young ones present near the apex of the racemes (male ones); umbel peduncles up to 5 mm long; expanded umbel up to 7 mm diam.; bracts ovate, acutish, 3.5 mm long; florets densely, minutely adpressed pilose; umbel peduncles before anthesis subtended by narrowly lanceolate, densely adpressed pilose, acute (subsubulate), up to 8 mm long bracts.

Named after Dr. Willem Meijer, the well-known plant collector, who — as a lecturer in botany of the University at Pajakumbuh, Sumatra — set up a Herbarium and explored Mt. Sago intensively.

CENTRAL SUMATRA. Mt. Sago near Pajakumbuh, Djalan aer Andalas, alt. 1000 m, June, buds, *Meijer* 5081 (L), tepals and stamens white; *ibid.*, Muara Padang, alt. 1000 m, Febr., buds, *Ichlas* s.n. (L); N.W. slope of Mt. Talamau, alt. 900 m, May, buds, *Bunmeyer* 598 (BO, L).

***Litsea orocola* Kosterm., spec. nov.**

Arbor magna in omnibus partibus glabris innovatione inflorescentiisque exceptis ramulis angulatis sulcatis innovatione perdense minutissime rufo tomentellis foliis alternantibus coriaceis ellipticis vel ovato-ellipticis subacuminatis basi cuneatis utrinque (sub lente) obscure dense areolatis vel laevis supra sublaevia nervo mediano piano basin versus subimpressis costis filiformibus subimpressis subtus nervo mediano prominulo lato costis utrinque 15 prominulis erecto-patentibus subarcuatis marginem versus evanescentibus canaliculatis petiolis supra planis inflorescentiis axillaribus extra-axillaribusque obscure laxe minutissime adpresse pilosis crassiusculis racemiformibus pedunculis umbellatis brevis.

TYPUS: *Endert* U98 (L).

Tree, 30 m high, 40 cm diam., glabrous in all its parts except endbud and inflorescence; branchlets smooth, sulcate, angular; endbud minutely, densely, rusty tomentellous. Leaves spirally arranged, coriaceous, smooth, obscurely, densely areolate (highpower lens!); upper surface with flat, at base slightly impressed midrib, ribs filiform, slightly impressed;

elliptical to ovate-elliptical, 3 x 9—7.5 X 19 cm, subacuminate, base cuneate; lower surface with prominulous, sulcate or striate midrib, lateral nerves ca 15 pairs, erect-patent, arcuate, slender, running out at the margin, channeled longitudinally. Racemes of peduncled umbels axillary and extra-axillary, rather thick, up to 9 cm long bearing at the apex a few shortly peduncled (5 mm) umbels; opened umbel ca 7 mm in diam.; flowers almost glabrous; bracts coriaceous, ovary glabrous, style as long with peltate stigma.

CENTRAL E. INDONESIAN BORNEO. W. Kutei, Telen R., alt., 1800 m, Oct., fl., *Endert U98* (BO, L).

***Litsea rheophytica* Kosterm., spec. nov.**

*Tetranlhera salioifolia* Beccari (non Roxb., nee Zollinger), Nelle Foresti di Borneo 524, tab. 65, fig. 10. 1902 (nomen); id., Wanderings Forest Borneo 392, tab. 51. 1904. — Typus: *Beccari P. B. 3826* (K, L).

Arbor ramulis dense minutissime adpresse rufo pilosis gracilis foliis oppositis membranaceo-chartaceis adultis glabris anguste lanceolatis vel suboblancoelatis vel sublineatis apice gradatim acutis saepe falcatis basi acutis utrinque sub lente minutissime dense punctatis obscure dense reticulatis nervo mediano, costisque supra filiformibus subprominulis subtus nervo mediano prominentibus costis utrinque 11 suberectis arcuatis prominulis petiolis brevis inflorescentiis axillaris brevissimis pauci-umbellatis pedunculis brevis cupula parva nee profunda pedicellis brevissimis incrassatis fructus ovoideus acuminatus.

TYPUS: *Paul Chai S. 18951* (L).

