

REVISION OF THE GENUS LABISIA (MYRSINACEAE)

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SUMMARY

The genus *Labisia* (Myrsinaceae) is revised for the Flora Malesiana region. Seven species are recognised. Several earlier described species are synonymous to *L. pumila* and reduced to varieties of that species: var. *alata*, var. *lanceolata*, var. *nerifolia* and var. *sessilifolia*. A new record of *L. longistyla* is mentioned. *Labisia malouiana* and *L. obtusifolia* are excluded from the genus.

Key words: *Labisia*, Myrsinaceae, Malesia, new record, new varieties.

INTRODUCTION

The well-known Malesian genus *Labisia* Lindl. was described by Lindley (1845). Reinwardt (1826) published the genus *Angiopetalum* which antedates Lindley's description. A proposal to conserve the name of *Labisia* against *Angiopetalum* was published by Van Steenis (1948), which was later accepted by the Committee on Conservation of Names.

The habit of *Labisia* resembles that of *Ardisia* subg. *Bladhia* and it is not surprising that *Labisia pumila* was formerly referred to as *Ardisia pumila* (Blume, 1823, 1826; Miquel, 1856; Scheffer, 1867). In Mez's key to the genera of Myrsinaceae *Labisia* stands between the genera *Tapeinosperma* Hook.f. and *Parathesis* Hook.f. in the tribe Myrsineae because of the uniseriate ovules (Mez, 1902).

Typical for the genus are the numerous secondary veins \pm parallel to each other, the angle of divergence almost perpendicular. The small flowers with induplicate-valvate petals in which the stamens are wrapped undoubtedly characterise the genus as distinct from others in Myrsinaceae. The shape and size of mature corolla buds just before anthesis, petals, sepals, stamens and connective appendages, as well as the length of the styles, are here considered as specifically diagnostic. These characters were previously almost overlooked.

Mez (1902) recognised only a single species *L. pumila* informally indicating infraspecific taxa by using Greek letters (α , β , μ) as did Scheffer (1867). Some botanists transcribed the symbols into formae (Airy Shaw, 1939, 1960), others into varieties (Valeton, 1907; Ridley, 1923b; Hochreutiner, 1925; Masamune, 1942; Fletcher, 1950; Stone, 1988), or retained the symbols (Pitard, 1930; Kanehira & Hatusima, 1943).

New species were published several times (Linden & Rodigas, 1885, 1892; Hallier, 1901, 1915; King & Gamble, 1905; Ridley, 1908); however, except *L. acuta* and *L. longistyla* most of them are synonymous to *L. pumila*. Stone (1988) reviewed all

the published taxa and also provided a synopsis of the species in Peninsular Malaysia. Very recently Sunarno (2002) published three new species from Sumatra.

The study of the specimens of Malesian *Labisia* available from BM, BO, K, KEP, L, OXFORD and UKMB showed that the genus also occurs in the Philippines, southern Thailand and Cambodia.

LABISIA

Labisia Lindl. (1845) 48, nom. cons.; Benth. & Hook.f. (1876) 645; Clarke (1882) 518; Pax (1889) 93; Mez (1902) 172; King & Gamble (1905) 115; Ridl. (1923a) 237; Pit. (1930) 801; Backer & Bakh.f. (1965) 200; B.C. Stone (1988) 43. — Type: *Labisia pothoina* Lindl.
Angiopetalum Reinw. (1826) 7, nom. rej. — Type: *Angiopetalum punctatum* Reinw.

Small, erect, decumbent or creeping undershrubs. Vegetative and generative parts almost all covered with stellate-peltate trichomes, especially when young. *Stems* stout, terete or striate, very rarely branched. *Leaves* simple, alternately or spirally arranged, elliptic or ovate to obovate, upper surface glandular punctate, lower surface covered with peltate trichomes, midrib impressed above, secondary nerves numerous, widely spreading, almost parallel, rarely ascending, venation reticulodromous. *Petioles* (slightly or broadly) winged or not. *Inflorescences* axillary, panicles or racemes with corymb-like fascicles of 2–9 flowers. *Flowers* hermaphrodite, 5-merous, zygomorphic, glandular pusticulate, glabrous or thinly hairy. *Sepals* 5, basally connate; lobes triangular, ovate or deltate, valvate or imbricate in bud. *Petals* 5, basally connate; lobes valvate in bud, ovate to narrowly ovate, induplicate. *Stamens* 5, epipetalous, enclosed by the petals; filaments short, flattened; anthers basifixed, opening longitudinally by slits, connective with short or long appendages, glandular pusticulate dorsally. *Ovary* superior; placenta discoid, ellipsoid or subglobose; ovules 6–8, uniseriate; style filiform, stigma small, notched. *Fruits* drupaceous, subglobose to globose, glandular punctate or punctate-lineate, thinly to densely stellate when young. *Seed* 1, subglobose to globose, ribbed; endosperm smooth, embryo transverse, cylindrical.

Distribution — A small genus with only seven species; throughout Malesia, also in Myanmar, Thailand and Cambodia.

Habitat & Ecology — Lowland or montane forests, usually found in understorey, in secondary forest, bamboo forest and peat forest. Grows well in humus-rich soil, sandy soil, sandy loam soil, deep clayed soil, also in granite white sandy areas; from the beach to 2000 m altitude.

KEY TO THE SPECIES OF LABISIA

- 1a. Calyx lobes triangular or narrowly ovate, acuminate, valvate in bud 2
- b. Calyx lobes deltate, acute, acuminate, imbricate in bud 7
- 2a. Flower buds just before anthesis subglobose or subovoid. Corolla lobes 2–3 mm long. Style 1–2 mm long 3
- b. Flower buds just before anthesis ovoid. Corolla lobes 3–4 mm long. Styles 3–4 mm long 6
- 3a. Leaves many per plant, more than 5. Petiole winged. Corolla lobes 2–2.5 mm long. Anthers 0.8–1 mm long. Styles 1.5–2 mm long 4

- b. Leaves few per plant, usually 3 or 4. Petiole not winged. Corolla lobes c. 3 mm long. Anthers 1.5–1.7 mm long. Styles 1–1.5 mm long **3. *L. paucifolia***
- 4a. Leaves chartaceous, apex acute, acuminate or obtuse. Clusters of flowers along the raceme short pedunculate. Styles 2–4 mm long. Fruits red when ripe 5
- b. Leaves coriaceous, apex rounded. Clusters of flowers along the raceme long pedunculate. Styles 4–5 mm long. Fruits blue when ripe. **2. *L. longistyla***
- 5a. Petiole not winged. Flower buds just before anthesis subovoid or ovoid. Corolla lobes 3–4 mm long. Styles > 2.5 mm long 6
- b. Petiole (broadly) winged or not. Flower buds just before anthesis subglobose. Corolla lobes 2–2.5 mm long. Style < 2.5 mm long. **5. *L. pumila***
- 6a. Flower buds just before anthesis subovoid. Corolla lobes c. 3 mm long. Connective appendage c. 0.3 mm long. Styles c. 3 mm long **7. *L. sumatrensis***
- b. Flower buds just before anthesis slightly conical or ovoid. Corolla lobes 3.5–4 mm long. Connective appendage 0.9–1 mm long. Styles 3.5–4 mm long **6. *L. steensiana***
- 7a. Leaves narrowly elliptic, margin mostly entire, very rarely dentate to serrate. Flower buds just before anthesis conical. Anthers c. 2 mm long, connective appendage c. 0.5 mm long **1. *L. acuta***
- b. Leaves broadly obovate or broadly oblong, margin dentate to serrate. Flower buds just before anthesis obclavate. Anthers c. 1 mm long, connective appendage c. 0.1 mm long **4. *L. posthumusiana***

1. *Labisia acuta* Ridl.

