

The Araliaceae of Peninsular Malaysia: five new species, two neotypifications and twenty-two lectotypifications in several genera

R.P.J. de Kok

Honorary Research Associate, Singapore Botanic Gardens, National Parks Board,
1 Cluny Road, Singapore 259569, Singapore
rogier.dekok@yahoo.com

ABSTRACT. One new species of *Brassaiopsis*, *B. malayana* de Kok, and four new species of *Heptapleurum*, *H. frodinii* de Kok, *H. lengguanii* de Kok, *H. longicaudatum* de Kok and *H. nanocephalum* de Kok, all Araliaceae from Peninsular Malaysia, are described here. Descriptions and notes on distribution, conservation status and ecology are given. In addition, 22 names in various genera of Araliaceae are lectotypified and two names are neotypified.

Keywords. *Brassaiopsis*, *Heptapleurum*, *Schefflera*

Introduction

All genera of the Araliaceae (Ivy family) have recently been revised for the *Flora of Peninsular Malaysia*. In the revision nine native genera and 51 species are recognised, of which 49 are native, including 19 that are endemic, one is doubtfully native, and one is naturalised. This work is based on herbarium collections made in Peninsular Malaysia and Singapore that are now housed at the Natural History Museum, London (BM), the Royal Botanic Gardens, Kew (K and K-W), the Forest Research Institute of Malaysia (KEP), the University of Malaya (KLU) and the Singapore Botanic Gardens (SING). Type material not available at those institutions was studied online via JSTOR Global Plants (<https://plants.jstor.org/plants>) and accessed in November 2019. Barcode information is given for all specimens where available. In this paper, as in the account for the *Flora of Peninsular Malaysia*, I follow the inflorescence terminology proposed by Ahmad Puad et al. (2018). The global conservation categories and criteria follow IUCN Standards and Petitions Committee (2022).

Five new species are described here. In addition, 22 names from several genera are lectotypified and two names are neotypified.

New species

1. *Brassaiopsis malayana* de Kok, *sp. nov.*

This species differs from *Brassaiopsis spinosissima* Esser in having leaf margins that are entire or with only a few teeth (rather than dentate in *B. spinosissima*) and dendritic

hairs on the lower leaf surface (stellate in *B. spinosissima*), in bearing leaves and fruits at the same time (often leafless when in fruit in *B. spinosissima*) and in growing in lowland forest (mountain forest in *B. spinosissima*). – TYPE: Malaysia, Kedah, Gunung Inas Forest Reserve, 7 February 1968, *Whitmore FRI 4639* (holotype KEP; isotype K). (Fig. 1)

Brassaiopsis palmata auct. non (Roxb.) Kurz: Clarke in Hooker, Fl. Brit India 2: 735 (1879), p.p.; King, J. Asiat. Soc. Bengal 67(2): 61 (1898); Ridley, Fl. Malay Penins. 1: 887 (1922); Corner, Wayside Trees Malaya, ed. 2, 1: 156 (1952).

Brassaiopsis polyacantha auct. non (Wall.) N. Banerjee: Stone, Gard. Bull. Singapore 30: 282 (1977); Stone, Tree Fl. Malaya 3: 20 (1978); Philipson, Fl. Males., ser. 1, 9: 93 (1979).

Brassaiopsis hainla auct. non (Buch-Ham.) Seem.: Esser in Frodin et al., World Checklist & Bibl. Araliaceae 102 (2004 [‘2003’]), p.p.