Tree, 6—7 m high, 7.5—10 cm diam.; bark smooth, grey grown or pale green and brown mottled. Branchlets slender, densely, minutely, adpressed, rusty pilose. Leaves opposite, thinly chartaceous, narrowly lanceolate or suboblancoelate to sublinear, 1 x 8—3 x 21 cm, apex gradually acuminate with sharp tip, often falcate, base acute; both surfaces (high power lense) minutely, densely punctate and densely reticulate (obscurely); young leaves with sparse, minute, pulverulent hairs on the lower surface, adult ones glabrous; upper surface with very slender, prominulous midrib and ribs, lower surface with prominent midrib; lateral nerves ca 11 pairs, suberect, arcuate, prominulous; petioles 5—13 mm long, glabrescent, flattish above. Racemes axillary, minutely pilose, extremely short or umbels sessile bearing a few umbels (expanded 5 mm. diam.), bracts pilose outside; peduncles minutely pilose, up to 4 mm long; flowers pilose, female one with a style as long as the glabrous ovary; stigma small, peltate. Fruit ovoid, acute, 6 mm long; cupule thin, flattish, 3—4 mm diam. at apex, 1 mm deep, merging into a thickened, 1.5 mm long pedicel.

Belongs, like *Cryptocarya obliqua* Bl., to the vegetation of quick-running rivers, liable to inundation.

SARAWAK. Rejang R., Pelagus falls, riverbank, rich clay soil, Nov., fl., fr., *Paul Chai S. 18951* (A, BO, K, KEP, L, SAN, SAR), fruit ripening red, partially ramiflorous; ibid., hillside above river, April, fl., *Ashton S. 17777* (A, BO, K, KEP, L, MEL, P, SAN, SING), flowers female, pale, lower leaf surface pale; ibid., buds, *Beccari P. B. 3826* (K, L).

***Litsea rubicunda* Kosterm., spec. nov.**

Arbor parva in omnibus partibus glabra (inflorescentiis exceptis) ramis griseis cylindricis striatis ramulis subgracilis laevis in sicco rubris foliis alternantibus membranaceo-chartaceis in sicco rubris anguste ellipticis vel subobovato-ellipticis vel ellipticis acuminatis acumine gracilibus basi acutis utrinque obscure laxe prominule reticulatis vel supra laevia, nervo mediano supra impresso costis filiformibus prominulis subtus pallidiora nervo mediano prominentibus costis utrinque 6—11 erecto-patentibus arcuatis gracilis prominulis petiolis gracilis longis supra anguste canaliculatis umbellis pedunculorum gracilis longis racemis brevissimis axillaribus parce minutissime pulverulente pilosis impositis fructus depresso globoso apiculatus cupula parva plana margine undulata pedicellis longis vix incrassatis.

TYPUS: *Bias Paie S. 19262* (L).

Small tree, 2—10 m, glabrous in all its parts (except the inflorescence); bark smooth, light brown; wood pale yellow; branches grey, finely, longitudinally striate; branchlets rather slender, smooth, dirty red (in sicco). Leaves spirally arranged, reddish (in sicco), thinly chartaceous, narrowly elliptical to narrowly subobovate-elliptical or elliptical, 4.5 X 16—6.5 X 29—8 X 26 cm, apex acuminate (acumen usually slender, acute), base acute, both surfaces rather obscurely, laxly, prominulously reticulate (or upper surface smooth); upper surface with impressed midrib and filiformous, prominulous ribs; lower surface with prominent midrib; lateral nerves 6—11 pairs, slender, erect-patent, arcuate, prominulous. Petioles slender, 2—3.5 cm long, narrowly channeled above. Inflorescences axillary, laxly, very minutely, pulverulently pilose, consisting of a short, 0.5 mm long raceme, bearing the umbels on up to 5 mm long peduncles. Expanded umbel ca 1 cm diam., outer bracts glabrous, inner ones minutely rusty adpressed pilose; filaments (male flower) long, slender, slightly pilose. Fruit depressed globular, smooth, apiculate, 10 x 17 mm; cup shallow, thin, 5—8 mm diam., margin undulate; pedicel slightly thickened, 6—10 mm long.

SARAWAK. Simpang Tiga, Ulu Mayeng, Kakus, basalt derived soil, river bank, Oct., fr., *Ilias Paie S. 19262* (A, BO, K, KEP, MEL, SAN, SING), fr. white; Kapit Distr., bank of Rejang R., 10 km below Belag'a, alt. below 500 m, sandstone, Aug., fl., *Jacobs 5309* (B, CANB, K, L, SAN, SAR), male flowers, involucre pale green, tepals pale yellow with green tips, filaments white; Sg Tail, Sana, alt. 100 m, May, fl., *Purseglove P 5131* (L, SING). INDONESIAN E. BORNEO. Berau, Tandjong Redeb, along Birang R., alt. 0 m, Nov., fr., *Kostermans 21639* (A, BO, G, K, L, SING);

Karangan R., N. W. of Sangkulirang, alt. 20 m, sandstone Aug., fl., *Kostervians 13601* (BO, K, L).

