

FLORA MALESIANA PRECURSOR FOR THE TREATMENT OF MORACEAE 3: FICUS SUBGENUS FICUS

C.C. BERG

The Norwegian Arboretum/Botanical Institute, University of Bergen,
N-5259 Hjellettestad, Norway; Nationaal Herbarium Nederland, Universiteit Leiden branch,
P.O. Box 9514, 2300 RA Leiden, The Netherlands

SUMMARY

The sections of *Ficus* L. subg. *Ficus* are described and their Malesian species listed and a key to their identification is provided. One new subsection is established: *Ficus* subg. *Ficus* sect. *Eriosycea* subsection. *Auratae*. Four new species and two new subspecies are described: *F. auricoma*, *F. glabristipulata*, *F. kofmana*, *F. subglabritepala*, *F. oleifolia* subsp. *monantha*, and *F. hirta* subsp. *ochracea*. Some new combinations and changes of rank are made: *F. deltoidea* subsp. *motleyana*, *F. oleifolia* subsp. *intermedia*, *F. hirta* subsp. *dumosa* and subsp. *roxburghii*, and *F. tricolor* var. *robusta*.

Key words: Moraceae, *Ficus* subg. *Ficus*, Malesia.

INTRODUCTION

Subgenus *Ficus* as defined by Corner (1960) comprises all (gyno)dioecious species of the genus, being a highly diverse and heterogeneous assemblage of more than 350 species. In the concept of the subdivision of the genus as proposed by Berg (2003) subg. *Ficus* is the smallest group of (gyno)dioecious species.

The majority of the species of this subgenus are shrubs or small trees, less often medium-sized trees, rarely tall trees with buttresses. In *F. oleifolia* King, the trees can be slender and subscandent. Holo-epiphytes (or -lithophytes) often occur in *F. deltoidea* Jack, less often in *F. oleifolia*. *Ficus ischnopoda* Miq. and *F. pustulata* Elmer, are often rheophytic.

The subgenus can be subdivided in four clear-cut subdivisions: section *Ficus* with subsections *Ficus* and *Frutescentiae* and section *Eriosycea* with subsections *Eriosycea* and *Auratae*.

SUBDIVISIONS

Ficus subg. **Ficus** sect. **Ficus**

Shrubs or small trees with the indumentum usually whitish. *Lamina* with cystoliths only beneath or also above. *Figs* mostly in the leaf axils, often solitary, mostly pedunculate. *Staminate flowers* mostly scattered, in some species near the ostiole. *Stamens* 2–4. *Fruits* smooth.

Distribution — The section comprises c. 30 species, most of them associated with the Sino-Himalayan region, with extensions to NE Africa, the Mediterranean or to

Japan, and some confined to Taiwan or the Philippines; a group of three species occurs in western Malesia.

Pollinators — Species of *Blastophaga* Gravenhorst subg. *Blastophaga* (Wiebes, 1994).

Subdivision — Two subsections can be distinguished: subsect. *Ficus* and subsect. *Frutescentiae*.

Ficus subg. **Ficus** sect. **Ficus** subsect. **Ficus**

Shrubs or small trees. *Lamina* cordate to ovate and palmately lobed to divided, chartaceous to subcoriaceous. *Staminate flowers* mostly near the ostiole. *Stamens* 2–4. *Tepals* of pistillate flowers white or reddish, thin. *Fruits* lenticular, smooth.

Distribution — This subsection comprises three species, *F. carica* L. and *F. palmata* Forssk. which are very closely related, if not conspecific as they share the same species of *Blastophaga* as pollinator. They range from Afghanistan and N India to the Mediterranean and to Ethiopia, respectively. The third species, *F. uidaiana* Wilson, is from Bonin Island.

Delimitation — This subsection comprises only subg. *Ficus* sect. *Ficus* subsect. *Ficus* series *Cariceae* Corner (1960) 418.

Species present in the Malesian region: 1) *Ficus carica* L. (introduced).

Ficus subg. **Ficus** sect. **Ficus** subsect. **Frutescentiae** Sata (1944) 332

Shrubs or treelets, often the branches with internodes proximally long, becoming gradually shorter distally, and, therefore, the leaves ± clearly clustered distally on the twigs. *Lamina* coriaceous to subcoriaceous. *Figs* axillary, often solitary, pedunculate. *Staminate flowers* mostly scattered or near the ostiole; stamens 2 or 3. *Tepals* of the pistillate flowers dark red, thick, ciliolate or with 1 or 2 hairs at the apex. *Fruits* lenticular to reniform, smooth.

Distribution — Approximately 25–30 species, the majority from the Sino-Himalayan region and eight from western Malesia.

Delimitation — This subsection comprises subg. *Ficus* sect. *Ficus* series *Erythrogyneae* Corner (1960) 418 and series *Podosyceae* Corner (1960) 418.

Species and subspecies presently recognized for the Malesian region: 2) *F. deltoidea* Jack, with a) subsp. *deltoidea* and b) subsp. *motleyana* (Miq.) C.C. Berg (see below); 3) *F. edanoi* Merr.; 4) *F. erecta* Thunb. (introduced); 5) *F. glareosa* Elmer; 6) *F. ischnopoda* Miq.; 7) *F. kofmanae* C.C. Berg (see below); 8) *F. oleifolia* King, with a) subsp. *oleifolia*, b) subsp. *intermedia* (Corner) C.C. Berg (see below), and c) subsp. *monantha* C.C. Berg (see below); 9) *F. pedunculosa* Miq.; 10) *F. pustulata* Elmer. — For synonyms and varieties see Corner's check-list (Corner 1965: 38–44).

Ficus subg. **Ficus** sect. **Eriosycea** Miq. (1848) 455

Trees or shrubs; indumentum often brown(ish) and hairs often partly tufted. *Lamina* often palmately lobed to divided, especially when juvenile; cystoliths absent. *Figs* often

below the leaves on previous season's growth, in pairs, often sessile. *Stamens* 1 or 2. *Tepals* red or yellowish and set(ul)ose. *Stigma* 1. *Fruits* tuberculate.

Distribution — This section comprises 34 species and ranges from the Sino-Himalayan region to New Guinea, 30 species occur in the Malesian region with a concentration in the western part.

Pollinators — Species of *Blastophaga* subg. *Valisia* Wiebes (Wiebes, 1994).

Ficus subg. **Ficus** sect. **Eriosycea** subsect. **Eriosycea** (Miq.) Corner (1960) 419

Trees or treelets. *Lamina* often palmately lobed to divided when juvenile, but often also on fertile branches. *Tepals* of pistillate flowers (3–)4–5(–7), red, glabrous or ciliate. *Hairs* at the base of ovaries and stamens.

Distribution — This subsection comprises 20 species in an area ranging from India (Assam) to New Guinea, 16 species are Malesian.