Labisia acuta Ridl. (1908) 116; (1923a) 237; B.C. Stone (1988) 47. — Type: *Ridley 13010* (holo K; iso SING n.v.), Sungau Tebrau, Johore.

Shrubs or undershrubs, erect or decumbent, up to 70 cm high. *Stem* slender, flexuous, striate. *Leaves* alternate; lamina (narrowly) elliptic, 10–15 by 2.5–5 cm, (sub)coriaceous, base acute, slightly decurrent, margin mostly entire, very rarely dentate or serrate, apex acute to obtuse, sometimes slightly acuminate, upper surface glabrous, greyish or brownish when dry, lower surface glabrous, green glaucous when dry, midrib narrowly impressed above, secondary nerves anastomosing at 1–3 mm from the margin; petioles 0.5–1 cm long, slightly winged. *Inflorescences* panicles or racemes, with corymb-like fascicles of 2–4 flowers, 4–6 cm long; peduncle 2–3 cm long; peduncle of the fascicles 0.5–1 cm long, sometimes longer or shorter. *Corymb bracts* deltate to triangular, very rarely ovate, leaf-like, 1–3 mm long. *Floral bracts* narrowly triangular, 1–2 mm long. Pedicel 1–2 mm long. *Flowers* white or pinkish white. *Calyx lobes* deltate, c. 1 mm long, cuspidate, imbricate in buds. *Corolla lobes* ovate, 4–5 by c. 3 mm, incurved margin c. 0.3 mm wide; in mature bud just before anthesis acutely conical, 3.5–4.5 by 1.5–2 mm. *Stamens* 2.5–2.7 mm long; filament c. 0.2 mm long; anthers c. 2 mm long, connective appendages c. 0.5 mm long. *Ovary* ovoid; placenta broadly ellipsoid; ovules 6 or 7, style filiform, 4–5 mm long. *Fruit* subglobose to globose, 7–9 mm diam. when fresh, or 4–5 mm when dry. *Seed* 3–4 mm diam., ribbed.

Distribution — Sumatra (Riau, Jambi, Central Sumatra, Bangka Isl.), Peninsular Malaysia, and Borneo (Sarawak, Central Kalimantan).

Habitat & Ecology — Swampy, white sand forest or peat forest. Altitude up to 400 m. Flowering: September and November.

Note — The species is close to *L. posthumusiana*, but differs in the size and shape of leaves and in the flower parts (see note with *L. posthumusiana*). The venation is sometimes red at the lower surface. During a visit to Central Kalimantan, I found the plants growing near *L. pumila* on a river bank in a forest on granite soils.

2. *Labisia longistyla* King & Gamble

Labisia longistyla King & Gamble (1905) 117; Ridl. (1923a) 237; B.C. Stone (1988) 45. — Lectotype (here designated): Curtis 3750 (holo K; iso SING), Gap, Gn. Semangkok, 3000–4000 ft. alt., fl. May.

Small undershrubs, erect, older stems decumbent or creeping up to 50 cm long. *Stems* slender, rusty brown, creeping ones producing roots. *Leaves* usually 4 or 5 per plant, elliptic to suborbicular, 15–30 by 5–10 cm, coriaceous or subcoriaceous, base decurrent in a broad wing, margin entire, apex obtuse to round, sometimes slightly emarginated, upper surface glabrous, reddish brown or brown, lower surface glabrous, brown when dry, midrib narrowly impressed above, secondary nerves anastomosing at 1–3 mm from the margin; petioles broadly winged, wings 3–8 cm wide. *Inflorescences* panicles or racemes with few-flowered fascicles; peduncles > 7 cm long. *Corymb* and *floral bracts* small, subulate. Pedicels 4–5 mm long. *Flowers* pinkish or purplish. *Calyx lobes* ovate, acuminate, valvate in bud. *Corolla lobes* elliptic, 4–4.5 by 2–3 mm, acuminate; buds (just before anthesis) subconical, 3–4 mm long. *Stamen* c. 1.5 mm long; filament c. 0.2 mm long; anthers ovate, sagittate, c. 1.5 mm long; connective appendage c. 0.3 mm long. *Ovary* globose; placenta ellipsoid or discoid, ovules 6, uniseriate; style terete, slender, 3.5–4.5 mm long. *Fruits* globose, apex conical, blue when ripe, c. 8 mm diameter. *Seed* globose, conical at apex, coarsely ribbed, 4–5 mm diam.; endosperm transverse, curved.

Distribution — West Sumatra, Peninsular Malaysia.

Habitat & Ecology — Montane peat forest (Peninsular Malaysia), hill forest (Sumatra). Altitude up to 1500 m. Flowering: March to June, August to October, December; fruiting: August, October.

Note — Older creeping stems are often deeply buried in high land peat, sending young shoots up to the peat surface. *Okada & Mori 1214* is the first record for Sumatra.

3. *Labisia paucifolia* King & Gamble

Labisia paucifolia King & Gamble (1905) 117; Ridl. (1923a) 237; B.C. Stone (1981) 122; (1988) 47. — Lectotype (here designated): King's collector 8078 (n.v.).

Small undershrubs, up to 45 cm high. *Stems* slender, striate, older part creeping, shoot erect. *Leaves* few, usually 4 or 5 per plant, ovate to suborbiculate, 3–5 by 4–6 cm, base obtuse to round, slightly decurrent, margin entire to slightly crenate, apex acute to acuminate, upper surface glabrous, grey or brown, lower surface glabrous, grey when dry, midrib narrowly impressed above, secondary nerves anastomosing at 1–3 mm from the margin; petioles 3–8 cm long, terete, base thickened. *Inflorescences* racemes or panicles with few-flowered fascicles, usually < 5 cm long. *Corymb* and *floral bracts*

subulate. Pedicels 2–3 mm long. *Flowers* pinkish white. *Calyx lobes* ovate, acuminate, valvate in bud. *Corolla lobes* elliptic, 3–3.2 by c. 1.5 mm, top acuminate; buds (just before anthesis) subovoid, c. 3 mm long. *Stamens* c. 2.2 mm long; filaments c. 0.2 mm long; anthers c. 1.5 mm long; connective appendage c. 0.5 mm long. *Ovary* globose; placenta ellipsoid or discoid; ovules 7 or 8, uniseriate; style subulate 1–1.5 mm long. *Fruits* globose, sometimes conical at apex, scarlet when ripe, c. 8 mm diameter. *Seeds* globose, conical at apex, coarsely ribbed, 3–4 mm diameter.

Distribution — North Sumatra (Asahan), Peninsular Malaysia.

Habitat & Ecology — Montane shady forest with humus-rich soil. Altitude c. 1500 m.

Note — *Labisia paucifolia* is closer to *L. sumatrensis* than to *L. steenisiana*. Clear differences are observed in the morphological structure of the flowers as the shape of the corolla in the mature buds, the size of the petals, styles and stamens. Satisfactory identification of sterile or fruiting specimens of these three species in the herbarium is hardly possible.