*Litsea rufo-fusca* Kosterm., *spec. nov.*

Arbor ramulis strictis perdense minutissime atro-rubro sublanuginosis foliis rigide coriaceis subovato-ellipticis acutis basi in petiolum contractis breve cuneatis supra nitida glabra nervo mediano costique impressis subtus dense atro-rubro sublanuginosis nervo mediano valde prominentibus costis utrinque 6—8 erecto-patentibus arcuatis prominentibus nerviis secundariis prominulis parallelis connectis reticulatio dense prominulo petiolis longis dense atro-rubro sublanuginosis umbellulis dense minutissime atro-rubro lanuginosis pedunculis conspicuis ramulis brevissimis vel nullis axillaribus impositis fructus calycibus parvis semiglobosus fructus parvis ovoideus, acutus.

TYPUS: *bb 330U (L)*.

Tree, up to 12 m high, up to 30 cm in diam.; bark smooth, lightbrown, brittle, 0.5 mm thick; living bark 5 mm, palebrown or lightred, inner bark hard; wood white. The stiff branchlets, lower leaf surface, flowers and fruit cup densely, minutely, blackish redbrown sublanuginose; the flush completely covered with the same indumentum. Leaves spirally arranged, rigidly coriaceous, subovate-elliptical, 4.5 x 11—9 x 27 cm, acutish, base contracted into the petiole, shortly cuneate (in the narrower leaves acute); upper surface smooth, glossy, glabrous, midrib and primary nerves impressed; lower surface with strongly prominent midrib, lateral nerves 6—8 pairs, erect-patent, arcuate, prominent, connected by the pronervulose, parallel, numerous secondary nerves, in between a dense, prominulous reticulation, the leafblade glaucous. Petioles 1.5—3 cm long, densely sublanuginose, glabrescent. Umbels (expanded ca 7 mm diam.) on up to 1 cm long peduncles and these on 0—1 cm long, short branchlets in the leaf axils; florets tomentose; filaments slender, long, tomentose; fruit cupule semi-globose, 5 mm diam. at the thin rim, 3—4 mm deep on an up to 5 mm long pedicel; fruit (immature) slender, ovoid, acute 3 x 7 mm.

DISTRIBUTION: Borneo, peatswamp forest.

SARAWAK. Betong Distr., Saribas For. Res., peatswamp, Aug., buds, *Anderson 8520* (K, L); Distr. Simanggung, Lingga, 3 miles from sawmill, peatswamp, ster., *Anderson 98.12* (BO, L); Btg. Lupar, Teriso, April, fr., *Othman bin Ismawi S 19659* (K). INDONESIA S. BORNEO. Sampit area, Sept., fl., *bb SSOU* (BO, L); *ibid.*, peatswamp, Aug., young fr., *Kostermans 8154* (BO, K, L); Km 14 between Bandjarmasin and Martapura, ster., *Polak U96* (BO, L).

*Litsea staintonii* Kosterm., *spec. nov.*

Arbor parvis ramulis gracilibus pallide rubro-brunneis glabris nitidis innovatione minutissime dense rufo sericeis foliis alternantibus membranaceo-chartaceis ellipticis conspicue acuminatis basi cuneatis supra laevia

glabra nerviis principalis subimpressis subtus perdense minutissime aureo sericeis nervo mediano prominentibus costis graciles utrinque 5—6 erecto-patentibus subarcuatis reticulatio laxe prominulo petiolis longis glabrescentibus supra parte apicale canaliculatis umbellulis dense minutissime aureo sericeis glabrescentibus pedunculis gracilibus longis sericeis impositis axillarum foliorum ramulis brevissimis impositis.

TYPUS: *Chew, Corner & Stainton 244 (K)*.

