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1/2-3/4 the leaf length, filiform, prominulous, reticulation regular, dense, very minute; sometimes between-midrib and basals deep donatia (slightly hullate on the upper surface). Petiole slender, 6—10 mm long, laxly sericeous, concave above. Inflorescences axillary, consisting of a very short (1—2 mm) reduced main peduncle, bearing up to 5 flowers; sometimes the flowers practically sessile. Pedicel filiform, 5—8 mm, densely pilose. Tube broadly funnel shaped, 0.5 m, inside densely sericeous. Tepals erect-patent, narrowly ovate, acute, stiff, 1.5—2 mm long, densely sub-sericeous on both sides. Stamens 1.25 mm long, inserted slightly below the tepals on the rim of the 0.5 mm broad tube; anthers quadrangular or ovate-quadrangular, obtuse, slightly shorter than the almost glabrous, thickish filaments; outer anthers with introrse upper and lateral lower, large, slanting cells, almost in one plane, inner anthers smaller, the lower large cells extrorse, the upper smaller ones lateral; glands large, long-stalked. Staminodes sub-spathulate or oval on a thick long filament. Ovary ellipsoid-ovoid, merging into a short, thick style with small stigma. Fruit ellipsoid to sub-globose, up to 6 x 10 mm, apiculate. Cup fleshy, broadly funnel shaped, up to 6 mm long, the top shallowly excavated, the persistent, sericeous tepals erect, 3 mm long, 2 mm wide at the base; pedicel 1 cm long, slender.

I have not seen the material, cited by Yang, but the description fits *N. delayayi*.

CHINA. Yunnan, fl., Forrest *lieea* (BO, E); Pcc-cha-ho, April, fl., *Dda-ony s.n.* (BO, P); Tenggueh, alt. 1800 m, March, buds, fr., *Farret 9f* (BO, E); Yung-jen Hsien, in ravine, alt. 1700 m, May, fl., *Tsai 62891* (A, BO); Pa-ta-ouan, near Pee tchouan, July, fl., *Jean Py (Dueloux 8292)* (BO, P); forest of Thou Ty, fl., *Simeon Ten* (BO, P); locality not indicated, fr., McLaren's *Coll. Usc* (BO, K).

MATERIALS FOR A REVISION OF LAURACEAE IV*

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ABSTRACT

In the genus *Actinodaphne* Nees one new combination and one new species are presented; in *Lindera* Thunb. one new combination, 4 new species and one new form; in *Itsea* Lam. one species has been reduced to synonymy, one nomen novum is presented, 5 new species are described and of 6 species new records are given; one species has been reinstated. The obscure *Machilus sericea* Bl. is assumed to be conspecific with *Persea bombyeina* (King ex Hook, f.) Kosterm. In the genus *Persea* Mill. one nomen novum, two new combinations and one new species are created and proposed. In the genus *Phoebe* Nees one new combination and two new species are presented.

ABSTRAK

DJISIJI uJINTE *Actinodaphne* Nees satu korabinasu baru dan ssttu jenis bum diusulkan; dalam *Lindera* Thunb. satu kabinasi baru, empat jenis baru dan satu formas baru; dalam *Itsea* Lam. satu jenis dimasukkkan dalam jenis lain, satu nama baru dan lima jenis baru diusulkan, satu jenis diakur kembali dan daerah penyebaran enam jenis diperluas oleh terkumpulnya spesimen-speamen baru. *Machilus sericea* Bl. dianggap sama dengan *Persea bombyeina* (King ex Hoof.f.) Kosterm.; dalam marga *Persea* Mill. satu nama baru, dua kombinasi baru dan satu jenis baru diciutakan. Dalam marga *Phoebe* Nees satti kombinasi baru dasi dux jenie baru diuaukkan.

ACTINODAPHNE Nees

Actinodaphne forrestii (Allen) Kosterm., *comb. & stxtt. nov.*

Actinodaphne reticulata vac. *forrestii* Allen in *Annals Missouri Bot. Gard.* 25: 412. ISSB. - Typus: *Forrest 18827* (AA, K).

The species differs from *A. retioulata*, by the larger and thicker leaves, which are not reticulate, but only show some "fielded" pattern, the brown sublanuginose tomentum and the much shorter fruit pedicel-

* Part I appear in *Reinwardtia* 7: 201-356. 196E; part II in *ibid.* 451-635. 1969; part III in *ibid.* 8: 21-106. 1070.

Actinodaphne longipes Kosterm., *spec. nov.*

Aetijodapkne reHculata var. *glabra* Meissner in DC, Prodr. 15(1): 213. 1864; Liou Ho, Laur. Chine et Indochine 158. 1932 and 1934; Allen in Ann. Missouri bot. Gard, 25: 412. 1938; Kostermans, Bibl. Laur. 38. 1964. — Typus: *J.S. Smith* s.r. (K).

Pediceilus fructiferus usque ad 4 cm longus; ramulis glabris.

Meissner's variety *glabra* was based on a specimen, collected by Sir J.S. Smith. The provenance is obscure, Nepal with an interrogation mark is written on the sheet at Kew. Hooker thought, that this specimen was glabrous because of its older stage and thought, that the specimen was collected in Khasia.

The type specimen shows shoots with a young stage of leaf development and subsequently collected material, proves, that the plant is indeed practically glabrous. Moreover, the leaves are not reticulate, but scrobiculate with a finer mesh than) those of *A. reticulata*. Hooker was right, that the specimen of J.S. Smith was from E. Bengal.

ASSAM. Paona, Naga Hills, 5800 ft. alt., Sept., fr., *Bar* 6%76 (K); Darjeelinsr, Dilda, alt. 6500 ft., Oct., fr., *Otmaston* eM (K); E. Bengal, *J.S. Smith* s.n. (K).

LINDEEA Thunb.

Lindera aggregata (Sims) Kosterm., *comb. nov.*

Laurus aggregata John Sims in Curtis Bot. Mag. 51: tab. 2117 (1824); Koetermans, Bibl. Laur.: 663 (1964).

Lindera etrycknifolia (S. & Z.) Villar in Blanco, Fl. Filip., ed. 3, Nov. App.: 182 (1880); Kostermans, L.e.: 773. — *Dapkniidium myrrha* Sieb. & Zucc. (non Neesj ex Meissn. in DC, Prodr. 15(1): 23 (1864); Kostermans, L.e.: 462. — *Daphnidium m stryckijfolivrn* Sieb. & Zucc., Fl. Japon. Fern, nat. 2: 83 (1846); Kostermans, L.e.: 4SS. — *Cinnamon*TM *verlotii* De Lukmanoff, Nomend, Iconogr. Canelliens et Camphr.: 19, tab. 14, fig. 142 (1889); Kostermans, U.: S60.

In the description of Sims of this plant, it is mentioned, that it was sent to England from Macao, China by Reeves in 1821 on a vessel, named the Orwell, under Captain Lindsay (Sweet, Hort. Brit. 344. 1827 gives the date of introduction 1812, apparently a misprint).

No original material could be discovered so far, although a rather recent collection of the Kew Gardens, is still labelled *Laurus aggregata*. The plate is sufficiently detailed to make sure, that this is the shrub, commonly called *Lindera stryckmfolia*. Loudon (Encyclop. 332, fig. 1855) gives a crude copy of this plate.

The species is very close to *Lindera sinensis* (Bl.) Kosterm. of the same provenance and also introduced by Reeves, the differences being only in the size of the leaves and the glabrousness of *L. sinensis*.