4. *Labisia posthumusiana* Sunarno

Labisia posthumusiana Sunarno (2002) 121, fig. — Type: *Posthumus 777* (holo BO; iso L), Sumatra, Prov. Jambi, Selemoekoe.

Erect or decumbent undershrubs, 60 cm high. *Stems* rather stout. *Leaves* many, broadly elliptic or broadly obovate, 16–22 by 6–12 cm, very rarely smaller, subcoriaceous, base acuminate, decurrent, margin dentate, apex acute to obtusely acuminate or rounded, emarginate, upper surface glabrous, brownish and dull when dry, lower surface glabrous, brownish, slightly glaucous, midrib narrowly impressed above, secondary nerves anastomosing at 5–7 mm from the margin; petiole 0.5–1.5 cm long, slightly winged. *Inflorescences* axillary, panicles or racemes with corymb-like fascicles with 2–5 flowers, 10–15 cm long; peduncle 4–5 cm long; corymb peduncle 4–5 mm long. *Corymb* and *floral bracts* nearly equal, triangular, c. 1 mm long. *Flower* white or pinkish white. Pedicels c. 2 mm long. *Sepals* 5, connated only at base; segments valvate; lobes imbricate in mature flower buds, triangular, slightly cuspidate at apex, c. 1 mm long. *Petals* 5, obclavate in mature buds, 4–4.5 mm long; lobes (narrowly) ovate, 4.5–5 by 1–1.5 mm. *Stamens* 5, c. 1.2 mm long, filaments c. 0.1 mm long; anthers elliptic, c. 1 mm long, connective appendage c. 0.1 mm long. *Ovary* ovoid; placenta broadly ellipsoid, ovules 6; style filiform, 4–5 mm long. *Fruits* drupaceous, young fruit subglobose.

Distribution — Sumatra (Jambi, Pasirmayang, Bukit Cengkeembun, Indragiri Highlands).

Habitat & Ecology — Primary forest and swampy forest. Altitude 50–300 m, probably higher, up to 700 m. Flowering: August, December; fruiting: February, October, December.

Note — Leaves dark green, venation red. Peduncle red. Fruits light green.

5. *Labisia pumila* (Blume) Fern.-Vill.

Labisia pumila (Blume) Fern.-Vill. (1880) 123; Merr. (1907) 296; (1923) 266; Airy Shaw (1961) 206; Backer & Bakh.f. (1965) 200; B.C. Stone (1988) 47. — *Labisia pumila* (Blume) Benth. & Hook.f. ex Jacks. (1895) 17; Mez (1902) 171; Pit. (1930) 802; Steenis (1948) 109. — *Labisia pumila* (Blume) Mez ex Airy Shaw (1939) 516. — *Ardisia pumila* Blume (1823) 44; (1826) 688; Miq. (1856) 1028. — Lectotype (here designated): *Blume s.n.* (holo L, HLB 900.211-151), Java.

- Angiopetalum punctatum* Reinw. (1826) 7. — *Allopetalum punctatum* Reinw. ex Scheff. (1867) 92. — *Ardisia bantamica* Zipp. ex Scheff. (1867) 92. — *Labisia punctata* (Reinw.) Airy Shaw (1960) 320. — Lectotype (here designated): *Zippelius s.n.* (holo L, HLB 308.133-614), Java.
- Ardisia spicata* Wall. ex DC. (1834) 135. — Type: *Wallich 2773* (holo n.v.), Singapore.
- Labisia pothoina* Lindl. (1845) 48; Ridl. (1923a) 237. — Lectotype (here designated): *Griffith 3559* (holo K), Malacca, Herb. Hooker, 1867.
- Ardisia pumila* Blume β *lanceolata* Scheff. (1867) 92. — *Labisia pumila* (Blume) Fern.-Vill. var. *lanceolata* (Scheff.) Mez (1902) 172. — *Labisia pothoina* Lindl. var. *lanceolata* (Scheff.) King & Gamble (1905) 116; Ridl. (1923a) 237. — *Labisia pumila* (Blume) Fern.-Vill. forma *lanceolata* (Scheff.) Mez ex Airy Shaw (1939) 516; (1960) 416. — *Labisia punctata* (Reinw.) Airy Shaw forma *lanceolata* (Scheff.) Airy Shaw (1960) 320. — Lectotype (here designated): *Korthals s.n.* (holo L, L 900.211-155), Borneo, Martapoera, fl.
- Ardisia pumila* Blume γ *alata* Scheff. (1867) 93. — *Labisia alata* (Scheff.) N.E. Br. (1886) 123, t. 605. — *Labisia pumila* (Blume) Fern.-Vill. var. *alata* (Scheff.) Mez (1902) 172; H.R. Fletcher (1950) 117. — *Labisia pothoina* Lindl. var. *alata* (Scheff.) King & Gamble (1905) 116; Ridl. (1923a) 237. — Lectotype (here designated): *Reinwardt s.n.* (holo L, L 900.211-155), Java.
- Labisia serrulata* Hallier f. ((1887) 257 (nom. nud.)); (1901) 667 (descr.); B.C. Stone (1988) 51. — Lectotype (here designated): *Jaheri s.n.* (sterile plant, Sumatra, Deli, Gunung Tandjung. Living plant cultivated in Bogor Bot. Gard., no longer extant, Bull. Boiss. Ser. 2. 1. 7 (1901) 667, t. 10 and description.
- Labisia smaragdina* L. Linden & Rodigas (1892) 91, t. 160. — Lectotype (here designated): *Anon. s.n.* (Borneo. Plant cultivated in Int. Hort. Gard. Brussel, Belgium, no longer extant, Ill. Hort. 39 (1892) 140, t. 109, figure and description.
- Labisia neriifolia* Hallier f. (1901) 669. — Neotype (here designated): *Hallier 492* (holo BO), Gn. Damos, Jan. 1894.
- Labisia pumila* (Blume) Fern.-Vill. var. *lanceolata* (Scheff.) Mez forma *sessilifolia* Valetton (1907) 43; B.C. Stone (1988) 50. — *Labisia sessilifolia* (Valetton) Hallier f. (1915) 6. — Type: *Koch s.n.* (holo L, HLB 907.101-23; iso BO), West New Guinea.
- Labisia ovalifolia* Ridl. (1923b) 76; B.C. Stone (1988) 51. — Type: *Moh. Nur 7395* (holo SING, photo seen), Sumatra, Gn. Sebayak (Sibayak), fl. Aug. 1921.
- Labisia pumila* (Reinw.) Airy Shaw forma *gladiata* Airy Shaw (1939) 517. — *Labisia pumila* (Reinw.) Airy Shaw var. *gladiata* (Airy Shaw) Masam. (1942) 585. — *Labisia punctata* (Reinw.) Airy Shaw forma *gladiata* (Airy Shaw) Airy Shaw (1960) 320. — Type: *Synge 50* (holo K), Sarawak, 4th Div., Marudi, near sea level, fl. July.