Species and varieties presently recognized for the Malesian region: 11) *F. bana-haensis* Elmer (= *F. glandulifera* var. *camiguinensis* (Merr). Corner (1960) 433); 12) *F. chartacea* King; 13) *F. fulva* Blume; 14) *F. glabristipulata* C.C. Berg (see below); 15) *F. glandulifera* King; 16) *F. grossularioides* Burm.f., with a) var. *grossularioides*, b) var. *kingii* Kuntze, and c) var. *stenoloba* Corner (excl. var. *robusta* Corner (1960) 429, see below); 17) *F. halmaherae* Corner; 18) *F. hirta* Vahl, with a) subsp. *hirta*, b) subsp. *dumosa* (King) C.C. Berg (see below), c) subsp. *ochracea* C.C. Berg (see below), and d) subsp. *roxburghii* (Miq.) C.C. Berg (see below); 19) *F. lamponga* Miq.; 20) *F. litseifolia* Corner; 21) *F. mollissima* Ridl.; 22) *F. oreophila* Ridl.; 23) *F. padana* Burm.f.; 24) *F. ruficaulis* Merr.; 25) *F. schefferiana* King; 26) *F. subfulva* Corner; and 27) *F. tricolor* Miq., with a) var. *tricolor*, b) var. *robusta* (Corner) Corner ex C.C. Berg (see below), and c) var. *serroh* Miq. — For other synonyms and varieties see Corner's check-list (1965: 44–48).

Ficus subg. **Ficus** sect. **Eriosycea** subsect. **Auratae** (Corner) C.C. Berg, *stat. nov.*

Based on: *Ficus* subg. *Ficus* sect. *Ficus* subsect. *Eriosycea* (Miq.) Corner ser. *Auratae* Corner (1960) 420. — Type: *Ficus aurata* Miq.

Trees, treelets or shrubs. *Leaves* sometimes palmately lobed to divided when juvenile. *Tepals* of pistillate flowers 3 or 4 (or 5), white or yellowish, rarely red, setose (in the upper part). *Hairs* at the base of the ovaries and stamens mostly absent.

Distribution — This subsection comprises 14 species. Most of them are confined to Borneo, only *F. aurata* extends to Sumatra, Malay Peninsula, and Indochina.

Species presently recognized for the Malesian region: 28) *F. androchaete* Corner; 29) *F. aurata* (Miq.) Miq.; 30) *F. aureocordata* Corner; 31) *F. auricoma* Corner ex C.C. Berg (see below); 32) *F. bruneiensis* Corner; 33) *F. brunneoaurata* Corner; 34) *F. diamantiphylla* Corner (1970) 368; 35) *F. endospermifolia* Corner; 36) *F. eumorpha* Corner; 37) *F. inaequipetiolata* Merr. (= *F. aurata* var. *brevipilosa* Corner (1960) 437); 38) *F. macilenta* King; 39) *F. setiflora* Stapf; and 40) *F. subglabripala* C.C. Berg (see below). — For other synonyms and varieties see Corner's check-list (1965: 48–50).



Fig. 1. *Ficus auricoma* Corner ex C.C. Berg. Leafy twig and figs on previous season's growth (Ashton S 17688, L), Malaysia, Sarawak, Bt. Mersing, Ulu Anap, 5 Oct. 1963.

NEW SPECIES, SUBSPECIES, AND COMBINATIONS

Ficus auricoma Corner ex C.C. Berg, *spec. nov.* — Fig. 1

Fico bruneiensis similis, e.g. in laminae pagina superiori laevi, petiolis stipulisque brevioribus, bracteis basalibus longioribus distincta. — Typus: *Ashton S 17688* (holo L), Malaysia, Sarawak, Bt. Mersing, Aulu Anap, 1000 m, 5 Oct. 1963.

Tree c. 13 m tall. *Leafy twigs* 5–7 mm thick, yellowish puberulous to hirtellous and densely yellow-brown (sub)hirsute; periderm persistent. *Leaves* spirally alternate; lamina broadly elliptic, 14–20 by 9–14 cm, chartaceous, apex acuminate, base rounded, margin denticulate; upper surface \pm densely yellow hirtellous to puberulous on the veins, smooth, lower surface densely yellow-brown subvelutinous on the veins; cystoliths absent; lateral veins 5 or 6 pairs, basal pair branched, up to 1/2–2/3 the length of the lamina, other lateral veins sometimes branched or furcate far from the margin, tertiary venation (loosely) scalariform; waxy glands in the axils of the basal lateral veins; petiole 2–4.5 cm long, yellow-brown subvelutinous, the epidermis persistent; stipules c. 1 cm long, yellow-brown subhirsute, caducous. *Figs* below the leaves on previous season's growth, in pairs, sessile; basal bracts 3, 4–5 mm long, yellow appressed-puberulous; receptacle subglobose to ovoid, 1.2–1.5 cm diam. when dry, yellow-brown subvelutinous, colour at maturity unknown, apex convex, ostiole c. 4 mm diam., slightly prominent, the outer ostiolar bracts densely strigillose, \pm erect; internal hairs abundant, whitish.

Distribution — Borneo (Sarawak)

Habitat — Submontane forest, at 1000 m.

Notes — 1. The species shows affinities to *F. bruneiensis* from which it differs, e.g., in the smooth upper surface of the lamina, shorter petioles and stipules, and longer basal bracts.

2. The figs are too young to describe the flowers, but the species clearly belongs to subsect. *Auratae*.

3. This species shows remarkable overall similarities to *F. mollissima*, a member of subsect. *Eriosycea*.

Ficus deltoidea Jack (1822) 71

Corner (1960) recognized numerous varieties, some of them with two or more forms. The number of varieties can easily be increased (see Kochummen, 1998). Even this elaborate subdivision of the species does not fully comply with the variation, partly as some of the infraspecific subdivisions are again quite variable, partly as some of the variation is gradual rather than abrupt. To handle the variation it seems to be more practical and satisfactory to subdivide the species only into two major morphological entities: *F. deltoidea* subsp. *deltoidea* and subsp. *motleyana*. As strong phytogeographical and ecological support is lacking, the rank of variety might be more correct, but the chosen rank allows recognition of varieties for regional use. *Ficus deltoidea* var. *intermedia* Corner, and its synonyms, are transferred to *F. oleifolia*.