Tree 2–14 m tall, 6–30 cm diameter at breast height (dbh), single-stemmed or sparsely branched, flowering and fruiting when in leaf; bark greyish green or grey-brown, wood white; stem very spiny, densely hairy when young; hairs stellate and dendritic, reddish. **Leaves** palmately lobed, clustered at the ends of the shoots, 18–60 × 20–50 cm, base cordate to rounded; lobes (5–)7–9, oblong-elliptic, 14–18 × 4–9 cm, apex acuminate, margins entire, sparsely hairy and evenly distributed on the lower surface only, above glabrous; hairs dendritic, reddish; blades chartaceous, palminerved, veins raised on both surfaces, secondary veins 6–9 pairs per lobe, brochidodromous, tertiary veins reticulate; petiole terete, 18–80 cm long, 3.3–10 mm diam., longitudinally striate, shrunken at base and apex, densely hairy at base, with an enlarged basal sheath and a pair of small stipular processes. **Inflorescences** terminal, 30–60 cm long, lateral branches 8–25 cm long, terminating in spherical umbellules, often with spines at base, densely hairy, glabrescent; hairs stellate, reddish; bracts 2–3 mm long, persistent; umbellules 15–25-flowered, terminal, subtended by numerous minute bracts. **Flowers** bisexual; calyx rim with 5 small lobes (each 0.5–1 mm long), densely hairy, hairs stellate, reddish; petals 5, triangular, 2.5–3 × 1–1.8 mm, apex acute, sparsely hairy at apex in bud, soon glabrescent, white; stamens 5, 2–4.3 mm long, glabrous, anthers oblong, 1–1.5 mm, cream; disc fleshy, cushion-shaped; ovary 2–3-locular, obconic, 2–2.5 mm diam., surmounted by an awl-shaped stylar column 0.8–1.5 mm long. **Fruit** subglobose, 5.8–8 × 4–8 mm, apex truncate, surface smooth, sparsely hairy (hairs stellate, reddish), with a persistent calyx rim and stylar column (c. 1.5 mm long).

Distribution. Endemic to Peninsular Malaysia, where *Brassaiopsis malayana* is known from Kedah, Kelantan, Pahang and Johor.

Ecology. Growing along roads and rivers, at 600–1000 m altitude. Flowering in October to February; fruiting in February to March.