Tree, 10—13 m high, diam. 60 cm; bark very smooth, grey; branchlets rather slender, pinkish brown, glabrous, smooth; endbud densely, minutely rufo-sericeous. Leaves spirally arranged, thinly chartaceous, elliptical, 5 X 11—7 x 16 cm, acuminate (acumen 1—1.5 cm), base cuneate; upper surface smooth, glabrous, midrib and ribs slightly impressed; lower surface very densely, minutely golden brown sericeous, midrib prominent, lateral nerves slender, 5—6 pairs, prominulous, slightly arcuate, reticulation lax, prominulous. Petioles slender, glabrous, 12—20 mm, upper part partly slitlike channeled. The densely, minutely sericeous, glabrescent umbels on densely sericeous, 1—15 cm long, slender peduncles and these on axillary short, densely sericeous, 1—12 mm long young branchlets, usually several on one branchlet; bracts orbicular, up to 4 mm; ovary glabrous with a short style and broadened, truncate stigma.

SABAH. Mt. Kinabalu, E. shoulder, alt. 1000 m, July, female fl., *Chew, Corner & Stainton 2H (K)*; *ibid.*, alt. 800 m, June, buds, *Cheiv, Corner & Stainton 119 (K)*.

*Litsea teschneri* Kosterm., *nom. nov.*

*Tetradenia novo-guinensis* Teschner (base) in Engl. bot. Jahrb. 58: 393. 1923; cf. Kostermans, *Bibl.* 1370 no 39. — *Neolitsea novo-guinensis* (Teschner) Merr.; cf. Kostermans, *I.e.* 1045 no 68. — Typos: *Leder mann 9579 (L)*.

*Litsea turfosa* Kosterm., *spec. nov.*

Arbor ramulis perdense minutissime rufo lanuginosis foliis alternantibus chartaceis ad coriaceis oblongis vel obovato-oblongis obtusis basi acutis supra glabra nitida laevia, nervo mediano impresso costis filiformibus subimpressis subtus perdense minutissime rufo-lanuginosa nervo mediano prominentibus costis utrinque 5—7 gracilis erecto-patentibus arcuatis nerviis secundariis parallelis laxis obscuris vel deest foliis adultis saepe glabrescentibus subtus glaucis petiolis longis inflorescentiis axillaribus brevissimis perdense minutissime rufo-lanuginosis umbellulis pedunculorum longis.

TYPUS: *SAN U550 (K)*.

Tree, up to 27 m high, with 17 m free bole, 30 cm diam., usually much smaller; bark white, smooth (rarely brown) with small round lenticels, outer bark thin, brittle, brown, 0.2 mm; inner bark orange (or white yellow-mottled), brittle; sapwood lemon yellow, cambium yellow, soft, 0.6—2.5 mm. Branchlets rather slender, cylindrical, densely, minutely fer-

rugineously lanuginose. Leaves spirally arranged, chartaceous to coriaceous, oblong, rarely obovate-oblong, 3 x 6—8 x 16 cm, rarely lanceolate, obtuse or rarely very shortly, obtusely acuminate, base cuneate or acute; upper surface glossy, smooth, midrib impressed, lateral nerves filiformous, slightly impressed, lower surface in young leaves densely, minutely, rufo-lanuginose, glabrescent (except on the main nerves), the adult leaves often smooth, glaucous underneath, midrib prominent, lateral nerves 5—6(—7) pairs, slender, prominent, erect-patent, slightly arcuate; secondary nerves lax, faint, parallel or none. Petioles densely, minutely rusty lanuginose, up to 2 cm long, narrowly channeled above. Inflorescences axillary, densely, minutely, rusty lanuginose, 2—3 mm long, bearing the up to 15 mm long peduncled umbels; open umbels 6—8 mm in diam.

DISTRIBUTION: peat-swamp forest in Borneo.

The species belongs to the *L. castanea* group; according to Ashton it is a striking tree because of the magenta colour of the crown, the smooth, pale grey, almost white bark with small, round lenticels.

SARAWAK. Kuching, Febr., buds, *Haviland & Hose 218-0* (L), leaves up to 7.5 x 11 cm; Bako Nat. Park, alt. 70 m, perimeter of swamp, leaves only (the loose fruit does not belong here), *Anderson 8086* (L); Pulau Bruit, Distr. Binatang, peat-swamp, June, fr\*, *Sanusi b. Tahir 4970* (BO, L), fruit cup small, 4 mm high, 5 mm diam., margin thin, fruit ellipsoid, pointed, 5 x 6 mm; Bintulu, Bt. Urang, alt. 30 m, Dec, young fr., *Brunig S 11978* (L). BRUNEI. Seria, *Shorea albida* peat-swamp, Aug., buds, *Smythies, Wood & Ashton S 5369* (L). SABAH. Distr. Papar, Mandahan, Febr., fr., *Lajangah SAN 33617* (K, L), fr. cup 3 mm high, 5 mm diam., pedicel slightly obconical, 5 mm; Sepitang, Mengalong For. Res., low, peat-swamp, ster., *SAN 22320* (L) et *SAN 22320* (L); *ibid.*, buds, *Charing ton SAN 470.57* (K); Beaufort, Chung Chao Lung Timber area, Lumat, alt. 30 m, July, buds, *Lajangah SAN 4,4,550* (K); *ibid.*, Klias, Dec, fl., *Ghman SAN 27315* (K, L). INDONESIA BORNEO. Sampit, peat-swamp, Sept., after anthesis, *Buwalda 7683* (BO, L).