KEY TO THE SUBSPECIES

- 1a. Lamina of all or some of the leaves with a furcate midrib . . . **a. subsp. deltoidea**
 b. Lamina of all leaves pinnately veined and the midrib not furcate
 **b. subsp. motleyana**

a. subsp. deltoidea

Including the following varieties of *F. deltoidea* recognized by Corner (1960), and by Kochummen (1998): *F. deltoidea* var. *angustifolia* (Miq.) Corner, with forma *angustissima* Corner, *F. deltoidea* var. *arenaria* Corner, *F. deltoidea* var. *bilobata* Corner, *F. deltoidea* var. *borneensis* Corner, with forma *subhirsuta* Corner, *F. deltoidea* var. *kunstleri* (King) Corner, *F. deltoidea* var. *lutescens* (Desf.) Corner, with forma *longipedunculata* Corner and forma *subsessilis* (Miq.) Corner, *F. deltoidea* var. *peltata* Corner, *F. deltoidea* var. *recurvata* Kochummen, and *F. deltoidea* var. *trengganuensis* Corner.

b. subsp. motleyana (Miq.) C.C. Berg, *comb. & stat. nov.*

Based on: *Ficus motleyana* Miq. (1867) 228. — *Ficus deltoidea* Jack var. *motleyana* (Miq.) Corner (1960) 424. — Type: *De Vriese s.n.* (iso L), Indonesia, Borneo.

Also including: *F. deltoidea* var. *oligoneura* (Miq.) Corner (1960) 424.

Ficus glabristipulata C.C. Berg, *spec. nov.* — Fig. 2

Fico schefferiana similis, e.g. in petioli epidermide et ramili foliolati peridermide exfoliata, laminae infra reticulo prominenti, syconii receptaculo maiore distincta. — Typus: *Jacobson 2134* (holo L), Indonesia, Sumatra, Fort de Kock, Dec. 1922.

Tree. *Leafy twigs* 8–10 mm thick, sparsely puberulous; periderm flaking off in small flakes. *Leaves* spirally alternate; lamina oblong, 17–25 by 8–13 cm, coriaceous, apex shortly acuminate, base cordulate, margin entire, revolute; upper surface sparsely puberulous on the midrib, smooth, lower surface densely puberulous on the veins; cystoliths absent; lateral veins 6 or 7 pairs, basal pair branched, up to 1/3–1/2 the length of the lamina, other lateral veins sometimes branched or furcate far from the margin, tertiary venation scalariform, venation incl. the reticulum prominent; waxy glands in the axils of the basal lateral veins; petiole 3–12 cm long, sparsely puberulous, the epidermis flaking off; stipules c. 1.5 cm long, glabrous, caducous. *Figs* axillary, in pairs, subsessile; basal bracts 3, 2–3 mm long, sparsely appressed-puberulous; receptacle subglobose, 1.5–1.8 cm diam. when dry, puberulous, colour at maturity unknown, apex convex, ostiole c. 2.5 mm diam., slightly prominent; internal hairs abundant, short, whitish.

Distribution — Sumatra, only known from the type collection of which the label does not indicate the habitat.

Note — This species resembles *F. schefferiana*, from which it can be distinguished, e.g., by exfoliating epidermis of the petiole and periderm of the leafy twig, the prominent reticulum of the lamina beneath, and the larger fig receptacle.



Fig. 2. *Ficus glabristipulata* C.C. Berg. Leafy twig with figs (Jacobson 2134, L), Indonesia, Sumatra, 'Fort de Kock', Dec. 1922.

Ficus hirta Vahl (1805) 201

The species is very variable. Four (major) infraspecific entities can be recognized in the Malesian region.

KEY TO THE SUBSPECIES

- 1a. Lamina usually contracted in the lower part, often lobate, palmately, pinnately or both; stipules mostly only hairy on the keel; leafy twigs, petioles, and figs (rather) densely hairy. — S Sumatra, Java **a. subsp. hirta**
- b. Lamina not contracted in the lower part, palmately lobate or not; stipules hairy on the whole surface or, if only hairs on the keel, then the leafy twigs and petioles sparsely hairy 2
- 2a. Leafy twigs, petioles, and figs sparsely hairy; fig receptacle depressed-globose; lamina 3–5-lobed to -fid. — S Sumatra **b. subsp. dumosa**
- b. Leafy twigs, petioles, and figs densely hairy; fig receptacle globose, ovoid, ellipsoid or subcylindrical; lamina entire or 3–5–7-lobed to -fid. — N Sumatra and/or Malay Peninsula 3
- 3a. Stipules 0.8–1.2 cm long, with one type of hairs; fig receptacle globose, 0.8–1.2 cm diam. when dry. — N Sumatra **c. subsp. ochracea**
- b. Stipules (1–)1.5–2.5(–4) cm long, with brown stiff hairs on and along the keel and fine white hairs towards the margins; fig receptacle ovoid, ellipsoid or subcylindrical, (0.7–)1.5–2.5(–3.5) cm diam. when dry. — N Sumatra, Malay Peninsula **d. subsp. roxburghii**

a. subsp. hirta

Shrub or treelet up to 5 m tall; indumentum whitish to brownish. *Leafy twigs* 2–4 mm thick. *Lamina* mostly oblong to elliptic to (subobovate) and usually constricted below in the lower part (subpandurate) or 3–5-lobed to -fid, distinctly palmate (with the basal vein(s) running into the lobes), often pinnate (the second or third pair of lateral veins running into the lobes), or subpalmate (basal and other lateral veins running into the lobes), 6–25 by 3.5–16 cm, mostly up to 20 cm long, chartaceous, basal lateral veins up to 1/2–3/4 the length of the lamina; petiole 1–6 cm long; stipules 0.5–2 cm long, mostly only ciliolate and with stiff brown hairs on and along the keel, sometimes also white appressed-puberulous towards the margins. *Figs* (sub)sessile; basal bracts 2–3 mm long, only the keel or the whole surface appressed-puberulous, persistent; receptacle (sub)globose, 0.4–1.2 cm diam. when dry, whitish to yellowish hirtellous.

Distribution — NE India, Nepal, Sikkim, Myanmar, S China (incl. Hainan), Indochina, Thailand, Java, Sumatra (Lampung).

Habitat — Mostly secondary growth, at altitudes up to 1100 m.

b. subsp. dumosa (King) C.C. Berg, *stat. nov.*

Based on: *Ficus dumosa* King (1888) 151. — *Ficus hirta* Vahl var. *dumosa* (King) Corner (1960) 430. — Type: *Forbes* 229 (holo CAL n.v.), Indonesia, Sumatra, Mt Dempe, Kaisers Peak.

Shrub or treelet; indumentum whitish, on the leafy twigs sparse and on the petiole appressed. *Leafy twigs* 2–5 mm thick. *Lamina* palmately 3–5(–7)-lobed to -fid, 10–15 by 6–11 cm, chartaceous, basal lateral veins up to 1/3–2/3 the length of the lamina; petiole 1–5 cm long; stipules 1–1.5 cm long, ciliolate and sparsely hairy on the keel. *Figs* sessile; basal bracts 3 (or more), 2–4 mm long, ciliolate, persistent; receptacle depressed-globose, 1–1.5 cm diam. when dry, subglabrous.

Distribution — Sumatra (southern: Bencoolen, Lampung).

Habitat — Montane (mossy) forest, at altitudes between 1000 and 2000 m.

c. subsp. ochracea C.C. Berg, *subsp. nov.* — Fig. 3

A subspeciebus ceteris in laminis non contractis nec lobatis, stipulis dense pubescentibus pilis forma singulari, syconii receptaculo dense lutee pubescenti subgloboso differt.