The type material of *Cinnamomum verlotii* de Lukmanoff is conserved in Paris and labelled: cultivée au Musée sous le nom de *Lawrus gbiueo-pkylla*, no. 90; it is a sterile specimen.

Lindera eberhardtii Lecomte [in Nouv. Arch. Mus., Sér. V, 5: 115. 1913] may belong here or it may be *L. sinensis*. The young shoots of the material of *L. eberhardtii* are long-silky (not stated by Lecomte).

Lindera caesia, as accepted by Allen, is certainly *L. sinensis*.

In Paris a collection of Callery (no. 61) is from the type locality (Macao).

Lindera delkata Kosterm., *spec. nov.*

Arbuscula? ramulis gracill glabris foliis alternantibus tenuiter chartaceis glabris lanceolatis caudato-acuminatis basi acutis utrinque sub lente prominulose reticulatis opacis costis sat obscuris petiolis gracilibus supra canaliculatis inflorescentibus pergracilibus umbellulis paucis longe et gracile pedunculatis glabris floribus dense sericeis.

TYPUS: *Van Steenis* 9880 (L).

Shrub (?); branchlets slender, glabrous, smooth. End bud sericeous. Leaves spirally arranged, thinly chartaceous, glabrous, lanceolate, 2 x 6—3.5 x 15 cm, caudate-acuminate, base acute, both surfaces dull, under the lens prominulose reticulate, upper surface with hardly prominulous midrib, gradually impressed towards its base, lateral nerves obscure, lower one with prominent midrib, the ca 10—15 pairs of lateral nerves rather patent, obscure, hardly differentiated from the reticulation. Petioles slender, 3—5 mm, channelled above. Inflorescences very slender, up to 5 mm long, ending in a sericeous end bud, with one or two umbels, or the inflorescence completely suppressed, umbel peduncles slender, 7—10 mm long. Florets densely sericeous, pedicels 2 mm; tepals narrow, acute, 1.5 mm; stamens longer than the tepals, anthers ca 0.5 mm long.

Related to *L. oxyphylla*, but the leaves reticulate, caudate-acuminate, shorter petioled; the inflorescences different.

SUMATRA. Atjeh Prov., Gajo Lands, S. of Blang Kadjeran, at the confluence of rivers Kepi and river Auan, flat ridge, alt. 1100 m, March, fl., *Van Steenis* 95S9 (BO, L); perhaps also: Mt. Sago near Pajakumbuh, W. Sumatra, alt. 1500 m, ster., *Meyer* S905 (L).

Lindera moiUanoides Kosterm., *spec. nov.*

Arbor mediocris ramulis dense minute sublanuginoso velutinis foliis alternantibus chartaceis ovato-ellipticis acuminatis basi in petiolum brevem contracta supra glabra nitida minute dense reticulata vel sublaevia nerviis majoribus impressis subtus glauca perlaxe minute piosa

nerviis majoribus prominentibus dense pilosis inflorescentiis aessilis paucaefloribus innovantibus perulatis sericeis fructus globosus pedicello vix obovato gracile piloso insidens.

TYPUS: *Endert U57* (L).

Tree, 5—16 m high, 5—20 cm diam. Branchlets densely, minutely rusty sublanuginose pilose. Leaves spirally arranged, in one plane, chartaceous, ovate-elliptic, 3 x 6—5 x 14 cm, acuminate, base contracted into the slender, pilose, 5—7 mm long petiole; both surfaces minutely densely reticulate, upper one glossy, glabrous, the main nerves impressed, lower one sparsely, minutely pilose on the veins, glaucous, midrib and the 3—4 pairs of curved, ascendent lateral nerves densely pilose, prominent, secondary nerves lax, parallel, subhorizontal, prominent, the basal pair of lateral nerves may reach $\frac{1}{2}$ of the leaf lamina. Inflorescences axillary, sessile, few-flowered, surrounded by numerous large, sericeous bracts. Fruit globose, up to 5 mm diam., red, on a slender, slightly obconical, 5—7 mm long pedicel with the withered flower parts persistent.

MALAY PENINSULA. Pahatig, Cameron Highlands, valley of Bertam about Kuala Habu, April, buds, *Kep. SC505* (L); *ibid.*, G. Jasar, alt. 1600 m, tree 7 m, diam. 8 cm, Oct., fl. yellowish green, *Clie-ie Wee Lek 936* (L, SING); Pahang, Masu Hill, 1250 m alt., tree 3 m, ster., *Nur s.n.* <K>; Selangor, Sempang, April, fr., *Ridley 1559T* <K>. SUMATRA. N. slope of Mt. Sago, Fajakumbuh, alt. 900—1200 m, tree 15 m diam. 12 cm, bark yellow-brown with small tubercles, living bark 8 mm, dirty yellow with brown spots, ster., *Meyer 3536* (L); *ibid.*, tree 3 m, *Meyer SJ10* (L); *ibid.*, alt. 900 m, Febr., fr., *Meyer U65* (L). BOKNEO. Sabah, Kinabalu, Ranau Distr., Sosopodan, alt. 1700 m, tree 5 m, diam. 5 cm, bark brown, living bark yellow, wood white, Febr., buds, *San 45819* (L); Kundasang, alt. 1700 m, treelet 15 m, Febr., buds, *San 29012* (K, L); *ibid.*, Liwago-Sosopodan Reserve, alt. 1800 m, tree 13 m, diam. 20 cm, bark smooth, brown, living bark light brown, sapwood light yellowish, Febr., buds, *San 1*7985* (K, L); Gurulau Spur, alt. 2000 m, tree 16 m, diam. 10 cm, Nov., buds, *l. & M.S. Clemens 5058!* (K, L); Tenompok, 5000', ster., *Clemens 5840S* (K); Sosopodan-Kundasang, alt. 1800 m, tree 13 m, diam. 10 cm, bark purplish, inner bark violet, wood white-yellowish, Nov., buds yellowish. *Son 53135* (K, L); Ranau, above Halting Bungalow Kinabalu near Kundussung, Sosopodan, alt. 1500 m, tree 15 m, bole 3 m, diam 20 cm, bark 14 inch, soft., Apr., fl., *Sow 33778* (K); Mesilau R., alt. 1700 m, tree 7 m, lower leaf surface glaucous, Jan., buds pink, *RSNB i-17* (K, L); *ibid.*, tree 13 m, Febr., buds, *RSNB i283* (K, L); Sarawak, Bukit Mersing, Anap, basal ridge, submontane forest, alt. 1000 m, tree 8 m, diam. 5 cm, Sept., fr., *S. 21970* (L); foot of Murut Mt., Dec, buds, *Maulfm US* (K); E. Kalimantan, W. Kutei, Mt. Kemul, alt. 1800 m, tree 5 m, Oct., fr. lightgreen, tinged with red, *Endert U57* (BO, K, L).

LINDERA OBTUSILOBA Bl.

Cf. Kostormans, *Bibl. Laur.* 762. 1964. - Typus: sine local., *Kcishe s.n.*, ster. (10).

Forma villosa (Bl.) Kosterm., *stat. nov.* — *Lindera obtusiloba* Bl. var. *villosa*. BL, *Mus. bot. Lugd. bat.* 1(21): 325. 1851 (basionym); cf. Kostermans, *l.c.* 763 - Typus: *Siehold s.n.* (L), "Sirumozoi".

The type sheet at Leiden has 3 collections, all wrapped in Japanese tissue paper. The label mentions K. (Keishe) as collector and this label mentions the three local names ("Wuhon bana, Dan kou bai and Kouzin bana") cited by Blume. The sterile specimens belong all to the typical, almost glabrous form.