#### NOTHAPHOEBE BL.

##### *Nothaphoebe crassifolia* (Ridley) Kosterm., *comb. nov.*

*Endiandra crassifolia*, Ridley (basionym) in *Kew Bull.* 1926: 79; Kostermans, *Bibl. Laur.* 485 no 17. 1964. — Typus: *Boden-Kloss 14593* (K).

##### *Nothaphoebe elata* (Kosterm.) Kosterm., *comb. nov.*

*Alseodaphne elata* Kostermans (basionym). *New and crit. Mai. PL* 4: 9, fig. 5—6. 1355; *Bibl.* 66 no 21. 1964. — Typus: *Kostermans 269 = bb 33466* (BO).

##### *Nothaphoebe foetida* (Kosterm.) Kosterm., *comb. nov.*

*Alseodaphne foetida* Kostermans (basionym), *New and crit. Mai. PI.* 3: 18, fig. S. 1955; *Bibl.* 67 no 26. 1964. — Typus: *Kostermans 7274* (BO).

##### *Nothaphoebe gigaphylla* (Kosterm.) Kosterm., *comb. nov.*

*Alseodaphne gigaphylla* Kostermans (basionym), *New and crit. Mai. PI.* 4: 9, fig. 7—io. 1955; *Bibl.* 67 no 27. 1964. — Typus: *Kostermans; 9999* (BO).

##### *Nothaphoebe helophila* (Kosterm.) Kosterm., *comb., nov.*

*Alseodaphne helophila* Kostermans (basionym), *New and crit. Mai. PI.* 3: 13, fig. 6. 1955; *Bibl.* 68 no 30. 1964. — Typus: *Dorst 14 E IP 434* (BO).

##### *Nothaphoebe magnifica* (Kosterm.) Kosterm., *comb. nov.*

*Alseodaphne magnifica* Kostermans (basionym) in *Gard. Bull. Singapore* 17: 3—5, fig. 2—3. 1958; *Bibl.* 69 no 36. — Typus: *Kostermans 11070* (BO).

#### PERSEA Mill.

##### *Persea excelsa* (Bl.) Kosterm., *comb. nov.*

*Ocotea excelsa* Blume (basionym), *Bijdr. Fl. Ned. Ind., lie stuk: 572.* 1826; Kostermans, *Bibl.* 1088 no 154. 1964. — *Alseodaphne excelsa* (Bl.) Blume; cf. Kostermans, *I.e.* 67 no 24. — *Phoebe excelsa* (Bl.) Nees; cf. kostermans, *I.e.* 1277 no 44a.

Leaf reticulation and the non-persistent perianth places this species definitely in *Persea*; the fruiting pedicel is not thickened.

#### PERSEA FRUTICOSA (Kurz) Kosterm.

Cf. Kostermans, *Bibl.* 1221 no 100. 1964.

New synonyms: *Nothaphoebe angustifolia* Ridley; cf. Kostermans, *I.e.* 1054 no 2. 1964. — Typus: *Robinson 5996*, Kedah Peak, Malay Peninsula (K).

*Phoebe declinata* Nees var. *serieea* Gamble in *J. As. Soc. Beng.* 75(1): 106. 1912. — Typus: *Scortechini 554*, Perak, Haram Peak (K).

##### *Persea pierrei* (Lee.) Kosterm., *comb. nov.*

*Phoebe pierrei* Lecomte (basionym) in *Nouv. Arch. Mus., Ser.* 5, 5: 102. 1913; Kostermans, *Bibl.* 1296 no 133. — Typus: *Pierre 619* (K, LE, P).