— Typus: *De Wilde & De Wilde-Duyfjes 13774* (holo BO; iso L), Indonesia, Sumatra, Gunung Leuser Nature Reserve, Gunung Ketambe, c. 40 km NW of Kutajane, 1700–1900 m, 19 July 1972.

Treelet up to 5 m tall; indumentum yellowish to pale brown or partly dark brown, rather short. *Leafy twigs* 2–4 mm thick. *Lamina* oblong to elliptic to (sub)obovate, (6–)12–25 by (2.5–)6–11.5 cm, chartaceous, basal lateral veins up to 1/4–1/3 the length of the lamina; petiole 1.5–5 cm long; stipules 0.8–1.2 cm long, brown to yellowish subsericeous (the hairs not fully appressed). *Figs* sessile or with a peduncle up to 0.3 cm long; basal bracts 3–4 mm long, yellow appressed-puberulous to strigillose, persistent; receptacle globose, 0.8–1.2 cm diam. when dry, yellow subvelutinous.

Distribution — Sumatra (northern).

Habitat — Montane (mossy) forest, at altitudes between c. 1000 and 1800 m.

Note — The description is also based on *De Wilde & De Wilde-Duyfjes 13716, 14911, 14913, and 15127* (L), all from the same area.

d. subsp. roxburghii (Miq.) C.C. Berg, *stat. nov.*

Based on: *Ficus roxburghii* Miq. (1848) 456. — *Ficus hirta* var. *roxburghii* (Miq.) King (1888) 150. — Type: *Wallich 4491* (holo K), India, Silet, 1831.

Shrub or tree up to 15 m tall; indumentum on various parts pale to dark brown, hirsute to hirtellous. *Leafy twigs* often hollow. *Lamina* elliptic to oblong, not constricted in the lower part, or cordiform and then mostly palmately 3–5–7-lobed to -fid, (5–)10–40 by (3.5–)5.5–40 cm; basal lateral veins up to 1/2–2/3 the length of the lamina; petiole (1.5–)5–15 cm long; stipules (1–)1.5–2.5(–4) cm long, white appressed-puberulous to sericeous and on and along the keel longer brown stiff hairs. *Figs* sessile; basal bracts 0.5–2.5 cm long, persistent or (if long) caducous, white appressed-puberulous to sericeous and with stiff brown hairs on and along the keel; receptacle ovoid to ellipsoid to subcylindrical, (0.7–)1.5–2.5(–3.5) cm diam. when dry, brown hirtellous to hirsute, sometimes with lateral bracts, ostiole surrounded by erect outer ostiolar bracts or stiff brown hairs.

Distribution — NE India, Sikkim, Vietnam, Thailand, Malay Peninsula, and Sumatra (northern and eastern).



Fig. 3. *Ficus hirta* Vahl subsp. *ochracea* C.C. Berg. Leafy twigs with figs (*De Wilde & De Wilde-Duyffjes* 13774, L), Indonesia, Sumatra, Aceh, Gunung Leuser Nature Reserve, 1700 m, 19 July 1972.



Fig. 4. *Ficus kofmanae* C.C. Berg. Leafy twig with figs (Kofman 240, L), Indonesia, Sulawesi, Selentan, Gn. Rantemario, 2000–2500 m, 9 Nov. 1993.

Habitat — Forest, at altitudes up to 1800 m, often between 1000 and 1800 m.

Notes — 1. This variety is more variable than the other three. It varies considerably in the shape and size of the leaves, and the length of the stipules. The figs vary in size and shape (from ellipsoid to ovoid to subcylindrical). The basal bracts vary in length, if short they are mostly persistent, if long, caducous. In some collections from northern Sumatra the fig receptacle has several lateral bracts.

2. This variety includes *F. hirta* var. *malayana* Corner (1960) 430 and var. *squamosa* Corner (1960) 431.

Ficus kofmanae C.C. Berg, *spec. nov.* — Fig. 4

Fico oleifoliae praesertim subsp. *intermediae* similis, ab ea e.g. in stipulis subpersistentibus venis lateralibus numerosioribus differt. — Typus: *S. Kofman* 240 (holo L), Indonesia, Sulawesi, Gunung Rantemario, Gowa subcamp, 2000–2500 m, 9 Nov. 1993.

Treelet (?). *Leafy twigs* 1.5–3 mm thick, brown puberulous; periderm flaking off. *Leaves* spirally alternate; lamina oblanceolate to subspathulate, (2.5–)7–15 by (1.2–)2–4.5 cm, coriaceous, apex acuminate, base cuneate to subattenuate, margin entire; both surfaces glabrous; lateral veins (6–)9–15 pairs, departing the midrib at acute angles, basal pair running close to the margin, tertiary venation reticulate; waxy glands in the axils of the basal lateral veins; petiole 0.3–0.7 mm long, 1–2.5 mm thick, minutely puberulous, the epidermis persistent; stipules 1–1.3 cm long, glabrous, subpersistent. *Figs* axillary, in pairs or solitary; peduncle 0.7–1.2 cm long, minutely puberulous; basal bracts 3, c. 2 mm long, sparsely and minutely ciliolate; receptacle (sub)ovoid, 0.8–1.1 cm diam. when dry, glabrous, colour at maturity unknown, apex somewhat protracted, ostiole c. 2 mm diam., almost flat; internal hairs absent. *Tepals* glabrous.

Distribution — Sulawesi (central).

Habitat — Montane forest, at 2000–2500 m.

Note — This species shows affinities to *F. oleifolia*, in particular to *F. oleifolia* subsp. *intermedia*, from which it differs, e.g., in the subpersistent stipules and more numerous lateral veins.

Ficus oleifolia King (1888) 160

The morphological differentiation of this highly variable species allows recognition of three subspecies. Subspecies *monantha* is newly described here. Subspecies *intermedia* (Corner) C.C. Berg comprises material Corner (1960) placed in *F. deltoidea* var. *intermedia*. This transfer implies a redefinition of the two closely related species, showing similarities in their variation patterns. *Ficus deltoidea* comprises all material of which the epidermis of the petiole is flaking off and *F. oleifolia* that with persistent epidermis.