The variety *villosa* of Blume is based on a Siebold specimen at Leiden, marked "Sirumozoi". It is more a forma rather than a variety, young plants are always densely sericeous.

Miquel mentioned in his Catalogue *Mus. bot. Lugd. bat.* I: 81. 1871 two more varieties: *hirsuta* and *pubescens*; these names were copied from herbarium labels of var. *villosa* EL, they were published as nomina nuda.

Lindera pilosa Kosterm., *spec. nov.*

Arbor ramulis apicem versus dense minutissime pilosis Mi is alternantibus chartaceis elliptidis acuminatis basi acutis supra glabris nitidis nervus medianus impressis costis filiformibus vix prominulis subtus dense ferrugineo pilosis petiolis glabris supra anguste canaliculatis umbellulis longe et gracile pedunculatis glabris.

TYPUS: *Forbes 2iS* (L).

Tree, 9 - 13 m, diam. 20 cm. Bark smooth, brown. Branchlets densely, minutely dark rusty tomentellous. Leaves spirally arranged, chartaceous, elliptic to subovate-elliptic, 5 x 10—7 x 15 cm, distinctly acuminate, base acute; upper surface glabrous, glossy, midrib impressed (at least the basal part), lateral nerves hardly prominulous or impressed, lower surface densely rusty tomentellous, midrib prominent, the 6—7 pairs of lateral nerves erect-patent, arcuate, prominent, slender, secondary nerves very lax, subparallel. Petioles very slender, up to 2 cm long, narrowly channeled above. Umbel bracts glabrous, peduncles slender, glabrous, 10—15 mm long, glabrous, a few on very short branchlets in the leaf axils. Florets densely, minutely pilose, tepals 15—2 mm long; pedicel slender, a 3 mm long.

The species is characterized by the dense rusty tomentum of the lower leaf surface. In some specimens (For. Officer Sumatra's E. Coast and *Meyer 3300*) it is much thinner. In the specimen *Meyer 4048* the umbels are minutely sericeous.

SUMATRA: Locality not indicated, fl., *Forbes 2iS!* (L, 3 sheets); Mt. Sago near Pajakumbuh, second, forest along Bukit Tjempago, alt. 900—1000 m, tree 20 cm diam., bole 10 m, crown 5 m; outer bark smooth with scattered lenticels, 0.5 mm thick,

live bark reddish brown, yellow with red-brown spots, common, Oct., fl., *Meyer iOIS* (L.); *ibid.*, N. slope, alt. 1000 m, ster., tree diam. 20 cm, bole 4 cm, crown 6 m, bark brown, smooth, *Meyer SS09* (L.); Kara Lands, alt. 1400 m, Oct., buds, forest Officer *Sumatra's E. Coast S* (BO, L.); Sibolangit, S.W. of Bandarbaru, alt. 900 m, Oct., buds, *Lörzing 5527* (BO, L.).

Lindera reticulosa Kosterm., *spec. nov.*

Arbor ramulis glabris gracilis foliis alternantibus chartaceis glabris lanceolatis distincte sensim attenuatis basi acutis utrinque prominente reticulata costis supra obscuris subtus filiformis petiolis gracilibus canaliculatis inflorescentiis brevis pauci-umbellatis minutissime sericea floribus sericeis.

TYPUS: *F.R.I. 5016* (L.).

Tree up to 27 m high, 30 cm diam.; bark smooth to cracked, lenticellate; live bark light brown, cambium bright yellow, wood white. Branches slender, glabrous. Leaves spirally arranged, chartaceous, lanceolate to lanceolate-elliptic, 2 x 7—3 x 11 cm, long-acuminate with sharp tip, base acute, both surfaces prominent, rather obscurely reticulate, upper one with filiform, prominent midrib, lateral ribs hardly visible, lower one paler, midrib prominent, the 7—9 pairs of lateral nerves filiform, erect-patent, hardly prominent. Petioles slender, 5—7 mm, channeled above. Inflorescence branches up to 8 mm long, bearing a few umbels, minutely sericeous; umbel peduncles up to 1 cm long, outer bud scales glabrous, inner ones sericeous. Florets densely sericeous, tepals 1.75 mm, narrowly ovate, acute; stamens exerted.

Related to *L. polyantha*, but easily distinguished by the leaf reticulation, which never occurs in *L. polyantha*. Also near *L. dictyonera*, which has stamens twice the length of the longer tepals.

MALAY PENINSULA. Pahang, Fraser's Hill, path to Pine Tree Hill, mossy ridge, alt. 1300 m, tree 27 m, diam. 30 cm, bole fluted and knobly, bark smooth to cracked, lenticellate, slash inner bark light brown, cambium bright yellow, wood white, leaf glaucous beneath, March, male fls. pale yellow, *F.R.I. 5016* (K, KEP, L.); trail to G. Berumbun, Cameron Highlands, Pahang, mountain Elope, tree 20 m, short thick buttresses, bark smooth, slash inner bark brown granular outer layer, yellow towards cambium, wood pale yellow, Febr., female fls. pale yellow, *F.R.I. HSU* (K, KEP, L.), leaves broader, up to 4 X 9 cm; trail to G. Jasar, Cameron Highlands, alt. 1400 m, tree 10 m, diam. 25 cm, bark cracked, inner bark pale yellow, wood white, March, buds green, fr. round, green with short, apical point (not seen), leaves glaucous underneath, 2 X 6-3 X 5 cm, *F.R.I. 5060* (K, KEP, L.).

LITSEA Lam.

Litsea alba Kosterm., *spec. nov.*

Arbor parva ramulis Elabris albo-brunneis sat crassis apicem versus appianatis sulcatisque, foliis alternantibus chartaceis vel rigide chartaceis

magnis glabris aubobovato-ellipticis breve obscure acuminata basin versus aensim attenuatis obtusis, supra subnitida laevia nervo mediano lato plana costis obscuris, subtus pallidiora nervo mediano magno prominente costis erecto-patentibus sat gracilibus prominulis nerviis secundariis filiformis laxis, petiolis sat crassis albo-brunneis, umbellulis immaturis axillaribus glomeratis minutissime adpresse piloais vel glabria breve pedunculatis.

TYPUS: *BSIP 3851* (L.).

Small tree. Bark white, smooth, living bark soft, white; wood, hard, white. Branchlets rather thick, towards their apices flattened and sulcate, pale brownish white, glabrous, smooth. Leaves spirally arranged, glabrous, chartaceous or rather stiffly chartaceous, subobovate-elliptic, 11 x 28—18 x 29 cm, shortly acuminate or acute, gradually tapered towards the obtuse base; upper surface rather glossy, the broad midrib flat, the lateral nerves obscure; lower surface paler, midrib strong, prominent, lateral nerves 12—14 pairs, erect-patent, rather straight, curved near the margin, rather slender, prominent, secondary nerves filiform, prominent, lax, somewhat parallel. Petiole pale brownish white (as the branchlets), thick, 1—2 cm long. Immature umbels almost sessile in the leaf axils, the (immature) peduncles short, minutely, adpressed pilose, bud scales practically glabrous.

Characterized by the whitish bark of the branchlets and petioles. The leaves dry a reddish black colour.

SOLOMON ISLANDS. Santa Ysabel, Allardyce Harbour, Sasakolo R., primary forest on river bank in valley bottom, Jan., buds, *B.S.I.P. 5651* (K, L); S.E. Santa Ysabel, Dadale Bay, ilat plain, primary forest, Aug., fr. light yellow (non vidi), *B.S.I.P. 7K61* (K, L).