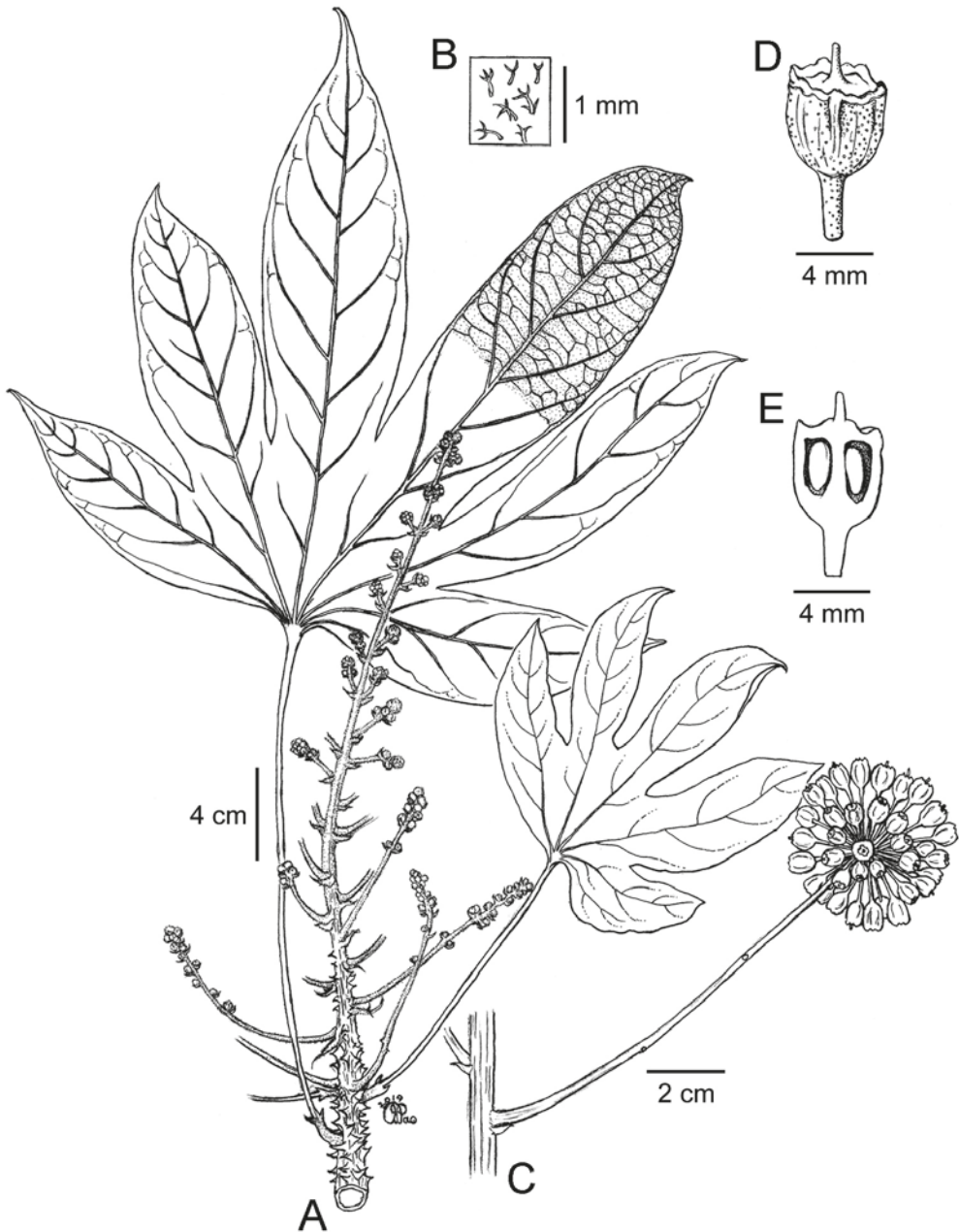


Fig. 1. *Brassaiopsis malayana* de Kok. **A.** Portion of leafy twig with inflorescences. **B.** Detail of lower leaf surface with dendritic hairs. **C.** Infructescence. **D.** Fruit. **E.** Cross-section of fruit. All from *Whitmore FRI 4639*. Drawn by Joseph Pao. Reproduced with permission of the Forest Research Institute Malaysia.

Vernacular name. *Tapak itek* (Motan) or Perak Ivy Palm.

Provisional IUCN conservation assessment. This species is known from six collections from only five locations (AOO = 20 km²) and there are threats of deforestation and habitat destruction at these locations. Given these threats and its restricted AOO, it is assessed here as Endangered (EN B2ab(i,ii,iii)).

Additional specimens examined. PENINSULAR MALAYSIA: **Kedah:** Gunung Inas Forest Reserve, 7 Feb 1968, *Whitmore FRI 4644* (K). **Kelantan:** Sungei Suda, 22 Oct 2008, *Teo & Din KL 5602* (KEP). **Pahang:** Genting Simpah, mile 26, 2 Feb 1968, *Whitmore FRI 4623* (K, KEP); Cameron Highlands, 10 Mar 1947, *Smith 56943* (KEP). **Johor:** Bukit Tinggi, 8 Feb 1966, *Kochummen 97777* (K, KEP).

Notes. Esser (2018) described a new species, *Brassaiopsis spinosissima* Esser, from Peninsular Thailand and suggested that there were similar populations in Peninsular Malaysia that differed in a number of minor characters (stating that they had subentire leaf lobes, were in leaf when in fruit, and were found on streambanks and along rivers). These observations are confirmed here, and an additional distinguishing indumentum character is added. However, the indumentum in these two species is very variable, with *Brassaiopsis spinosissima* having mainly stellate hairs, though it sometimes has dendritic hairs on various parts, whereas *B. malayana* generally has dendritic hairs on most parts, except the flowers. Both species have only stellate hairs on the flowers, *Brassaiopsis spinosissima* has only stellate hairs on the leaves, and *B. malayana* has only dendritic hairs on the lower leaf surface.

Material belonging to this species has in the past been confused with *Brassaiopsis hainla* (Buch.-Ham. ex D. Don) Seem, which is native to Thailand, Myanmar, Indo-China, China, Nepal and India. It differs from this species in having serrated leaflet margins and 4–6 pairs of secondary veins per lobe (leaflet margin entire and with 6–9 pairs of secondary veins per lobe in *Brassaiopsis malayana*).

It has also been confused with *Brassaiopsis polyacantha* sensu Stone (1977, 1978) and Philipson (1979), which is now treated as *Brassaiopsis spinosissima* (see Esser, 2018).

2. *Heptapleurum frodinii* de Kok, sp. nov.

This species differs from *Heptapleurum latifoliolatum* (King) R. Vig., also found in Peninsular Malaysia, by having stipular ligules which are 5–6 mm long (rather than 10–11 mm long in *H. latifoliolatum*), 8–10 pairs of secondary veins and indistinct tertiary veins (secondary veins in 5–7 pairs and tertiary veins distinct in *H. latifoliolatum*) and inflorescences 14–100 cm long (25–55 cm long in *H. latifoliolatum*). – TYPE: [Peninsular Malaysia], Johor, Mersing, 4 May 1991, *Teo & Remy KL 4038* (holotype KEP). (Fig. 2)