Undershrubs, erect 10–40 cm high or prostrate up to 60 cm long or longer. *Leaves* more than 5 per plant; lamina (narrowly or broadly) elliptic or ovate 10–30 by 1.3–11 cm, herbaceous, chartaceous to subcoriaceous, base acute or obtuse, more or less decurrent, or sometimes slightly cordate, margin serrate, dentate, crenulate, subentire or entire, apex acuminate, acute or obtuse, midrib narrowly impressed above, secondary nerves anastomosing at 1–4 mm from margin; petioles either long, terete, slightly to broadly winged. *Inflorescences* axillary, panicles or racemes, with corymb-like fascicles of 2–9 flowers, 5–25 cm long. *Corymb* and *floral bracts* narrowly triangular, 1–3(–5) mm long. Pedicels 1–3 mm long. *Flowers* white or pinkish white. *Calyx* connate for 1/3 to 1/2 of its length; segments valvate; lobes triangular 0.5–1 mm long, acute to acuminate. *Corolla* connate near the base; segments valvate; lobes ovate, 2–2.5 by 1–1.5 mm; apex subacute; in mature buds, just before anthesis subglobose, 1.5–2 mm long, top obtuse. *Stamens* 1–1.5 mm long; anthers sagittate, 0.8–1 mm long; filament c. 0.2 mm long; connective appendages 0.1–0.3 mm long, backside glandular pustulate. *Ovary* subglobose, ovoid, broadly ellipsoid or depressedly deltoid; placenta subglobose, (broadly) ellipsoid or discoid; ovules 6 or 7; style subulate, 1.5–2 mm long.

Fruits subglobose, 4–5 mm diam., ribbed with linear or elongate glandular streaks, green when young, red when ripe. *Seed* 1, subglobose, 3–4 mm diam., ribbed.

Distribution — Sumatra, Java, Kalimantan, Sulawesi, Moluccas, Lesser Sunda Islands (Flores), West New Guinea (Irian Jaya).

Habitat & Ecology — Mostly in shaded areas on humus-rich soils, sandy loam, sometimes in deep clay soil or granite soils. Flowering and fruiting throughout the year.

Notes — 1. The combinations *L. pumila* (Blume) Benth. & Hook. f. as indicated by Index Kewensis (1894), and *L. pumila* (Blume) Mez ex Airy Shaw (1939) are obviously superfluous to *L. pumila* (Blume) Fern.-Vill. (1880).

2. *Labisia smaragdina* L. Linden & Rodigas, was described on the basis of a living plant cultivated in the International Horticultural Garden of Brussel, Belgium. In the present collection of the garden the plant is no longer extant and no herbarium specimen of this collection is available. Therefore, the description and the figure of the species in the protologue is here designated as the lectotype.

3. *Labisia serrulata* Hallier f. was described on the basis of a living plant, *Jaheri s.n.*, cultivated in Bogor Botanic Garden in 1895. Since no specimen of Jaheri at BO is similar to the description of the taxon, the figure and description of the species by Hallier is here designated as the lectotype. Stone (1988) considered *L. ovalifolia* as a synonym of *L. serrulata* which he took for a distinct species. I suggest that both species are synonymous to *L. pumila*.

4. The type of *L. pothoina* was a living plant cultivated at the Royal Botanical Gardens, Kew, but no specimen of Lindley's plant could be found at Kew. *Griffith 3559* was also cited by Lindley (1845) and here designated as the lectotype.

5. *Labisia neritifolia* Hallier f. was described on the basis of a living plant cultivated at Bogor Botanic Garden from West Borneo. The plant is no longer extant and no preserved dry specimen is available at BO. Specimen *Hallier 492* from Gn. Damus, a place not far from the type locality and collected in the same year, conforms to the description and figure of the species, and is here designated as the neotype.

6. *Labisia sessilifolia* is confirmed to be a synonym of *L. pumila*; however, the pulverulentness of young fruits is uncommon.

7. Eight varieties are recognised, seven in Indonesia and one, var. *gladiata*, from North Borneo (Sarawak).

KEY TO THE VARIETIES

- 1a. Petioles rather broadly winged 2
- b. Petioles terete or slightly winged. 4
- 2a. Petioles 1–9 mm long, wings 8–12 mm wide. Anthers 1–1.2 mm long. Ovary depressedly deltoid or depressedly ellipsoid, placenta discoid 3
- b. Petioles 5–12 cm long, wings 3–5 mm wide. Anthers c. 0.8 mm long. Ovary broadly ovoid, placenta broadly ellipsoid. **b. var. *alata***
- 3a. Petioles up to 1 cm long, wings 7–9 mm wide. Anthers c. 1 mm long. Ovary depressedly discoid **c. var. *discoplacenta***
- b. Petioles 8–9 cm long, wings 19–12 mm wide. Anthers c. 1.2 mm long. Ovary depressedly ellipsoid **f. var. *malintangensis***

- 4a. Petioles terete. 5
 b. Petioles slightly winged. 6
 5a. Leaf index 2–3. Anthers c. 0.8 mm long. Ovary ovoid, placenta ellipsoid.
 **e. var. lanceolata**
 b. Leaf index 5–9. Anthers c. 1 mm long. Ovary and placenta subglobose
 **g. var. neriifolia**
 6a. Leaf index 3–4 7
 b. Leaf index 5–6 **d. var. gladiata**
 7a. Petal lobes c. 2.5 mm long. Anthers c. 1.2 mm long. Ovary subglobose
 **a. var. pumila**
 b. Petal lobes c. 2 mm long. Anthers c. 0.8 mm long. Ovary ovoid, placenta ellip-
 soid. **h. var. sessilifolia**

a. var. pumila

Labisia pumila (Blume) Fern.-Vill. var. *pumila*. — *Labisia pumila* (Blume) Fern.-Vill. *α genuiana* Mez (1902) 172. — *Labisia pumila* (Blume) Fern.-Vill. forma *genuiana* Mez ex Airy Shaw (1939) 516. — *Labisia punctata* (Reinw.) Lindl. forma *pumila* (Blume) Airy Shaw (1960) 320. — *Ardisia pumila* Blume *α genuiana* Scheff. (1867) 92. — Lectotype (here designated): *Blume s.n.* (lecto L, HLB 900.211-151), Java.

Petioles slightly winged, 4–15 cm long. *Anthers* c. 1.2 mm long. *Ovary* subglobose, placenta subglobose.

Distribution — Thailand; *Malesia*: Sumatra, Peninsular Malaysia, Java, Borneo, Philippines, Moluccas.

Habitat & Ecology — Shady rain forests or the edge of swampy forests on humus-rich or acid sandy soils, at 20–1500 m altitude. Flowering throughout the year, except March and July.

b. var. alata (Scheff.) Mez

Labisia pumila (Blume) Fern.-Vill. var. *alata* (Scheff.) Mez (1902) 172; H.R. Fletcher (1950) 117. — *Ardisia pumila* Blume *γ alata* Scheff. (1867) 92. — *Labisia alata* (Scheff.) N.E. Br. (1886) 123, t. 605. — *Labisia pothoina* Lindl. var. *alata* (Scheff.) King & Gamble (1905) 116; Ridl. (1923a) 237. — Lectotype (here designated): *Reinwardt s.n.* (holo L, L 900.211-155), Java.

Angiopetalum punctatum Reinw. (1826) 7. — *Allopetalum punctatum* Reinw. ex Scheff. (1867) 93. — *Labisia punctata* Reinw. forma *punctata* Airy Shaw (1960) 320.

Labisia ovalifolia Ridl. (1923b) 76; B.C. Stone (1988) 51. — Type: *Moh. Nur 7395* (holo SING, seen photo), Sumatra, Gn. Sebayak (Sibayak), fl. Aug. 1921.