LITSEA ALBAYANA Vidal

Cf. Kostermans, *Bibl. Laur.* 78G. 1364. — Typus: *Vidal SCO* (<K), syntypes: *Vidal 1SSI, 7S17, 15148*.

New synonym: *Litsea, bulusawetiis* B. Elmer, cf. KostermanE, *l.e.* 795. — Typus: *Elmer 15792*, Irosin, Mt. Buluaan, July, young fr. (CAL, L, US).

Other specimen: *Elmer 15575*, same locality, April, fl. (L); *ibid.*, alt. 800 m, **Jl**ay, fl. *PNH 58535* (L).

Litsea anamo Kosterm., *spec. nov.*

Arbor mediocris ramulis dense ferrugineo tomentellis foliis alternantibus rigide chartaceis ellipticis obtusis vel obscure brevissime acuminatis basi obtusis supra sat opaca sub lente minutissime dense reticulata nervo Mediano impressa dense minute tomentella costis gracilibus impressis glabrescentibus subtus dense minute rufo-tomentella nervo mediano prominente costis sat patentibus prominentibus venulis secundariis

subparallelis connectis petiolis gracilis sat long is dense tomentellis supra anguste canaliculatis inflorescentibus immaturis dense ferrugineo tomentellis axillaribus.

TYPUS: *Hartley T.G.H. 1151S* (L).

Tree 10—18 m tall, 10 and more cm diam.; bark grey brown to brown, smooth or rather rough, under bark green, inner bark light brown, or reddish brown, aromatic; wood straw. Branchlets densely rusty tomentellous. Leaves spirally arranged, rather stiffly chartaceous, elliptic (rarely subobovate-elliptic), 4.5 x 8—7 x 12 cm (2.5 x 6—3.5 x 10 cm in the syntype), obscurely, very shortly apiculate or obtuse, base obtuse; upper surface dull to slightly glossy, glabrous except on the nerves, under the high power lens minutely reticulate, midrib impressed, tomentellous, lateral nerves slender, impressed, glabrescent; lower surface densely rusty tomentellous, midrib prominent, the 9—12 pairs of rather patent lateral nerves prominent, connected by a rather lax reticulation. Petiole rather slender, 10—15 mm long, densely tomentellous, narrowly sulcate above. Umbels (immature) on very short, densely rusty-pilose axillary branchlets, the buds densely tomentellous.

Belongs to the *L. amicorum* group.

TERBITOHOY OF NEW GUINEA. E. Highl. Distr., Kainantu Subdistr., Kassam Pass, alt. 1400 m, Jan., buds, local name Anamo (A, BRI, CANB, K, L); Morofae Distr., Kuali Greek, about 5 miles S. of Wail, April, buds, *Hartley T.G.H. 11H3* (K, L). W. IRIAN. 15 km S.W. of Bernard Camp, Idenburg R., alt. 1550 m, ster., *Brass & T.E. & G. in h 11975* (distributed as *Eltsoc & Tms.*).

LITSEA AUREA Kosterm.

Cf. KostermansTM Reinwardtia H: 86, f. 40. ISTO. — Typus: *bb. SSSJ*, (BO, L).

New records: JAVA S. of Leuwiliang, alt. 400 m, Sept., buds, *Backer 25244* (L); BORNEO. Sarawak, Ulu Sg. Selada, Melinau, Kapit, 3d Div., tree 33 III, diam. 40 cm, Iban name Anau, Aug., buds, S. 21,9,97 (BO, K, L, SING).

Litsea brookeana Kosterm., *spec. nov.*

Arbor ramulis dense minute ferrugineo tomentellis, foliis oppositis rigide coriaceis ellipticis brevissime apiculatis basi obtusis, supra nitida laevia nervo mediano impresso costia filiformis subimpressis, subtus minute adpresse pilosis glabrescentibus nerviis exceptis nervo mediano prominentibus costis sat patentibus gracilibus marginem versus arcuatis evanescentibus, petiolis caesis brevis dense pilosis.

TYPUS: Miss *W.M.A. Brooke S571* (L).

Tree; branches grey, smooth, flossy, thickened at the nodes; branchlets stiff, densely, minutely rusty tomentellous. Leaves opposite,

rigidly coriaceous, elliptic, 3 X 4.5—3 x 7—4 X 8 cm, shortly apiculate, base obtuse; upper surface glossy, smooth, glabrous, midrib impressed (pilose at the base), lateral nerves very thin, slightly impressed; lower surface minutely adpressed, subsilky pilose, glabrescent, except on the main nerves, midrib prominent, the 7—10 pairs of slender rather patent, prominent lateral nerves arcuate near the margins. Petioles rather thick 5—7 mm long, densely pilose.

Although the specimen is sterile, it is easily recognizable by its thick small opposite leaves, which place it in the *L. ferruginea* group.

BORNEO. Sarawak: Mt. Berumpit, summit, alt. 1700 m, 11 May 1954, *Mi: W.M.A. Eroke 8571* (L).

LITSEA CALOPHYLLANTHA K. Schum.

Cf. Kostermans⁸, *Bibl. Laur.* 706. 1964; *in Reinwardtia* 8: 87. 1070. — Typus: *Lautjrbach 1356*.

New records: NEW BRITAIN. Galilo village near Cape Hoskins, W. Nakanai, tree 7 m, diam. 25 cm, Aug., young fr., *NGF C501* (K, L, LAE). NEW GUINEA. Morobe Distr., Bulolo, alt. 1400 m, lower montane forest with *Caecionopsis*, *Engelkardia*, *Gordonia*, tree 30 m, bole 17 m, diam. 50 cm, June, fr., *NGF 1Y1U* (A, BISH, BO, BRI, CANB, K, L, LAE, PNH, SING, SYD, US), fr. slender, subovate-ellipsoid, 8 X 12 mm, cup thin, 7—8 mm diam. merging into the swollen, fleshy, obovate, 5-6 mm long pedicel; Bupu village, Warapit, alt. 1500 m, tree 12 m, bole 3 in, diam. 25 cm, stems hollow and inhabited by black ants, veins yellow, July, fl., *NGF 22982* (A, BO, BRI, CANB, K, L, SING, SYO); above Bahaiia, 15 m. SE of Garaina, alt. 1000 m, tree 17 m, diam. 30 cm, old second, forest, bark light grey with warty lenticels, inner bark light straw, wood straw, leaves pale glaucous underneath, Jan., under anthesis, *Hartley T.G.H. 13677* (L); E. Highlands Distr. near Sassaara, alt. 1800 m, tree 7 m, bark grey-brown, smooth, inner bark straw, twigs hollow with ants, July, fr., *Hartley T.G.H. 119HG* (L); S. Highlands, sawmill at lalibu, alt. 2200 m, tree 20 in, Sept., fr., *NGF H70SI*, (L); fr. 8 x 14 mm, cup 3-5 mm, hardly different from fleshy pedicel. Irian Barat, Japen Isl., Asau, Sebosiari, Serui Distr., alt. 210 m, tree 22 m, bole 15 m, diam. 40 cm, bark smooth, white, slash light brown, sapwood 8 cm, yellow, heart wood brown, Sept., buds, *BW 92i3* (L); steep coast near Djajapura (Hollandia), low alt., tree 7 m, diam. 10 cm, bark smooth, Aug., fr. black, *Kostermans & Soegeng 295* (A, BO, G, K, L, P); slope of Cyclope Mts near Djajapura, alt. 300 m, tree 6 m, diam. 10 cm, bark thin, smooth, grey, wood yellow with cigarbox wood smell, branchlets white, ster., *Kostermans & Soegeng 188* (BO, L).