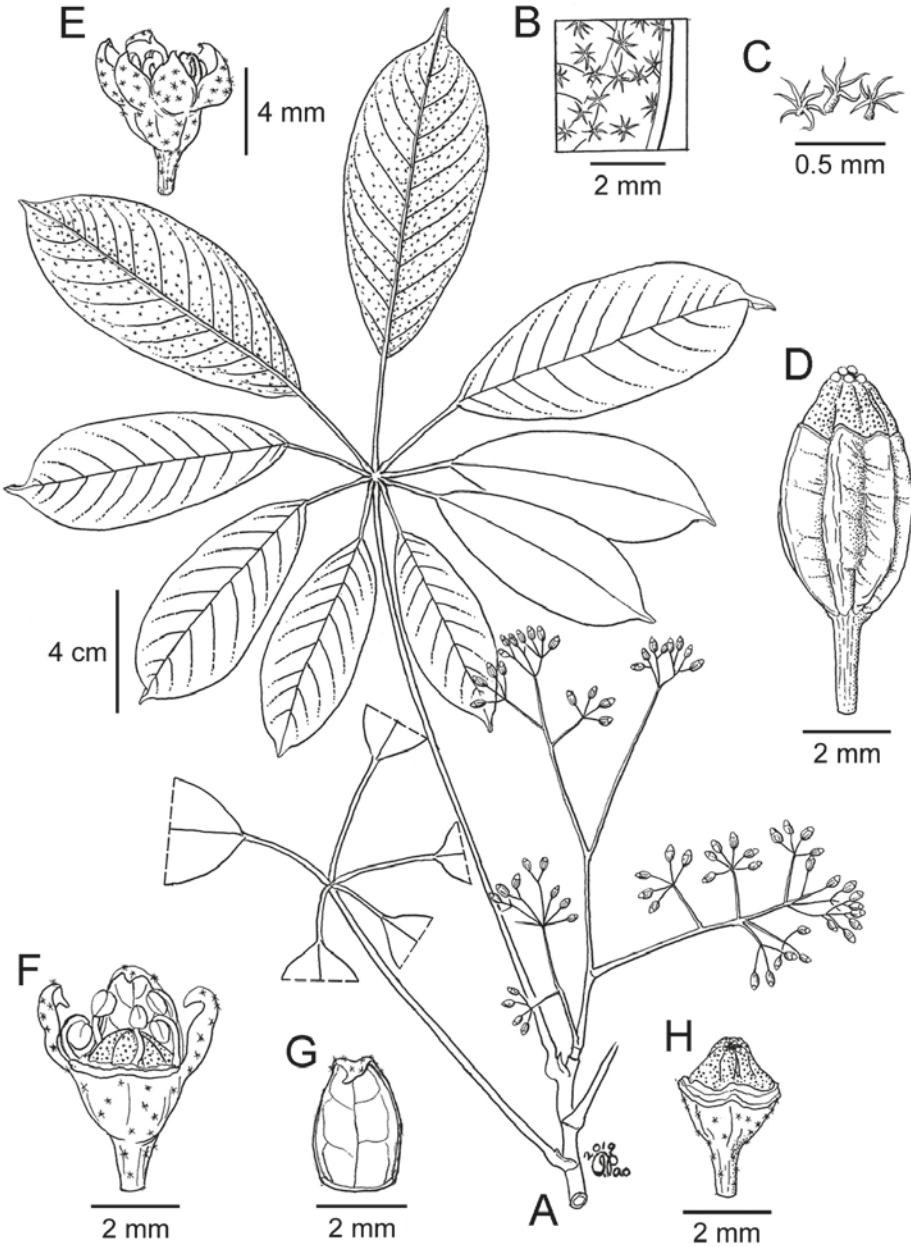


Fig. 2. *Heptapleurum frodinii* de Kok. **A.** Portion of leafy twig with inflorescences. **B.** Detail of lower leaf surface with stellate hairs. **C.** Stellate hairs. **D.** Fruit. **E.** Flower. **F.** Flower with one petal removed. **G.** Inside surface of petal. **H.** Ovary with glands. From *Teo & Remy KL 4038*. Drawn by Joseph Pao. Reproduced with permission of the Forest Research Institute Malaysia.