Labisia serrulata Hallier f. ((1887) 257, nom. nud.); (1901) 667 (descr.); B.C. Stone (1988) 51. — Lectotype (here designated): *Jaheri s.n.* (lecto fig. and descr.), Sumatra, Tandjung Gunung, Deli, living plant cultivated in Bogor Bot. Gard., no longer extant, Bull. Boiss. Ser. 2, 1, 7 (1901) 667, t. 10, description.

Petioles 5–12 cm long, wing 3–5 mm wide at each side. *Anthers* c. 0.8 mm long. *Ovary* broadly ovoid, placenta broadly ellipsoid.

Distribution — Myanmar, Thailand; *Malesia*: Sumatra, Peninsular Malaysia, Java, Borneo, Philippines, Lesser Sunda Islands.

Habitat & Ecology — Lowland primary forests at shady places or in secondary forests on humus-rich soils.

Note — Var. *alata* is close to var. *malintangensis* and var. *discoplacenta*, but differs in the length of anthers, the shape of ovary and placenta, and also the size of the petiole and its wings.

c. var. *discoplacenta* Sunarno, *var. nov.* — Fig. 1

Var. *alata* affinis sed petioles breviora, antheris et ovaries et placentas atque distincta.
— Typus: *Afriastini 1288* (holo BO), West Kalimantan, Nanga Semangit, Selimbau District, Kapuas Hulu.

Petioles c. 1 cm long, rather broadly winged. *Anthers* c. 1 mm long. *Ovary* ± conical, placenta discoid.

Distribution — Known from the type specimen only.

Habitat & Ecology — Primary forest.

Note — Var. *discoplacenta* is close to var. *alata*, which also has short petioles, but differs in the size of the anthers and in the shape of ovary and placenta.

d. var. *gladiata* (Airy Shaw) Masam.

Labisia pumila (Blume) Fern.-Vill. var. *gladiata* (Airy Shaw) Masam. (1942) 585. — *Labisia pumila* (Blume) Fern.-Vill. forma *gladiata* Airy Shaw (1939) 517. — *Labisia punctata* (Reinw.) Airy Shaw forma *gladiata* (Airy Shaw) Airy Shaw (1960) 320. — Type: *Syngé 50* (holo K), Sarawak, Marudi, 4th Div., near sea level, fl. July.

Petioles slightly winged, 2–4 cm long. *Anthers* c. 1 mm long. *Ovary* ovoid, placenta ellipsoid.

Distribution — Sarawak.

e. var. *lanceolata* (Scheff.) Mez

Labisia pumila (Blume) Fern.-Vill. var. *lanceolata* (Scheff.) Mez (1902) 172; B.C. Stone (1988) 45. — *Ardisia pumila* Blume β *lanceolata* Scheff. (1867) 92. — *Labisia pumila* (Blume) Fern.-Vill. forma *lanceolata* (Scheff.) Mez ex Airy Shaw (1939) 516. — *Labisia pothoina* Lindl. var. *lanceolata* (Scheff.) King & Gamble (1905) 116; Ridl. (1923a) 237. — *Labisia punctata* (Reinw.) Airy Shaw forma *lanceolata* (Scheff.) Airy Shaw (1960) 320. — Lectotype (here designated): *Korthals s.n.* (holo L, HLB 900.211-158), Borneo, Martapoera, fl.

Petioles terete, 6–21 cm long. *Anthers* c. 0.8 mm long. *Ovary* ovoid, placenta ellipsoid.

Distribution — Sumatra, Peninsular Malaysia, Java, Borneo, Sulawesi, Moluccas, Lesser Sunda Islands (Flores).

Habitat & Ecology — Common in shady primary forests, secondary and mossy forests. Growing well on humus-rich soils, granite and acid soils at 50–1200 m altitude.

f. var. *malintangensis* Sunarno, *var. nov.* — Fig. 2

Var. *alata* affinis sed antheris longiora, ovaris depresso-ellipsoidis, placentas discoidea differt. — Typus: *Bünnemeijer 3632* (holo BO; iso K, L), Sumatra west coast, Mt Malintang, northwest of Helling, 1100 m alt., fl. July.

Petioles 8–9 cm long, wings 8–12 mm wide. *Anthers* c. 1.2 mm long. *Ovary* transversely ellipsoid, placenta discoid.