KEY TO THE SUBSPECIES

- 1a. Petiole 1.5–2(–2.5) mm thick. — Malay Peninsula, Borneo
 **b. subsp. intermedia**
 b. Petiole 0.5–1 mm thick 2

- 2a. Lamina spatulate to oblanceolate to linear-lanceolate, drying greenish; lateral veins departing in acute angles, the midrib repeatedly branched in laminas with rounded apices. — Philippines (Palawan) **c. subsp. monantha**
- b. Lamina oblong to subobovate to linear-oblanceolate, mostly drying brown; lateral veins departing in broad angles in the middle of the lamina, the midrib simply branched in laminas with rounded apices. — Sumatra, Borneo, Philippines, Sulawesi **a. subsp. oleifolia**

a. subsp. oleifolia

Including the following varieties recognized by Corner (1960) and Kochummen (1998): *F. oleifolia* var. *calcicola* Kochummen, *F. oleifolia* var. *dodonaeiformis* (Gagnep.) Corner, *F. oleifolia* var. *epiphytica* (Elmer) Corner, *F. oleifolia* var. *impressicostata* Kochummen, *F. oleifolia* var. *memecylifolia* Corner, *F. oleifolia* var. *myrsinoides* Corner, *F. oleifolia* var. *riparia* Corner, as well as *F. deltoidea* Jack var. *subhirsuta* Kochummen.

Leafy twigs 1–3 mm thick. *Lamina* drying brown or greenish, oblong to subobovate to linear-oblanceolate, mostly up to 6 by 2 cm, sometimes up to 9 by 3 cm, rarely up to 13 by 3.5 cm; midrib reaching the apex of the lamina, or if not, then simply branched, lateral veins (3–)6–10(–15) pairs, departing in the middle of the lamina at angles of 70–90°; petiole 0.5–1 mm thick; stipules 0.3–1 cm long. *Figs* relatively small, 0.2–0.7 cm diam. when dry. *Seed figs* with 1–c. 5 flowers.

Distribution — Sumatra, Borneo, Philippines (Basilan, Mindanao), Sulawesi.

Habitat & Ecology — Mostly (sub)montane forest, often on rocky places, at altitudes between 1000 and 2300 m, also at lower altitudes and then often epilithic.

b. subsp. intermedia (Corner) C.C. Berg, *comb. & stat. nov.*

Based on: *Ficus deltoidea* Jack var. *intermedia* Corner (1960) 423. — Type: *Purseglove 4281* (holo SING), Malaysia, Pahang, Fraser's Hill.

Synonyms: *F. burkillii* Ridl. (1924) 330, *F. kinabaluensis* Stapf (1894) 226.

Leafy twigs 2–5(–7) mm thick. *Lamina* elliptic to oblong to (sub)obovate to broadly spatulate to oblanceolate to linear-oblanceolate, mostly up to 9 by 3 cm, sometimes up to 18 by 7.5 cm; lateral veins (3–)4–10(–15) pairs, in the middle of the lamina departing at angles of 45–60°; petiole 1.2–2(–2.5) mm thick; stipules 0.6–1.7 cm long. *Figs* relatively large, 0.6–1.2 cm diam. when dry. *Seed figs* with 5–20 flowers.

Distribution — Thailand, Malay Peninsula, Borneo.

Habitat & Ecology — Mostly (sub)montane forest, often in rocky places, at altitudes between 1000 and 2400(–3200) m, also at lower altitudes and then often epilithic.

c. subsp. monantha Merr. & Quisumb. ex C.C. Berg, *subsp. nov.* — Fig. 5

A subspeciebus ceteris differt in venis lateralibus omnibus angulis acutis, costa repetite ramosa in laminis apicibus rorundatis, floris solitarii praesentia consistenti in syconia frutescenti differt. — Typus: *Edaño (PNH) 4* (holo L), Philippines, Palawan, Mt Mantak-ingahan, Brooke's Point, 1400 m, 12 May 1947.



Fig. 5. *Ficus oleifolia* King subsp. *monantha* Merr. & Quisumb. ex C.C. Berg. Leafy twigs with figs (Soejarto et al. 8825, L), Philippines, Palawan, Brooke's Point, 1150 m, 7 March 1995.

Leafy twigs 1–2 mm thick. *Lamina* drying greenish, spatulate to oblanceolate to linear-lanceolate, 2.5–6 by 0.4–1.6 cm; midrib reaching the apex of the lamina, or if not, then (usually) repeatedly branched, lateral veins 4–9 pairs, all departing in acute angles, less than 45°; petiole 0.5–1 mm thick; stipules 0.2–0.5 cm long. *Figs* small, 0.2–0.4 cm diam. when dry. *Seed figs* with 1 flower.

Distribution — Philippines (Palawan: Brooke's Point).

Habitat — Montane (mossy) forest, at altitudes of 1100–1400 m.

Notes — 1. This subspecies is peculiar because of the (consistent?) presence of a single pistillate flower in the seed fig.

2. The description is also based on *Edaño s.n.*, April 1929 (A), *Soejarto et al. 8810* (A, L) and 8825 (A, L), all from the same locality as the type.

Ficus subglabritepala* C.C. Berg, *spec. nov.

Based on: *Ficus eumorpha* Corner var. *subglabra* Corner (1960) 440. — Type: *Endert 4416* (holo BO; iso L), Indonesia, Kalimantan, W Koetai, Mt Kemoel, 1800 m, 20 Oct. 1925.

Tree up to 10 m tall. *Leafy twigs* 3–4 mm thick, puberulous and densely brownish hirtellous to subvelutinous, with pairs of waxy glands at the bases of the petioles; periderm persistent. *Leaves* spirally alternate; lamina cordiform to ovate, sometimes 3-lobate, 6–16 by 3.5–9.5 cm, chartaceous, apex acuminate to subcaudate, base (sub)cordate, margin (and acumen) dentate; upper surface densely hirtellous to subhispid, ± scabrous, lower surface densely yellow to brown hirtellous on the veins; cystoliths absent; lateral veins 4–7 pairs, basal pair branched, up to 1/4–1/3 the length of the lamina, other lateral veins often branched or furcate far from the margin, tertiary venation loosely scalariform; waxy glands in the axils of the basal lateral veins; petiole 1.2–7 cm long, densely brown(ish) hirtellous, the epidermis persistent; stipules 0.4–0.6 cm long, yellow to brown subsericeous to subhirtellous, caducous. *Figs* in pairs or solitary, sessile; basal bracts 3, c. 2 mm long, appressed-puberulous; receptacle subglobose, 1–1.2 cm diam. when dry, densely yellow to brown(ish) hirtellous to subvelutinous, yellowish at maturity, apex convex, ostiole c. 2.5 mm diam., ± prominent; internal hairs abundant, yellow.

Distribution — Borneo (Sarawak and Central Kalimantan).

Habitat — Montane and submontane (mossy) forest, at altitudes between 1500 and 1800 m.

Notes — 1. This species resembles *F. eumorpha* in the shape of the leaves, from which it differs in the absence of dense minute whitish hairs covering the areoles, the indumentum of the stipules with only one type of hair, and the smaller fig receptacle with pale brown indumentum. Moreover, the tepals of the pistillate flowers bear only few hairs or are glabrous.