LITSEA CAERII Kosterm.

Cf. Kostermans *in Reinwardtia* 8: 88, f. 41. 1970.

New records: TERRITORY OF NEW GUINEA, forests of the Somadjidi, alt. 450 m, ster., *SchleshtBT 19577* (L), leaves much larger than usual; Mt. Ganeae, alt. 1000 m, ster., *Can- 15290* (L); Papua, Centr. Distr., track from Mt. Krone, E. of Waitape,

nit. 2300 m, in undergrowth of *Castmop** forest, treekt 5 m, bole 3 in, diam. 2.6 cm, Jan., fr., *NGF E11352* (L).

LITSEA CAULIFLORA Stapf

Cf. Kostermans, *Bibl. Laur.* 797. 1964. - Typus: *Haviland 1221*.

Litsea cauliflora (Thw.) Trimen was published one year later, as far as could be ascertained.

The fruit cups, contrary to those of *L. cauiocarpa*, which are also cauliflorous, are small and merge into the obconical short pedicel.

New records: BORNEO. Sabah, Mt. Kinabalu area, fr., R.S.N.B. 6017 (K, L); Tenompok, alt. 1700 m, Febr., fr., *J. & M.S. Clemens 28507* (K, K); Mesilau R., alt. 1700 m, tree 13 m, diam. 20 cm, April, fl., *R.S.N.B. 4908* (K, L); *ibid.*, tree 7 m, diam. 18 cm, Jan., fl., *R.S.N.B. 4057* (K, L); Ulu Langanani, alt. 1300 m, riverside and hillside, common, Aug., fr., *B.S.N.B. 1728* (K, L).

LITSEA CAULOCARPA Merr.

Cf. Kostermans, *Bibl. Laur.* 797. 1964. - Typus: *Ramos 1894* (L, US), syntypes: *Ramoi 1591* (US); *Villamil 309* (US).

The cups are large and thick, obscurely thickly ribbed, the fruit diameter is less than the cup diameter.

New records: SUMATRA W. Indragiri, Taluk region, Hutan Pulau Lawaa near Taratik air Hitam, lowland Dipterocarp forest, sandy soil, Jan., fr., *Amiruddin-65* (L), tree 5 m, diam. 12 cm, crown 3 m. BORNEO. Sabah, Sandakan, Kabil-Sepilok For. Res., low alt., tree 7 m, diam. 10 cm, Nov., fr. grey, *BNBFD 1015*, <L>; Bagat Camp, alt. 40 m, black soil, tree 15 m, bole 7 m, diam. 10 cm, April, fr. yellow, *San 55/B6* <L>; Lungmanis, mile 9, alt. 50 m, tree 12 m, bole 10 m, diam. 13 cm, inner bark white, aoft, Jan., fr. whitish green, *Sera 27123* (L); mile 45, Labuk Rd., tree 10 m near stream, inner bark yellowish, sapwood yellow, Jan., fr. *Sore iSU2* (L); Keratan Camp, alt. 40 m, black soil near river bank, tree 17 m, bole 7 m, diam. 20 cm, bark brown, outer bark grey, inner brown, cambium yellow, Jan., young fr., *San SSS57* (L); mile 7.5 Brit. Borneo Timb. Co. Concession, Lungmanis, 25 miles S.W. of Sandakan, alt. 20 m, tree 15 m, March, fr., *Sera A 2951* (A, BO, K, KEP, L, SING); Tawau, Balong For. Res., tree 13 m, bark grey brown, scaly, May, buds, *San S0152* <L>; *ibid.*, tree 10 m, diam. 30 cm, bark scaly, alah outer bark thin, inner 13 mm, yellowish, May, buds, *San S0155* (L); Ulu SR. Serudong, tree 10 m, diam. 20 cm, Aug., young fr., *Son 31190* (L); Quoin Hill, Cocoa Estate, alt. 50 m, tree 7 m, diam. 10 cm, outer bark thin, inner bark brown, sapwood white, glossy, March, fr. white with peculiar smell, *San 21525* (L); Ulu Sg. Kalumpang, tree 7 m, diam. 30 cm, June, buda, *Son S0A77* (L); Sarawak: S. Tubau above Tubau village, steep spur, alt. 100 m, tree 13 m, diam. 20 cm, bark smooth, grey-brown, mottled, April, fr. grey-green, *S. 18572* <L>; Kuching, Semengoh Arbor., leached yellow sandy clay, alt. 15 m, tree 13 m, diam. 15 cm, bark smooth, whitish, May, fl. pale yellow, *S. 15959* (L); Sampadi For. Res., 25th mile Bau-Lundu Ed.,

1st Div., alt. 250 m, karang forest, yellow clay, tree 7 m, diam. 13 cm, June, buds greyish with greyish stalks, *S. 26271* (BO, E, K, L, SING); Indonesian Central-East Kalimantan, W. Kutei, alt. 150 m, tree 6 cm diam., Nov., fr. pink, cup light brownish, *Endert 4755* (BO, L); *ibid.*, tree 10 m, diam. 8 cm, Aug., fr. red, cupule dirty brown, when young white and cup light green, *Endert 2581* (BO, L).

LITSEA CHEWII Kosterm.

Cf. Kostermans, *Bibl. Laur.* 799. 1864; in *Keinwardtia* 8: 81. 1970. - Typus: *Chew, Corner & Staintou 160* (BO, K).

Litsea kelferi var. *ovata* Gamble, cf. Kosterm., *Lc.* 850. - Typus: *Wray 1600*.

New records: BORNEO. Sabah, Mt. Kinabalu, Ranau Distr., E. Pinosok plateau, alt. 1500 m, near stream, tree 7 m, bole 5 m, diam. 20 cm, inner bark brown, sapwood yellow, July, buds, *Sun S5071* (L); Meailau R., alt. 1700 m, tree 5 m, diam. 8 cm, lower leaf surface light glaucous, Febr., buds, *RSNB 4203* (K, L); *ibid.*, tree 5 m, Jan., buds yellowish green, *RSNB 4105* (K, L); *ibid.*, tree 10 m, April, fr. orange on one side, cup flat small, thick, *ESAB 7006* (K, L).

Litsea ehyrsoneura Kosterm., *spec. nov.*

Arbor parva ramulis dense minute sublanuginoso-tomentellis, Joliis alternantibus rigide chartaceis ellipticis acuminatis basi acutis supra subnitida glabrescentia dense minute reticulata nervo mediano impressa coatis filiformis subim pressis, subtus sat laxe minute sublanuginoso tomentella nervo mediano prominentibus costis erecto-patentibus prominulis nerviis secundariis subparallelis conjunctis, petiolis sat longia canaliculatis, inflorescentia immaturis axillaribus subpilosis.

TYPUS: *BSIP 2UK* (L).

Small tree. Branchlets densely, minutely rusty sublanuginose-tomentellous. Leaves spirally arranged, stiffly chartaceous, elliptic, 4 x 11—6 x 14.5 cm, inconspicuously acuminate, base acute; upper surface rather glossy, densely sublanuginose-tomentellous, glabrescent (tardily on the nerves), densely, minutely reticulate, midrib impressed, lateral nerves filiform, slightly impressed, lower surface rather densely, minutely, ferruginously sublanuginose-tomentellous, minutely reticulate, midrib prominent, densely pilose, lateral nerves 7—10 pairs, erect-patent, towards the margin arcuate, prominent, connected by subparallel slender secondary veins. Petioles slender, 15—25 cm long, channeled above, densely pilose. Umbels (immature) on very short branchlets in the leaf axils, the buds almost glabrous.