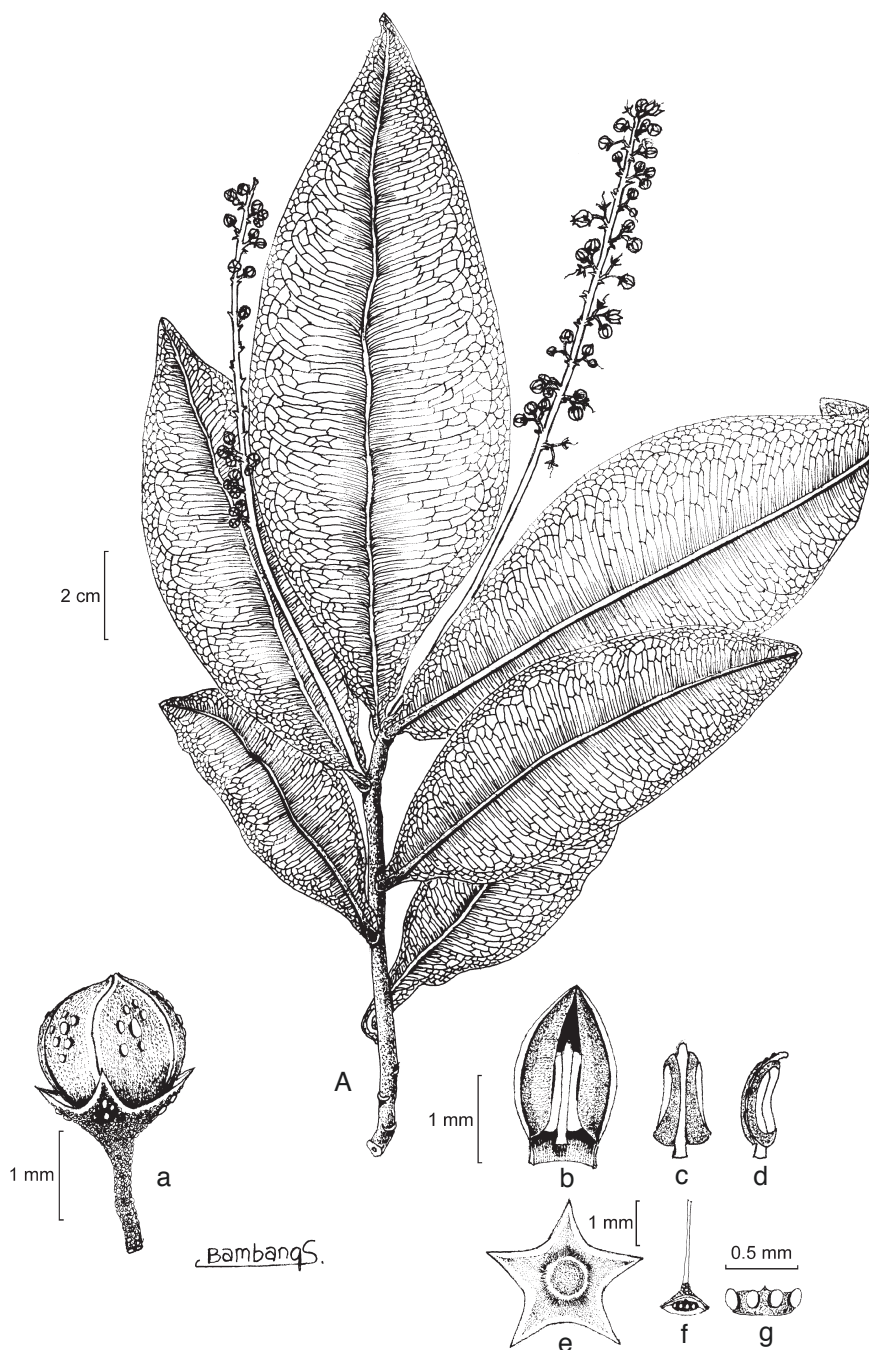


Fig. 1. *Labisia pumila* (Blume) Fern.-Vill. var. *discoplacenta* Sunarno. A. Habit; a. flower bud; b. front side view of detached petal with enclosed stamen; c. stamen, frontal view; d. stamen, side view; e. calyx, inside view; f. opened ovary; g. placenta and ovules (all: *Afriastini 1288*).

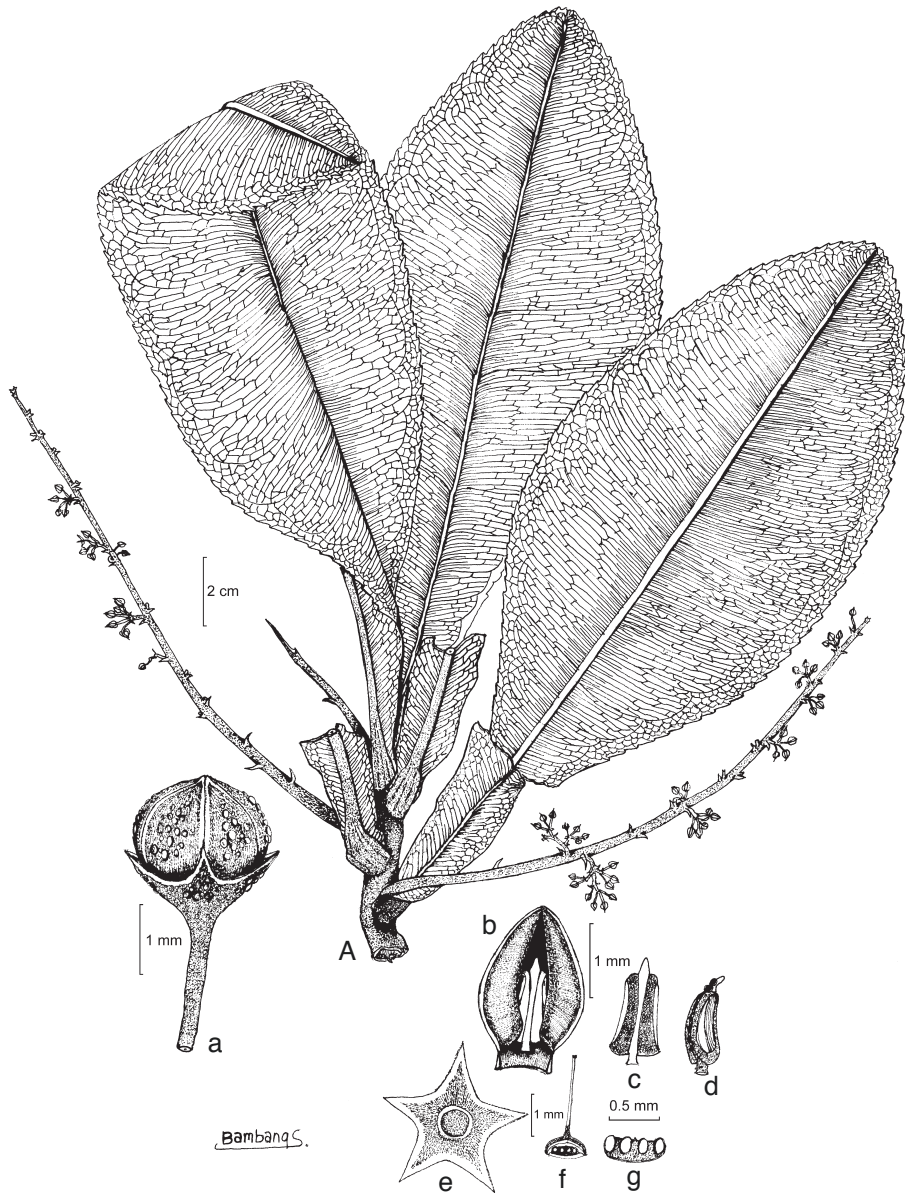


Fig. 2. *Labisia pumila* (Blume) Fern.-Vill. var. *malintangensis* Sunarno. A. Habit; a. flower bud; b. front side view of detached petal with enclosed stamen; c. stamen, frontal view; d. stamen, side view; e. calyx, inside view; f. opened ovary; g. placenta and ovules (all: Bünnemeijer 3632).

Distribution — Sumatra, Peninsular Malaysia.

Habitat & Ecology — In open places inside primary forests.

Note — Superficially var. *malintangensis* resembles var. *alata*, but differs in the broader wings of the petioles and the shape and size of the flower parts. The ovary and placenta are similar to that of var. *discoplacenta* which can easily be distinguished by the larger petal lobes, longer anthers and connective appendage. The epithet refers to the type locality.

g. var. neriifolia (Hallier f.) Sunarno, *comb. & stat. nov.* — Fig. 3

Basionym: *Labisia neriifolia* Hallier f. (1901) 669. — Neotype (here designated): *Hallier 492* (holo BO), G. Damoses, fr., Jan. 1894.

Petioles terete, 5–12 cm long. *Anthers* c. 1 mm long. *Ovary* and placenta subglobose.

Distribution — Borneo, Sulawesi, Moluccas.

Habitat & Ecology — Primary and secondary forests on sandy loamy soils. Flowering: July to November.

Note — Var. *neriifolia* is apparently close to var. *gladiata* from Sarawak; the latter variety, however, has a winged petiole.

h. var. sessilifolia (Valeton) Sunarno, *comb. & stat. nov.* — Fig. 4

Basionym: *Labisia pumila* (Blume) Fern.-Vill. var. *lanceolata* (Scheff.) Mez forma *sessilifolia* Valeton (1907) 43. — *Labisia sessilifolia* (Valeton) Hallier f. (1915) 6. — Type: *Koch s.n.* (holo L; iso BO), Merauke, southwest New Guinea, fl. 1904/1905.

Labisia pumila (Blume) Fern.-Vill. β *alata* auct. non Mez: Kanehira & Hatusima (1943) 225.

Petioles 2–4 cm long, wings 1–2 mm wide. *Anthers* c. 0.8 mm long. *Ovary* subglobose, placenta ellipsoid.

Distribution — Moluccas, New Guinea (Papua Barat, probably also in Papua New Guinea).

Habitat & Ecology — Shady rain forests or the edge of swampy forests; 75–300 m altitude. Flowering: March, July, November.

Note — Var. *sessilifolia* is close to var. *pumila*, but differs in the lateral nerves and in the shape and size of flower structures.