2. The description is also based on: *Paie S 40914* and *55946* (L).

***Ficus tricolor* Miq. (1851) 53**

Ficus grossularioides and *F. tricolor* appear to be very closely related. Using a combination of more or less clear differences, like the texture and margin of the lamina, the traits of the indumentum on the leafy twigs, petioles, and both surfaces of the lamina, as well as the size of the syconia, most of the specimens could be placed in one of these

two species. However, there are two problem entities, *F. grossularioides* var. *stenoloba* Corner (1960) and *F. grossularioides* var. *robusta* Corner (1960). The former is left as an infraspecific taxon in *F. grossularioides*, although with some doubt. Corner transferred material initially identified as *F. grossularioides* var. *robusta* to *F. tricolor*, but he did not publish the new combination in *F. tricolor*.

The two species appear to be ecologically different: *F. grossularioides* is mostly a lowland species, whereas most records indicate that *F. tricolor* occurs at altitudes between 800 and 1900 m. However, *F. grossularioides* var. *stenoloba* occurs at similar altitudes, unlike the other varieties of the species. On the basis of the nature of the differences, it could be considered to unite the two species and recognize a number of infraspecific taxa at the subspecies and variety level. The variation in leaf indumentum in *F. tricolor* is parallel to that in *F. grossularioides*.

KEY TO THE VARIETIES OF FICUS TRICOLOR

- 1a. Lamina ± densely hairy and ± scabrous above, the margin denticulate. — Malay Peninsula **b. var. robusta**
 b. Lamina ± sparsely hairy and smooth above, the margin (sub)entire 2
 2a. Lower surface of the lamina ± densely hairy on the main veins . . **c. var. serroh**
 b. Lower surface of the lamina sparsely puberulous to glabrous on the main veins **a. var. tricolor**

a. var. tricolor

Lamina mostly oblong to elliptic, margin usually (sub)entire, upper surface sparsely hairy, mainly in the veins, smooth, lower surface sparsely hairy to glabrous on the main veins. *Fig* receptacle 0.5–1 cm diam. when dry, ± sparsely puberulous.

Distribution — Sumatra, Java, Borneo (southern).

Habitat — Forest and secondary growth, at altitudes between 800 and 1900 m.

b. var. robusta (Corner) Corner ex C.C. Berg, *comb. nov.*

Based on: *Ficus grossularioides* Burm.f. var. *robusta* Corner (1960) 429. — Type: *Singapore FN 33187* (holo SING), Malaysia, Pahang, Fraser's Hill, 1200 m.

Lamina cordiform to ovate (to elliptic), (9–)13–25(–45) by (6–)9–20(–35) cm, base cordate to truncate (to rounded), margin denticulate, upper surface hispidulous to strigillose, scabrous to scabridulous, lower surface with ± appressed or spreading hairs on the main veins. *Fig* receptacle 1–1.8 cm diam. when dry, (rather) sparsely puberulous to subhirtellous.

Distribution — Thailand, Malay Peninsula.

Habitat — Forest, at altitudes between 1200 and 1700 m.

c. var. serroh Miq. (1851) 53

Lamina mostly oblong to elliptic, margin usually (sub)entire, upper surface (rather) sparsely hairy, mainly on the veins, smooth, lower surface ± densely hairy on the (main) veins. *Fig* receptacle 0.7–1.3 cm diam. when dry, ± densely hirtellous to puberulous.

Distribution — Sumatra, Java, Sulawesi, Moluccas (Bacan).

Habitat — Forest, in Sumatra and Java at altitudes between 800 and 2000 m, elsewhere at low altitudes.

KEY TO THE SPECIES OF SUBGENUS FICUS

- 1a. Lower surface of the lamina with hairs in the areoles 2
 b. Lower surface of the lamina with hairs (almost) confined to the veins and veinlets or glabrous 9
 2a. Densely felted-tomentose or -villous in the areoles, this indumentum covering at least the lesser vein reticulations 3
 b. Densely puberulous in the areoles as well as on the venation and there intermixed with longer stiff brownish hairs 7
 3a. Stipules 2–5 cm long; figs in the leaf axils, the receptacle 2–3.5 cm diam. when dry. — Sumatra, Java **23. F. padana**
 b. Stipules 0.5–1.8 cm long; figs mostly below the leaves, the receptacle 0.5–1.8 cm diam. when dry 4
 4a. Lamina with entire (or crenate) margin, usually smooth above, (sub)coriaceous 5
 b. Lamina with dentate to denticulate margin, usually scabrous to scabridulous above, chartaceous to subcoriaceous 6
 5a. Lamina mostly shorter than 10 cm and less than 5 cm wide; figs sessile. — Sumatra **16c. F. grossularioides** var. **stenoloba**
 b. Lamina mostly longer than 10 cm and more than 5 cm wide; figs mostly pedunculate. — Sumatra, Java, Borneo, Sulawesi, Moluccas **27. F. tricolor**
 6a. Lamina mostly elliptic to oblong, 3–15 by 1.5–7.5 cm, the base cuneate to rounded; figs usually sessile, the receptacle mostly up to 1 cm diam. when dry; low altitudes. — Sumatra, Malay Peninsula, Java, Borneo **16. F. grossularioides**
 b. Lamina mostly cordiform to ovate, mostly 13–25 by 9–20 cm, the base mostly cordate to truncate; figs pedunculate, the receptacle 1–1.5 cm diam. when dry; (sub)montane. — Malay Peninsula **27b. F. tricolor** var. **robusta**
 7a. Leafy twigs hollow; fig receptacle 2–3 cm diam. when dry. — Borneo **32. F. bruneiensis**
 b. Leafy twigs solid; fig receptacle 1–1.8 cm diam. when dry 8
 8a. Stipules 1–3.5 cm long, appressed-puberulous to sericeous and on the keel also longer and stiff hairs; fig receptacle predominantly whitish puberulous. — Borneo **33. F. brunneoaurata**
 b. Stipules 0.5–1(–1.5) cm long, hirtellous to substrigose with one type of hair; fig receptacle densely brown hirtellous to subvelutinous. — Borneo **36. F. eumorpha**
 9a. Margin of the lamina dentate, denticulate or crenate 10
 b. Margin of the lamina entire or subentire (sometimes sinuate to sublobate) 39
 10a. Stipules only ciliolate or, if hairy outside, then sparsely white puberulous on the keel; lamina 3–5–7-lobed to -fid also on fertile branches; fig receptacle usually (sub)pyriform and at least 1.5 cm diam. when dry; (introduced fruit tree). — Widespread **1. F. carica**