Solomon Ist. Santa Ysabel, near Maringe Lagoon, S. side of west ridge of Mt. Sasari, forest on very steep hillside, alt. 700 m, leaves grey below with golden veins, petioles and twigs golden tomentose, Oct., buds, *BSIP 2U1* (K, L).

LITSEA COREANA Lév.

Léveillé in Fedde, KePERT. 10: 370. 1912; Allen apud Kehder in J. Arnold Arb. 17: 327. 1936; in Ann. Missouri bot. Gard. 25: 399. 1938; Kakai, Fl. sylv. Koreana 22: 38 and 55. 1839; Kostermans, Bibl. Laur. 807. 1964. - Typus: *Taquet 1355* (E); isotype: *Taquet S171, iiOI* (BO, E, K, LE).

Litsea zuccharium Kostermans in Reinwardtia 8: in. 1970.

Daphnidium lancifolium Siebold & Zuccarini (non Thwaites), Flora Japon. Fam. nat. 2: 83 (1846). IS47; Kostermans, Le. 461; in Reinwardtia, Le.: *lozote laneifolia* Blume; cf. Kostermans, Le. 461 (no. 12a); *Actinodaphne* lancifolia* IS. & Z.) Meissner; cf. Kostermans, Le. 857 (no. 226b).

I had the opportunity to study the original material of Léveillé in Edinburgh and discovered, that Léveillé's description was based on specimens, belonging to different genera: a real *Litsea* of which the flowers were described and *Persea thumbergii* (specimen *Taquet 1356*) of which the fruit were described.

Allen apparently saw only the latter specimen, and referred *L. coreana* to *Persea* (*Machilus*) *thumbergii*. As, however, the main part of the description covers *Litsea coreana*, this name should be used.

Litsea zuccharinii from Japan is identical with it, as was discovered by Kakai.

Litsea krukovii Kosterm., nomen nov.

Actinodaphne pedicellata Hayata (base) in Matsumura & Hayata in Journ. Coll. Sci. Tokyo 22: 351. 1906; Icon. 5: 172, fig. 60-C. 1915; et. Kostermans, Bibl. Laur. 35. 1964; Hui-Lin-Li, Woody Fl. Taiwan 198. 1963. - *Fiwa pedicellata* (Hayata) Nakai in Journ. Japan. Bot. 14: 193. 1838; Kostermans, Le. 521. - *Litsea pedicellata* (Matsum. & Hay.) Hatusima in Journ. Geobot. 19 (1-2): 25. 1971. - Typus: *Myahé anno 1599, Owatari anM 1855, Makino 1858, Hirar s.d.*

Hatusima rightly transferred this species from *Actinodaphne* to *Litsea*. However, *Litsea pedicellata* (M. & H.) Hatusima is antedated by *Litsea pedicellata* Bartlett (1909), an American species.

It is a great pleasure to name this species after Dr. B.A. Krukoff, the well known American botanist, who is supporting my work.

Litsea neohebridensis Kosterm., spec. nov.

Arbor mediocris ramulis glabris sat gracilis foliis alternantibus chartaceis glabris ovatis vel late ellipticis brevissime late obscure mucronatis vel obtusis basi cuneatis, utrinque minutissime dense reticulatis, supra sub-nitidis nervo mediano impressis costis filiformia prominulis, subtus pallidioribus nervo mediano prominentibus sat gracilia

costis erecto-patentibus utrinque 4—6 gracilis, petiolis gracilis perlongis supra canaliculatis, inflorescentiis axillaribus brevissimis sitiglabris umbellulis paucis longe pedunculatis, fructus anguste ellipsoideis, cupulis sessilibus cupuliformis, basi obovicis margine integris.

TYPUS: A. Morrison s.n. fP).

Tree, 7 m high. Branchlets glabrous, rather slender. End bud very minutely sericeous. Leaves spirally arranged, chartaceous, glabrous, ovate to broadly elliptic, 3.5 x 6—6 x 11—6.5 x 10 cm, shortly, broadly, rather obscurely acuminate or obtuse, base cuneate, both surfaces very minutely, densely reticulate (more distinct underneath); upper surface rather glossy, midrib slender, reddish, impressed, laterals filiform, prominent, lower surface paler, midrib rather slender, prominent, reddish, laterals erect-patent, 4—6 pairs, prominent, curved near the margin, sometimes forked, secondary nerves obscure, very lax. Petioles slender, 1.5—3 cm long, channeled above. Inflorescences axillary, ca 1—2 mm long, thickish (terminal bud minutely sericeous), slightly pilose, bearing a few, peduncled umbels. Peduncles slender, up to 5 mm long with a few sub-appressed hairs, umbel buds acutish with a few sub-appressed hairs. Fruit narrowly ellipsoid, up to 7 x 15 mm. Cupula cup-shaped, rather thin, sessile, 3—4 mm deep and 5 mm diam, with entire rim, merging gradually into an obconical, 2 mm long basal part.

Differs from *L. aneityensis* by its glabrous, thinner leaves with longer petioles and the sessile cup.

NEW HEBRIDES. Tanna Isl., Lcnakcl, alt. 100 m, rainforest, not common, March, buds, *Kajewski HO* (P); Undine Bay, Efate, summit of Peak, 900 m alt., Aug., fr., -4. Morrison s.n. (P).

LITSEA VERBTEEGHII Allen

Cf. Kostermans, Bibl. Laur. 892. 1964; in Reinwardtia 7: 499. 1969; 8: 85. 1970. - Typus: Brass & Versteegh 11162 (A, BO, K, L).

I formerly included this in *L. alveolata* Allen. Since more material has become available, I must confess, that Allen was right in separating the two. Superficially they are much alike, but the umbel stalks of *L. alveolata* are much shorter, in *L. versteeghii* the umbels are smaller on long peduncles; the fruits of *L. alveolata* have a cup continuous with the obconic short pedicel, in *L. versteeghii* the cups are almost flat, much smaller and abruptly narrowed into slender, longer pedicels.

Specimens examined: W. IRIAN. Hills N. of Api E., Kebar Valley, alt. 800 m, clay soil, tree 26 m, bole 20 m, diam, 40 cm, buttresses up to 60 cm high, out 60 cm, and 4 cm thick, outer bark greenish brown with many shallow fissures, inner bark yellow within, slash ocreous, rapidly turning brown, sap wood light yellow, no

heartwood, Oct. buds, *BW 5353* (L.); Bale R., 18 km NE. of Lake Habbema, alt. 2450 m, tree 5 — 6 m, Nov., fls. brown, *Brass line* (L). TERRITORY OF NEW GUINEA. Sepik Distr., Hindenburg Range S. of Nerenavip village, alt. 2900 m, secondary forest, tree 20 m, diam. 26 cm, wood yellow, Sept. fl., *NGF 28517* (A, BRI, CANB, K, L); W. Highlands, Alipe, Kepaka, Upper Kangel Valley, Subdistr. Hagen, alt. 2800 m, tree 17 m, diam. 20 cm, June, fr., *Bowers T8i* (L).

MACHILUS Nees (= PERSEA)

MACHILUS SERICEA (Nees) BL.