6. Labisia steenisiana Sunarno

Labisia steenisiana Sunarno (2002) 123, f. 2 — Type: *Van Steenis 6310* (holo BO; iso L), Sumatra, Kab. Aceh Tenggara, Gayo land, Mt Kemiri east slope, Camp 1 to 2, 1800 m alt., fl. March, 1937.

Undershrubs, erect to 20–25 cm high or decumbent up to 50 cm long. *Stem* slender. *Leaves* spirally arranged or apparently alternate; lamina ovate, 5–12 by 2–6 cm, subcoriaceous, base acute to obtuse, decurrent or slightly so, margin entire to crenulate; apex acute to acuminate, midrib narrowly impressed above, strongly prominent beneath, secondary nerves anastomosing at 4–5 mm from margin; petioles 3–5 cm long, terete or slightly winged (marginate), base thickened. *Inflorescences* axillary, panicles, 6–20 cm long. *Bracts* and bracteoles narrowly triangular, 2–3 mm long; peduncles 3–9 cm long. *Flowers* white or pinkish white; pedicels 2–3 mm long. *Calyx lobes*

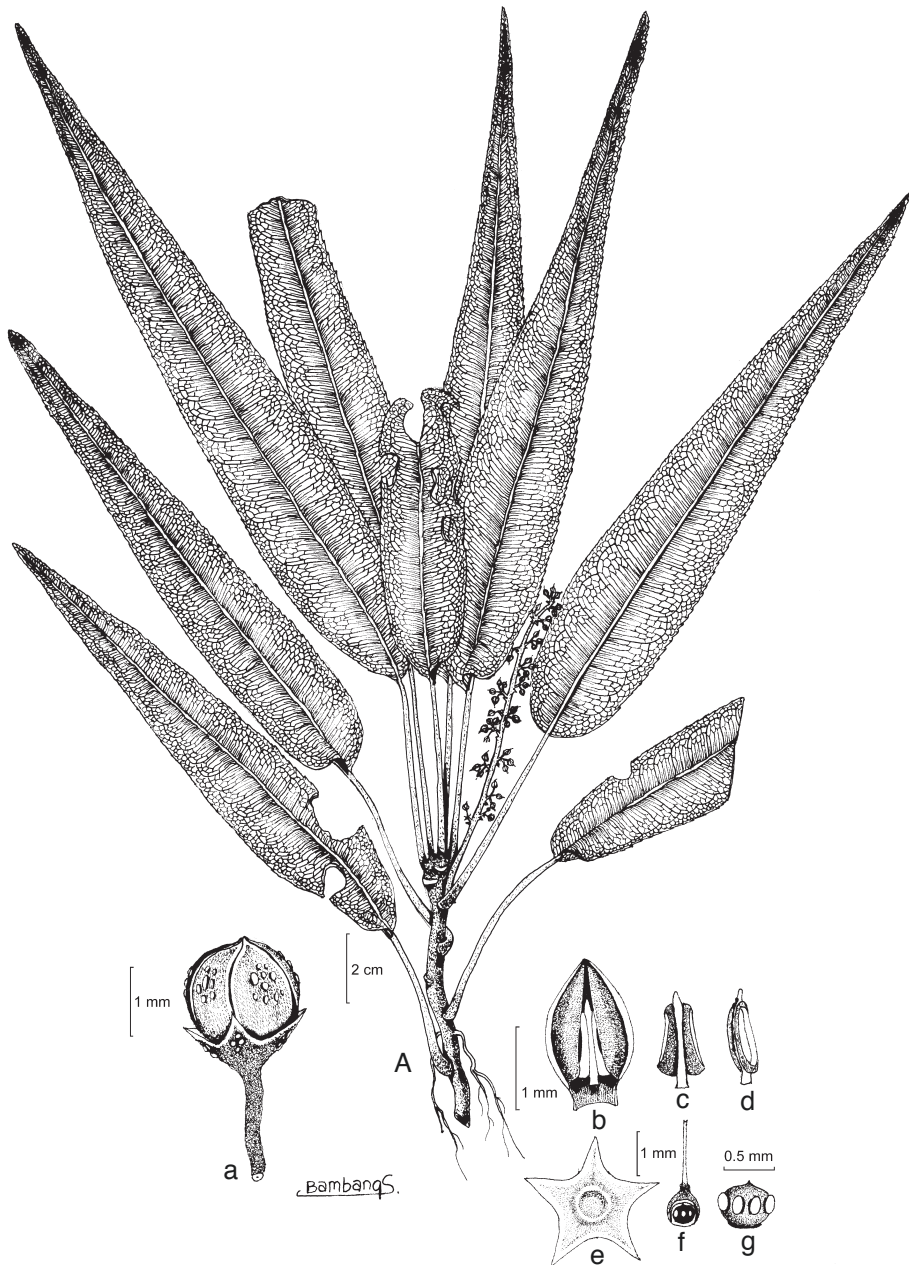


Fig. 3. *Labisia pumila* (Blume) Fern.-Vill. var. *neriifolia* (Hallier f.) Sunarno. A. Habit; a. flower bud; b. front side view of a detached petal with enclosed stamen; c. stamen, backside view; d. stamen, side view; e. calyx, inside view; f. opened ovary; g. placenta and ovules (all: Rachmat 471).