- b. Stipules densely hairy or, if sparsely, then at least with some brownish stiff hairs on the keel or a tuft of hairs at the apex; lamina 3–5–7-lobed to -fid usually only on sterile branches; fig receptacle not pyriform or, if subpyriform, then less than 1.5 cm diam. when dry 11
- 11a. Waxy glands in pairs (laterally) at the base of the petiole 12
- b. Waxy glands lacking at the base of the petiole, or if present, then inconspicuously and median at the base of the petiole 19
- 12a. Lamina about as long as broad 13
- b. Lamina distinctly longer than broad 14
- 13a. Stipules (1–)1.5–2.5(–3) cm long. — Borneo **35. F. endospermifolia**
- b. Stipules 0.8–1.5 cm long. — Sumatra, Java **13. F. fulva**
- 14a. Stipules (partly) finely whitish sericeous, 1.5–2.5 cm long. — Widespread **13. F. fulva**
- b. Stipules brownish to yellowish hairy, mostly shorter or longer 15
- 15a. Stipules 0.4–0.8 cm long 16
- b. Stipules 1.2–2.5(–3.2) cm long 17
- 16a. Lamina ± scabrous above; figs sessile. — Sumatra **40. F. subglabripetala**
- b. Lamina smooth above; figs pedunculate. — Widespread **15. F. glandulifera**
- 17a. Internodes solid; fig pedunculate or sessile, the receptacle 1–1.5 cm diam. when dry **13. F. fulva**
- b. Internodes hollow; fig sessile, the receptacle 2–2.5 cm diam. when dry 18
- 18a. Lateral veins 5 or 6 pairs; stipules c. 1.5 cm long. — Borneo **30. F. aureocordata**
- b. Lateral veins 8 or 9 pairs; stipules 1.5–3 cm long. — Borneo **34. F. diamantiphylla**
- 19a. Stipules up to 1 cm long and/or petioles 1–4 cm long 20
- b. Stipules mostly longer than 1 cm and/or petioles mostly longer than 4 cm 25
- 20a. Stipules white hairy (subsericeous). — Borneo **38. F. macilenta**
- b. Stipules brown or brownish hairy 21
- 21a. Basal lateral veins up to 1/2–2/3 the length of the lamina 22
- b. Basal lateral veins up to 1/2 the length of the lamina; epidermis of the petiole persistent 23
- 22a. Epidermis of the petiole flaking off; figs pedunculate. — Borneo **26. F. subfulva**
- b. Epidermis of petiole persistent; figs sessile. — Borneo **31. F. auricoma**
- 23a. Basal lateral veins up to 1/4–1/3 the length of the lamina. — Borneo **37. F. inaequipetiolata**
- b. Basal lateral veins up to 1/3–1/2 the length of the lamina 24
- 24a. Fig receptacle at least 1 cm diam. when dry, hirtellous to hirsute or subhispidulous. — Sumatra, Malay Peninsula, Borneo, Philippines **29. F. aurata**
- b. Fig receptacle up to 1 cm diam. when dry, appressed-puberulous. — Borneo **39. F. setiflora**
- 25a. Lamina smooth above 26
- b. Lamina scabrous to scabridulous above 31
- 26a. Lamina cordiform to ovate 27
- b. Lamina elliptic to oblong to subobovate or subpandurate 29

- 27a. Stipules c. 2.5 cm long; leafy twigs setose (with irritating hairs). — Moluccas **17. F. halmaherae**
 b. Stipules c. 1 cm long; leafy twigs velutinous or subhirsute 28
- 28a. Indumentum pale brown to yellowish. — Malay Peninsula . . **21. F. mollissima**
 b. Indumentum bright rusty brown. — Borneo **30. F. aureocordata**
- 29a. Epidermis of the petiole flaking off; fig peduncle 0.4–1 cm long; stipules brown appressed-puberulous to subsericeous. — Borneo **26. F. subfulva**
 b. Epidermis of the petiole persistent; figs sessile or with a peduncle up to 0.5 cm long; stipules whitish sericeous (to yellowish subsericeous) or brown hirsute 30
- 30a. Basal bracts 4–5 mm long, yellow appressed-puberulous; petiole varying in length from 2 to 4.5 cm and stipules c. 1 cm long. — Borneo **31. F. auricoma**
 b. Basal bracts 2–3.5 mm long, shortly white sericeous; petiole varying in length from 1 to 14 cm and stipules varying in length from 0.8 to 3.2 cm. — Widespread **13. F. fulva**
- 31a. Lamina cordiform to ovate in outline, base (sub)cordate 32
 b. Lamina elliptic to oblong to (sub)obovate to pandurate in outline 33
- 32a. Stipules with brown hairs in the middle and finer white hairs towards the margin and often longer than 2 cm; basal bracts 8–25 mm long, often caducous. — Sumatra, Malay Peninsula **18d. F. hirta** subsp. **roxburghii**
 b. Stipules with only one type and colour of hair and usually shorter than 2 cm; basal bracts 4–5 mm long, persistent. — Borneo **30. F. aureocordata**
- 33a. Stipules with stiff hairs only on the keel. — Sumatra, Java **18a, b. F. hirta** subsp. **hirta** & subsp. **dumosa**
 b. Stipules with the same type of hairs covering the whole surface 34
- 34a. Basal lateral veins up to 1/3 the length of the lamina; stipules yellowish sericeous. — Sumatra **18c. F. hirta** subsp. **ochracea**
 b. Basal lateral veins up to 1/3–2/3 the length of the lamina; stipules whitish to yellowish or brownish sericeous or strigose 35
- 35a. Stipules (partly) finely whitish sericeous. — Widespread **13. F. fulva**
 b. Stipules brown sericeous or strigose 36
- 36a. Figs pedunculate 37
 b. Figs sessile 38
- 37a. Fig receptacle appressed puberulous. — Borneo **26. F. subfulva**
 b. Fig receptacle subvelutinous. — Sumatra, Malay Peninsula **29. F. aurata**
- 38a. Stipules 0.5–2 cm long; lamina 5–20(–30) cm long. — Borneo, Philippines **29. F. aurata**
 b. Stipules 2–6 cm long; lamina 40–50 cm long. — Borneo **34. F. diamantiphyllo**
- 39a. Stipules only ciliolate, with a tuft of hairs at the apex or entirely glabrous . . 40
 b. Stipules hairy outside, at least on the keel 51
- 40a. Fig receptacle with papillae on the surface. — Philippines . . . **10. F. pustulata**
 b. Fig receptacle without papillae on the surface 41
- 41a. Stipules with a small tuft of hairs at the apex. — Sumatra . . **25. F. schefferiana**
 b. Stipules without a tuft of hairs at the apex 42
- 42a. Upper surface of lamina ± scabrous; stipules subpersistent. — Philippines **5. F. glareosa**