Blume, MUB. Bot. Lugd. Bat. 1 (21): 330. 1851; rf. Kostermans, *Bibl. Laur.* 926. 1061; *Ocotea sericea* Nees (non H.B.K., see Goudot ex Meisn.) in Wallich, *PL Asiat. rar.* 2: 71. 1831, p.p. - Typus: *Wallich Catal. 26OG -B*, p.p., n. (L).

According to Hooker f. (*Fl. Brit. India* 5: 139. 1889), *Laurus sericea* A, B, C might or might not belong to one species; it was described by Nees as a *Phoebe*, but Blume separated later a specimen as *Machilus sericea*, "observing that it differs from the *Phoebe* in the absence (sphalm.! = presence) of rings, caused by the fall of budseales at the base of the branches".

Blume's specimen, a small branchlet with leaves and inflorescence is conserved in Leiden; it has a glaucous, sparsely sericeous lower leaf surface, sericeous flowers and glabrous filaments. In my opinion it is conspecific with *Persea bombyeina* (King ex Hooker f.) Kosterm.

The specific epithet "*sericea*" cannot be transferred to *Persea* because of the American *Persea sericea* H.B.K. and consequently the name *Persea bombyeina* [King ex Hooker f.) Kosterm. stands.

PERSEA Miller

Persea blumei Kosterm., *nom. nov.*

Machilv.i pubescens Blume (base), Mus. Bot. Lugd. Bat. 1(21): 330. 1861; Meisner in DC, *Prodr.*, 15 (1): 40. 1864; Hojker f. *Fl. Brit. India* 5: 862. 1890; Kostermans, *Bibl. Laur.* 924. 1064. - Typus: *Verb. Heland*, e Nepalia, *Ocotea* no. 50, fl. (L.); isotypus (K).

The species was based on a specimen sent from De Candolle to Blume as *Ocotea no. 20* (belonging to the set, sent by Wallich to De Candolle in Geneva, Hornemann in Kjobnhavn and to D. Don of Nepalese plants). The holotype in Leiden consists of a flowering branchlet with two leaves, more complete material is in the De Candolle herbarium and I found also a good specimen in Hooker's Herbarium

(Kew), overlooked by Hooker, who in his *Flora of British India* disposed of it as a species being unrecognizable from the description. It differs from its nearest relative *P. villosa* by the leaves having a villose lower surface without visible secondary nerves and the larger number of laterals.

Persea declinata (Bl.) Kosterm., *comb. nov.*

Lzuraa declinata Q. Blume (basonym), *Catal. Gewasser. 'sLands* Tlantent. Buiteniorg 66. 1823; cf. Kostermans, *Bibl. Laur.* 611. 1964; *Phoebe declinata* (Bl.) Nees, *Syst. Laur.* 114. 1838; cf. Kostermans, *L.* 1275; m *Einwardtia* 4: 203. 1957; 7: 353. 1968; *Ocotea declinata* Bl. (non Mez), *Bjdr. FL Nederl. Indie* 1ie Stuk 573. 1825; cf. Kostermans, *L.* 1083.

I have hesitated to refer this to *Persea*, because of the non-reflexed, slightly hardened tepals under the fruit. However, the leaf reticulation is that of *Persea* and so are the globular fruit and since its closest relation seems to be with *P. excelsa*, I believe that this species belongs to *Persea*. In American species of *Persea* semi-erect persistent tepals occur more often:

For synonymy see Kostermans in *Reinwardtia* 7: 353. 1968.

Persea endothrix Kosterm., *spec. nov.*

Arbor ramulis glabris foliis coriaceis glabris ellipticis utrinque dense minute areolate-reticulatis breve acutis vel obtusis basi acutis, supra sublaevia nervo mediano robusta prominentis costis gracilibus, petiolis bene euolutis, paniculis foliis abbrevioribus glabris paucifloris breve et paucis ramosis, pedicellis longis tepalibus elongatis extus glabris intus dense lanuginosis.

TYPE: *San 56521* (L).

Tree. Branchlets rather slender, glabrous, end bud small, glabrous. Collar of prophyll scars lacking. Leaves spirally arranged, sub-aggregate, coriaceous, glabrous, elliptic to subovate-elliptic, 2.5 x 7 (2.5 x 9) — C x 16 cm, shortly acuminate or obtuse, base acute, upper surface glossy, smooth or obscurely pitted, midrib slender, strongly impressed; lower surface densely areolate-reticulate, midrib strongly prominent, laterals 10—18 pairs, slender, erect-patent, arcuate near the margin, prominulous. Petioles slender, 1—2 cm long. Panicles axillary, glabrous, 1.5—12 cm long, few and shortly-branched near the apex, few-flowered. Pedicels filiform, up to 7 mm. Tepals elongate, narrow, up to 4 mm long, glabrous outside, densely woolly inside, tube infundibuliform, 1—1.5 cm; anthers 1—1.5 mm long, slender, pilose, anthers 0.5 mm, narrow, outer ones with large lower cells and very small upper ones; inner with larger upper

cells, the lower more lateral; basal glands long-stalked; staminodes long-stalked, ovate, acutish with thickened rims; ovary ellipsoid; style as long as the filaments, stigma truncate, small.

No collars of narrow prophyll scars could be discovered on the branches, which places this species near *P. exceisa* and *P. declinata*. Characteristic is the woolly inside of the tepals (the inner ones are leiss woolly).

BORNEO Sabah, Eanau, alt. 1300 m, Tnompok proposed ~~nat~~ reserve, Kinabalu, March, fl., San. SS5* (L).

Persea pedunculata (Bl.) Kosterm., *comb. nov.*

lozoste **pedunculata* Blume (basionym), Mus. Bot. Lugd. Bat. 1 (23) : 364, JB51; Kostermans, Bibl. Lsur. 550. 1954. *Actinodapne pedunculate*. (Bl.) Meisn. in DC. Prodr. 15(1): 211. 1864; cf. Kostermans, Bibl. Laur. 3G - Typus: *Reeves* s.n. (e Herb. Lindley) (L).

Modulus velitina Champion ex Benth. in Hooker's Kew Journal & Gard. Miscell. S: 198. 1853; Kostermans, Bibl. Laur. 930 (extensive references); in Reinwardtia A: 1 B4 1962* a. - 120 1970 f exclus f *Tosea* Liou Hot **PTBSO* vs*vitita* I ChamD rat Benth.) Kostermans in Einwardtia B: 194. 1962; Bibl., b.c. 1262. — Typus: *Champion* 181 (K).

Mackilus grij&i Han* in Ann. Sci. Nat., Sir. 4, 18: 226 (1862) 18G3; Kostermans, Bibl. L. 908; *Persea gr&isii* (Hance) Kostermans in Einwardtia 6: 186. 1962; 6: 118. 1970. — Typus: *Gr&i* iji Herb. Hance S7S8 (E, K).

Actinodapne wagniflora Allen in Ann. Missouri Bot. Gard. 25: 403. 1938; Kostermans, Bibl., Lc- 31; in Bull. Bot. Survey India 10: 287. 1968; in Einwardtia 8: 120. 1970.

This very common species, which flowers already when it is one meter high, is based on a specimen, collected by Reeves in S. China and in the position of Lindley, who sent a specimen to Blume.

Allen, who re-described it as an *Actinodapne*, was apparently misled by the aggregate leaves, although inflorescence and flower structure excludes it definitely from *Actinodapne*.