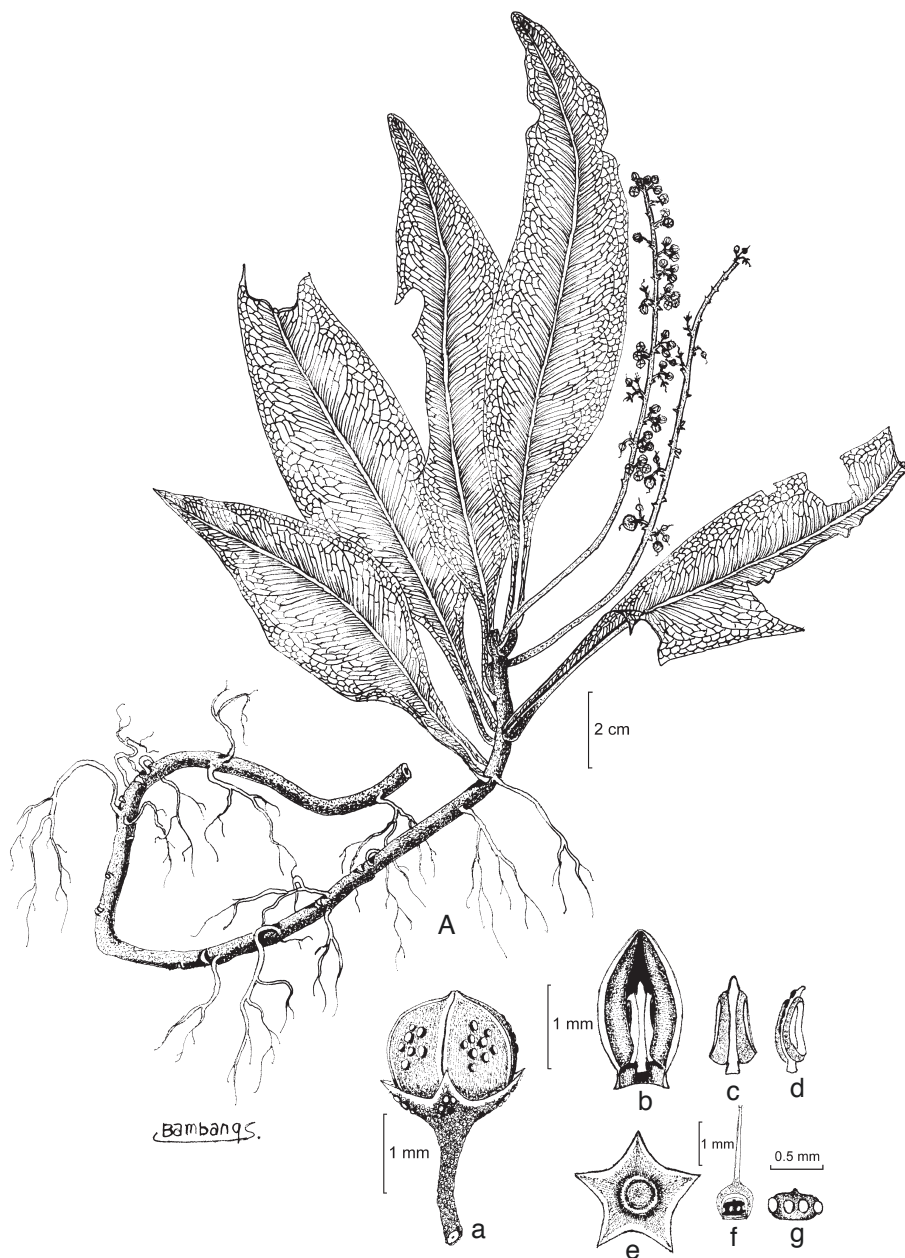


Fig. 4. *Labisia pumila* (Blume) Fern.-Vill. var. *sessilifolia* (Valeton) Sunarno. A. Habit; a. flower bud; b. front side view of a detached petal with enclosed stamen; c. stamen, backside view; d. stamen, side view; e. calyx, inside view; f. opened ovary; g. placenta and ovules (all: Koch s.n., LHB 907.101–23).

(narrowly) ovate or triangular, acuminate, c. 1.5 mm long. *Corolla* connate near the base; segments valvate; lobes (narrowly) ovate, 3.5–4 by 1.5–2 mm, apex acuminate; in mature buds ovoid to \pm conical, 3.5–4 mm long. *Stamens* c. 2 mm long, filaments c. 0.2 mm long; anthers elliptic, 0.9–1 mm long; connective appendages 0.9–1 mm long, abaxial side glandular pusticulate. *Ovary* ovate; placenta broadly ellipsoid; ovules 6. *Style* filiform, 3.4–4 mm long. *Fruit* globose, 7–9 mm diam. *Seed* globose, 3.5–5 mm diam., ribbed.

Distribution — Sumatra, Peninsular Malaysia.

Habitat & Ecology — Usually in moist shady primary forests or damp forests at 1500–2000 m altitude. Flowering: February, March, September.

7. *Labisia sumatrensis* Sunarno

Labisia sumatrensis Sunarno (2002) 123, f. 3. — Type: *De Wilde & De Wilde-Duyffes 19059* (holo BO; iso L), Sumatra, Aceh, upper Mamas river valley, c. 15 km west of Kutacane, c. 1500 m alt., Gn. Leuser Res., Camp central, fl. 24 June 1979.

Undershrubs, erect up to 25 cm tall. *Stem* slender, striate. *Leaves* spirally arranged; lamina subovate to ovate, 7–8 by 3.5–4 cm, subcoriaceous, base obtuse, margin crenulate, apex acute, rounded or emarginate, upper surface brownish and dull when dry, glabrous, lower surface brownish, slightly glaucous and glabrous, midrib narrowly impressed above, strongly prominent beneath, glandular punctate, secondary nerves anastomosing at 1–3 mm from margin; petioles terete, 3–4 cm long or more; base thickened. *Inflorescences* axillary, panicles or racemes with corymb-like fascicles, c. 4 cm long; peduncles c. 2 cm long, corymb peduncles up to 0.5 cm long. *Bracts* narrowly triangular, c. 3 mm long; bracteoles triangular, 1–2 mm long. *Flowers* pinkish white, pedicels 1–2 mm long. *Calyx lobes* ovate-acuminate, c. 0.5 mm long. *Corolla* connate near the base; segments valvate; lobes ovate, c. 3 by 1–1.5 mm long; in mature buds subovoid, c. 3 mm long, top acute. *Stamens* 1.7–1.8 mm long; filaments 0.4–0.6 mm long; anthers c. 1 mm long; connective appendages c. 0.3 mm long, backside glandular puncticulate. *Ovary* subglobose; placenta broadly ovoid, ovules 6 or 7. *Style* filiform, c. 3 mm long, stigma notched. *Fruits* unknown.

Distribution — Sumatra (East coast, Southeast Aceh, Asahan).

Habitat & Ecology — Montane rain forests on humus-rich soils at 1200–1500 m altitude.

EXCLUDED SPECIES

Labisia malouiana L. Linden & Rodigas (1885) 186, t. 513. — Type: *Teuscher s.n.* (holo: a living plant cultivated in the Botanical Garden of Brussel, Belgium), Rajah Mountains, Borneo = ***Ardisia malouiana*** (L. Linden & Rodigas) Markgr. (1955)194.

Labisia obtusifolia Hallier f. (1901) 668. — The material cited by Hallier (*Jaheri s.n.*, 1893, Borneo, cultivated at Bogor Botanical Garden; *Teijsmann 11067*) is no longer extant and no preserved specimen is available at present. The description by Hallier (1901) shows that this is an *Ardisia* species.

ACKNOWLEDGEMENTS

The author would like to express his gratitude to the British Council and Flora Malesiana Foundation for financial support during his studies in the Royal Botanical Gardens, Kew and the Nationaal Herbarium Nederland, Leiden. He is grateful to R.M. Polhill, B. Verdcourt, P. Baas, the late C. Kalkman and R. Geesink for their support and encouragement of the study. He wishes to thank Mien A. Rifai and E.A. Widjaja of Herbarium Bogoriense for their advice and help. His special thanks are due to the late Dr. B.C. Stone from the Department of Botany, Academy of Natural Sciences, Philadelphia, USA for encouraging him to study the Myrsinaceae. This work was accomplished as a part of an MSc dissertation submitted to Gajah Mada University with financial support from LIPI (Lembaga Ilmu Pengetahuan Indonesia) in 1986–1989.

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IDENTIFICATION LIST

- | | |
|---|--|
| 1. <i>L. acuta</i> | 8. <i>L. pumila</i> var. <i>lanceolata</i> |
| 2. <i>L. longistyla</i> | 9. <i>L. pumila</i> var. <i>malintangensis</i> |
| 3. <i>L. paucifolia</i> | 10. <i>L. pumila</i> var. <i>neriifolia</i> |
| 4. <i>L. posthumusiana</i> | 11. <i>L. pumila</i> var. <i>pumila</i> |
| 5. <i>L. pumila</i> var. <i>alata</i> | 12. <i>L. pumila</i> var. <i>sessilifolia</i> |
| 6. <i>L. pumila</i> var. <i>discoplacenta</i> | 13. <i>L. steenisiana</i> |
| 7. <i>L. pumila</i> var. <i>gladiata</i> | 14. <i>L. sumatrensis</i> |

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