- b. Upper surface of lamina smooth (or scabridulous); stipules caducous (or subsistent) 43
- 43a. Epidermis of the petiole flaking off 44
- b. Epidermis of the petiole persistent 46
- 44a. Lamina hairy and the reticulum prominent beneath, the midrib not furcate. — Sumatra **14. F. glabristipulata**
- b. Lamina (almost) glabrous and the reticulum flat beneath, the midrib often not reaching the apex of the lamina 45
- 45a. Base of the lamina cordulate-auriculate. — Philippines **3. F. edanoi**
- b. Base of the lamina (sub)cuneate. — Sumatra, Malay Peninsula, Java, Borneo, Sulawesi, Moluccas **2. F. deltoidea**
- 46a. Lamina linear-lanceolate, 6–10 times as long as broad; fig receptacle 1.5–2.3 cm diam. when dry. — Malay Peninsula **6. F. ischnopoda**
- b. Lamina broader or, if linear-lanceolate, then the fig receptacle less than 1 cm diam. when dry. 47
- 47a. Lamina coriaceous, the apex acuminate to obtuse to rounded, the tertiary venation largely parallel to the lateral veins to reticulate 48
- b. Lamina chartaceous (to subcoriaceous), the apex acuminate to subcaudate, the tertiary venation loosely scalariform 49
- 48a. Stipules subsistent; lateral veins mostly 9–15 pairs. — Sulawesi **7. F. kofmanae**
- b. Stipules caducous; lateral veins mostly 4–8 pairs. — Sumatra, Malay Peninsula, Borneo, Philippines, Sulawesi **8. F. oleifolia**
- 49a. Lateral veins (8–)10–13(–18) pairs. — Sumatra, Malay Peninsula, Borneo, Sulawesi **19. F. lamponga**
- b. Lateral veins 4–9 pairs 50
- 50a. Lamina with cystoliths (visible as minute pustules or points) beneath; fig receptacle 1.2–1.8 cm diam. when dry, the peduncle 0.5–2(–3) cm long; (introduced ornamental plant). — Java, Borneo **4. F. erecta**
- b. Lamina without cystoliths; fig receptacle 0.4–0.8 cm diam. when dry, the peduncle 0.1–0.4 cm long or the fig sessile. — Malay Peninsula, Borneo **12. F. chartacea**
- 51a. Waxy glandular spots in pairs at the base of the petiole. — Widespread **15. F. glandulifera**
- b. Waxy glands absent at the base of the petiole 52
- 52a. Periderm of the leafy twigs and/or the epidermis of the petiole flaking off . . 53
- b. Periderm of the leafy twigs and epidermis of the petiole persistent 59
- 53a. Midrib of the lamina not reaching the apex of the lamina 54
- b. Midrib reaching the apex of the lamina 55
- 54a. Indumentum of the stipules brown **9. F. pedunculosa**
- b. Indumentum of the stipules white **2. F. deltoidea**
- 55a. Stipules white, whitish or yellowish hairy 56
- b. Stipules brown or brownish hairy 58
- 56a. Leafy twigs and petioles hispidulous, ± scabrous; epidermis of the petiole (±) flaking off. — Borneo **28. F. androchaete**
- b. Leafy twigs and petioles not ± scabrous; epidermis of the petiole persistent . 57

- 57a. Stipules 0.8–1.2 cm long; fig receptacle (sub)glabrous. — Philippines **11. F. banahaensis**
 b. Stipules 1.2–2 cm long; fig receptacle hairy. — Philippines, Sulawesi **24. F. ruficaulis**
- 58a. Leafy twigs and petioles hispidulous, ± scabrous. — Borneo **26. F. subfulva**
 b. Leafy twigs and petioles smooth. — Philippines, Sulawesi **24. F. ruficaulis**
- 59a. Stipules subsistent **5. F. glareosa**
 b. Stipules caducous 60
- 60a. Indumentum of leafy twigs brown(ish). — Widespread **13. F. fulva**
 b. Indumentum of leafy twigs whitish or yellowish, often sparse 61
- 61a. Lateral veins (7–)10–13(–18) pairs, the basal lateral veins hardly or not different from the other lateral veins. — Sumatra, Malay Peninsula, Borneo, Sulawesi **19. F. lamponga**
 b. Lateral veins 4–8(–9) pairs, the basal lateral veins ± clearly different from the other lateral veins 62
- 62a. Stipules 1.2–2 cm long; lamina 12–28 by 7–18 cm; leafy twigs 5–10 mm thick. — Philippines, Sulawesi **24. F. ruficaulis**
 b. Stipules 0.4–0.8 cm long; lamina 4–14 by 2–8.5 cm; leafy twigs 1.5–3 mm thick 63
- 63a. Indumentum on the midrib beneath appressed. — Sumatra **20. F. litseifolia**
 b. Indumentum on the midrib beneath patent. — Malay Peninsula **22. F. oreophila**

ACKNOWLEDGEMENTS

The Flora Malesiana Foundation supports the preparation of the treatment of Moraceae for the Flora Malesiana. Dr. J.F. Veldkamp (Leiden) translated the diagnoses into Latin.

REFERENCES

- Berg, C.C. 2003. Flora Malesiana precursor for the treatment of Moraceae 1: The main subdivision of Ficus: the subgenera. *Blumea* 48: 168–178.
- Corner, E.J.H. 1960. Taxonomic notes in Ficus Linn., Asia and Australasia III. Ficus sect. Ficus. *Gard. Bull. Singapore* 17: 416–441.
- Corner, E.J.H. 1965. Check-list of Ficus in Asia and Australasia with keys to identification. *Gard. Bull. Singapore* 21: 1–186.
- Corner, E.J.H. 1970. Ficus subg. Ficus, two rare and primitive pachycaul species. *Philos. Trans., Ser. B*, 259: 353–381.
- Jack, W. 1822. *Mal. Misc.* 2. Bencoolen.
- King, G. 1888. The species of Ficus of the Indo-Malayan and Chinese countries. Part II. *Synoecia*, *Sycidium*, *Covellia*, *Eusyce* and *Neomorphe*. *Ann. Roy. Bot. Gard. (Calcutta)* 1, 2: 67–185, t. 88–232.
- Kochummen, K.M. 1998. New species and varieties of Moraceae from Malaysia. *Gard. Bull. Singapore* 50: 197–219.
- Miquel, F.A.W. 1848. *Prodromus monographiae Ficuum*. *London J. Bot.* 7: 64–78, 109–116, 221–236, 425–471.
- Miquel, F.A.W. 1851–1857. *Plantae Junghuhnianae*. Leiden.
- Miquel, F.A.W. 1867. *Annotationes de Ficus speciebus*. *Ann. Mus. Bot. Lugd.-Bat.* 3: 260–315. Leiden.

- Ridley, H.N. 1924. The flora of the Malay Peninsula. 3. London.
- Sata, T. 1944. A monographic study of the genus *Ficus* from the point of view of economic botany. *Contr. Hort. Inst. Taihoku Imp. Univ.* 32: 1–405, t. 1–54.
- Stapf, O. 1894. On the Flora of Mount Kinabalu, in North Borneo. *Trans. Linn. Soc. London, Bot.* 4: 69–263, t. 11–20.
- Vahl, M. 1805. *Enum. Pl.* 2. Copenhagen.
- Wiebes, J.T. 1994. The Indo-Australian Agaoninae (pollinators of figs). *Verh. Kon. Ned. Akad. Wet., afd. Natk.*, 2de reeks, 92: 1–208.