PHOEBE Nees

Phoebe dunniana (Léveillé) Kosterm., *comb. nov.*

Mackilus dunnianus Lévillé* in Fedde, Repert. 13: 174, 28 Febr. 1914; cf. Kostermans, Bibl. Laur. 905. 1964. *Mackilus mnniana* Yang in Journ. W. China Border Res. Soc. 15, B: 75. 1945; Kostermans, L. 905 (sphalm. = *dunniana*). — Typus: *Maire* s.n., colines boisées à Long Ky, alt. 700 m, fleurs, Junt 1912 (E).

Mackilus mairei Léveillé in Fedde, Repert. 13: 174. 1914, cf. Kostermans, L. 917. - Typus: *Maire* s.n., fl., Lons Ky, May <E>.

Alseodapne omeiensis Gamble in Sargent, Pl. Wilson. 2: 70, 24 March 1914, cf. Kostermans, L. 69; *Notkapkoeba omeiis* (Gamble) Chun & Contr. Biol. Lab. Sci. Soc. China 1(5): 33. 1925; Kostermans, L. 1058.

Mackilus dunnianus and *M. mairei* have been already reduced to synonyms of *Alseodapne omeiensis* Gamble by Rander and Liou Ho. However, the former have been published 3 weeks earlier than *A. Iseodapne omeiensis*.

Available material shows moreover the erect, indurate perianth of the fruit, which places this in *Phoebe*.

Phoebe kjellbergii Kosterm., *spec. nov.*

Arbor ramulis apicem versus dense minutissime ferrugineo villosulis folia subaggregatis rigide chartaceis vel subcoriaceis obovato-ellipticis vel suboblancoelatis breve vel brevissime acuminatis basin versus sensim fltenuatis in petiolium sat crassum contractis vel acutis supra nitida glabra nervo mediano impressa costis filiformis subimpressis subtus opaca minutissime adpresse pilosa nervo mediano prominentis costis erecto-patentis gracilibus prominentis nerviis secundariis subparallelis filiformis conjunctis infra ctescenti is folia aequilongis vel longioribus vix et breve ramosis glabrescentibus fructua ovoideus perianthus persistens par vis minutissima adpresse pilosis.

TYPUS: *Kjellberg* 2973 (BO).

Tree. Branches smooth, pinkish grey, the youngest ones towards their tips densely, minutely, rusty villosus. Leaves spirally arranged, subaggregate (monopodial branching), rigidly chartaceous to subcoriaceous, obovate-elliptic to suboblancoelate, 4 x 11—6 x 17 cm, apex shortly acuminate to apiculate, base gradually tapered, acutish or occasionally somewhat rounded; upper surface smooth, glabrous, the midrib longitudinally narrowly channeled, lateral nerves filiform, slightly impressed, lower surface dull, finely, densely, very minutely appressed pilose, midrib and the slender, erect-patent, ca 10 pairs of slightly arcuate lateral nerves prominent, secondary nerves subparallel, filiform, prominulous, reticulation fine, rather dense. Petioles rather stout, 10 mm long, puberulous, Infrutescences axillary, subapical, up to 15 cm long with a long peduncle and few, up to 2 cm long, subapical branches, glabrescent; fruit ovoid, 11 x 13 mm, blue-black; persistent perianth rather flat up to 6 mm diam., the tepals unequal, up to 3 mm long, minutely, densely appressed pubescent.

Characterized by the small persistent perianth, the obovate-elliptic, thickish leaves with a very short, appressed pubescence.

The Kjellberg specimen was from a branch, picked up from the ground.

SULAWESI (Celebes). Diatr. Palopo, village Batang, lit. 250 m, ster., 66. 20898 (BO); Todjambu, alt. 100 m, Dec, fr. black, peduncles red, *Kjellberg 25TS* (BO).

Phoebe tenuifolia Kosterm., *spec. nov.*

Phoebe cterciuides (Elmer) Merrill, cf. Kostermans, *Bibl. Laur.* 1301. 1064, p.p. (quoad *Merritt 682i*).

Lauraceae, *Spec. X*, Koorders in *Medsd. Plantent. Buitenzorg* 19: 575. 1898.

Arbor ramulia griseis lenticellata glabris apice minutissime pilosis foliis aggregatis chartaceis diu glabrescentibus obovato-ellipticis brevissime late acuminatis basin versus attenuatis acutis utrinque minutissime dense reticulatis supra nitida nervo mediano impreasa costia obscuria filiformis aubimpressis subtus pallid; ora subopaca nervo mediano prominent! bus costis erecto-patentibus gracilis prominentibus nervia secundariis parallelis prominulis connectis petiolig brevis infructescentiis foliis subbrevioribus apicem versus (sub lente) mmutissime dense pilosis vix ramosis pedunculis perlongis robustis fruetus par vis ellipsoideo-ovatis perianthus induratus minutSRime pilosus amplectens.

TYPUS: *de Boer 2s = bb. 2249* (BO).

Tree up to 20 m high and 60 cm diam. Branchlets greyish white, lenticellate, glabrous with very large, protruding-oval leaf scars, near their apices very minutely, densely pubescent. Leaves spirally arranged, aggregate, chartaceous, obovate-elliptic, 7 x 19—10 x 26 cm, obtuse with a very short, broad acumen, base gradually tapered, acute, both surfaces very minutely, densely reticulate, upper surface glabrous, glossy, midrib impressed, lateral nerves obscure, filiform, slightly impressed, lower surface more dull, in younger leaves minutely, rather densely appressed pilose, soon glabrous, midrib prominent, lateral nerves ca 10—12 pairs, erect-patent, slightly arcuate, prominent, connected by parallel, promraulous, filiform secondary veins. Petiole 1—3 cm long. Fruiting panicles up to 19 cm long with rather stout, long peduncle and a few up to 2 cm long apical, widely spaced branches, towards their apices very minutely appressed pubescent. Fruit ellipsoid ovoid, slender, yellowish-brown (in alcohol), up to 6 x 10 mm, persistent perianth minutely, densely appressed pilose, ca 5 mm long, tepals subequal.

A widespread species, characterized by its thin leaves with a very fine pubescence on the lower leaf surface; the small persistent perianth and the small fruit which dry yellowish brown.

It has a fairly constant vernacular name in Celebes: "Areepoongoo".

The specimen *Merritt SSSI* from Mindoro has somewhat broader leaves with larger flowers, but the latter is due to the stage of development, some flowers are diseased and have become gigantic.

PHILIPPINES. Mindoro, April, fl., *Merritt SS2i* (BO); Mindanao, Todaya (Mt. Apo), Diatr. of Davao, May, fl., *Elmer 10685* (BO). SULAWESI (Celebes), Minahasss, Tondano, ster., *Xoorders 17429* (BO, L); *ibid.*, near Eatatotok, ster., *Koorders 17W1* (BO, L); Eatahan, alt. 250-300 m, June, fr., *Koorders 2J,070* (BO, L) and *17,SS* (Boli Kajuwatu, alt. 50 m, ster., *Hoarders 17501*, (BO, L) and *1751S* (BO); Lulumbulan near Paku-ure, April, fl., *Hoarders 17,56* (BO, L); near Modounding, alt. 1060 m, Sept., buds, 66. *17120* (BO); Palopo Distr., village Morante, alt. 200 m, tree 15 m, diam. 33 cm, ster., 66. *gOSU* (A, BO, L); village Batang, alt. 250 m, star., 66. *20898* (BO); Amurang, fr., *sine call.* (BO, K, L); Isj. Buton, Distc. Sampolawa, alt. 10 to, March, fr., *de Boer 29 = bb. 2249* (BO, L); Isl. Muna, village Wapai, alt. 5 m, tree 20 m, diam. 60 cm, ster., *bb. 21729* (A, BO, L).

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