#### PHOEBE Nees

##### PHOEBE DECLINATA (Bl.) Nees

Cf. Kostermans, *Bibl.* 1275 no 36. 1964. — Typus: Java, Mt. Salak, "Huru leu-ur" (Sundanese), between Andjira and Lebak, Dec. (also Aug.), fl. (L, 2 sheets); Salak Mt., Dec, *Blume 2160a*, (L, 3 sheets).

New synonyms: *Phoebe incerta* BL; cf. Kostermans, *I.e.* 1283 no 76. — Typus: Reinwardt s.n., Java, "Huru manok" S., arbor 100 ped., ster. (L, 5 sheets).

*Phoebe parviflora* BL; cf. Kostermans, *I.e.* 1295 no 127a. — Typus: Java, sine coll., "Huru manok" S., (L, 2 sheets).

*Phoebe nitida* BL; cf. Kostermans, I.e. 1292 no 114. — Typus: *Praetorius* s.n., Palembang, ster. (L).

*Phoebe lamponga* Miq.; cf. Kostermans, I.e. 1284 no 84. — Typus: 4.222 H. B. (U), Tarabangi, Lampongs, "Kajoe Helah (Hoeroe mehrang)".

*Phoebe sumatrana* Miq.; cf. Kostermans, I.e. 1302 no 165a. — Typus: *Junghuhn* s.n., Sumatra, Hochankola, ster. (L, U) et *Junghuhn* s.n., herb, de Vriese, leaves with large, hairy galls, Battak region, Sumatra (L, 2 sheets, U).

*Ocotea excelsa* Bl., p.p., no collector, no number, ster. (L).

*Laurus longifolia* Reinw. ex Blume; cf. Kostermans, I.e. 649 no 214d. — Typus: two loose leaves (L).

*Laurus gewmdflora* Reinw. ex Blume (nomen); cf. Kostermans, I.e. 628 no 156b (non 156a). — Typus: *Reinwardt* 831 (L), "Huru hiries", Java, fl. (in Leiden the number 831 appears also on one type sheet of *Ocotea declinata* BL, marked "Huru leu-ur", Salak, Dec. 1822).

*Persea rimosa* Zoll. ex Meissn. (non *Machilus riinosa* Bl.); cf. Kostermans, I.e. 1253 no 250, quoad *Zollinger* 13484 (L).

## THE HYPHOMYCETE GENUS DACTYLARIA SACC.

MIEN A. RIFAI \*)

### SUMMARY

An emended delimitation of the genus *Dactylaria* Sacc. is proposed and the two accepted species, which are non-predaceous and dematiaceous, are redescribed and illustrated. The affinity of many nematode-trapping species currently classified in *Dactylaria* with the didymosporous genera *Arthrobotrys* Corda, *Candelabrella* Rifai & R. C. Cooke and *Genicularia*, Rifai & R. C. Cooke is discussed and the scopes of the latter genera are enlarged, and consequently several new combinations are made.

### INTRODUCTION

In an earlier attempt to find the appropriate genera for some species of didymosporous nematode-trapping Hyphomycetes of the *Trichothecium-Arthrobotrys* complex (Rifai & Cooke, 1966), several phragmosporous genera have been seriously considered. Of these the genus *Dactylaria* Sacc. has received a special attention, especially because Soprunov (1958) transferred *Arthrobotrys dactyloides* Drechsler (1937) to it. This disposition was tentatively rejected by Rifai & Cooke (1966) because they believed that the affinity of *A. dactyloides* with *A. superba* Corda, the type species of the genus *Arthrobotrys* Corda, was sufficiently close to warrant their inclusion in one genus. They further pointed out that the limits of the genus *Dactylaria* was not yet fully understood. The result of the subsequent study on the taxonomy of *Dactylaria* reported below does not only prove that the retention of *A. dactyloides* in *Arthrobotrys* is fully justified, but also shows that the majority of species now included in *Dactylaria* cannot be retained in this genus any longer.

In 1877 Saccardo described and illustrated *Acrothecium purpurellum* Sacc, a purplish phragmosporous hyphomycete which was found growing saprophytically on a piece of decayed *Quercus* wood in Italy. Based on this species the new genus *Dactylaria* was created by Saccardo (1880) three years later, which he described as follows: "..... Saprophila. Hyphae fertiles erectae, simplices, apice capitulum conidiorum gerentes; conidia fusioidea v. clavulata, 2-pluriseptata....." In compiling the fourth

\*) Herbarium Bogoriense, Bogor (Java), Indonesia.