Tree or climber, 4–13.5 m tall, 0.6–15 cm dbh, terrestrial; bark grey to grey-brown, smooth; stems sparsely hairy with short (0.1–0.2 mm long) yellowish hairs when young, nodes not shrunken when dried, stems when cut producing a strongly aromatic clear sap or a gum. **Leaves** palmate, covered with short (0.1–0.2 mm long) reddish-yellowish hairs; leaflets simple, 8–10, elliptic to lanceolate, 5–23 × 2.5–11.5 cm, base cuneate, apex acute or cuspidate, margins entire, coriaceous, pinninerved, midrib raised on both surfaces, secondary veins 8–10 pairs, brochidodromous, tertiary veins reticulate, indistinct; petiole terete, 10–29 × 0.2–0.3 cm, glabrous, longitudinally striate, swollen at base and apex; petiolules 1.4–4 cm long; stipular ligules 5–6 mm long, apex acute. **Inflorescences** 14–100 cm long, terminal, erect to pendulous, sparsely hairy with short (0.1–0.2 mm long) reddish-yellowish hairs when young; bracts caducous (not seen); lateral branches a panicle of umbellules, 14–100 cm long, 3–6 cm wide, length to breadth ratio 4.5–16; umbellules 1.5–3 cm long, spirally arranged with a terminal cluster, each with 10–12 flowers. **Flowers** bisexual; calyx rim entire; petals triangular, 1.5–1.6 × 0.8–1 mm, apex acute, sparsely hairy with short (0.1–0.2 mm long) stellate hairs, white; stamens 6, 2–2.2 mm long, white, glabrous, anthers purple; ovary 5-locular, covered with glands, styles 5 with sessile stigmas at apex. **Fruit** ellipsoid, 4.5–5 × 2.7–3 mm, 5-angled, glabrous, apex whitish, stigma sessile.

Distribution. Endemic to Peninsular Malaysia, where it is known from Johor (Mersing and Panti Forest Reserve), Negeri Sembilan (Gunung Angsi) and Pahang (Gunung Tapis).

Ecology. Growing in primary and secondary hill forest, between 500–650 m altitude. Flowering in August to May; fruiting in July.

Provisional IUCN conservation assessment. This species is known from six collections from only four locations (AOO = 16 km²) and there are threats of deforestation and habitat destruction at all known locations. Given these threats and its AOO, it is assessed here as Endangered (EN B2ab(i,ii,iii)).

Additional specimens examined. PENINSULAR MALAYSIA: **Pahang:** 19th mile Genting Sempah Road, 23 Jul 1981, *Kochummen FRI 29293* (KEP). **Negeri Sembilan:** Gunung Angsi, 18 Feb 1971, *Loh FRI 17325* (KEP). **Johor:** Mersing, 30 Apr 1991, *Teo & Remy KL 4017* (KEP); Panti Forest Reserve, 18 Nov 1950, *Sow-Lindong s.n.* (KEP); Gunung Panti, 24 Aug 1986, *Wong FRI 35264* (KEP).

Notes. Named in honour of the American botanist David G. Frodin (1940–2019) who specialised in the study of the Araliaceae and, in particular, the genus *Schefflera* sensu lato.

The material included in this new species was first highlighted by Frodin in Stone (1978: 35) where he indicated in the notes under *Schefflera beccariana* Harms that some specimens in Peninsular Malaysia were intermediate between *S. beccariana* sensu Stone (= *Heptapleurum lengguanii* de Kok) and *S. latifoliolata* (King) R. Vig., and that they might therefore represent a new species.

3. *Heptapleurum lengguanii* de Kok, sp. nov.

This species differs from *Heptapleurum beccarianum* (Harms) Lowry & G.M.Plunkett, a native of Sarawak, in having yellowish hairs (reddish hairs in *H. beccarianum*), 6 leaflets per leaf, 10–12 secondary veins per leaflet and petiolules that are 3.5–6.5 cm long (5–(6–9) leaflets per leaf, 8–9 secondary veins per leaflet and petiolules that are 5–8.5 cm long in *H. beccarianum*). – TYPE: Peninsular Malaysia, Johor, Labis, Sungai Tasin, 7 August 1985, *Saw FRI 34097* (holotype KEP). (Fig. 3)

Schefflera beccariana auct. non Harms: Stone, Tree Fl. Malaya 3: 31, 35 (1978).

Woody epiphyte; bark lenticellate, cream, wood cream; stems densely hairy when young, nodes not shrunken when dried. **Leaves** palmate, covered in yellowish stellate and dendritic hairs (0.5–0.7 mm long); leaflets simple, 6, oblanceolate, 19–23 × 7.5–8.8 cm, base cuneate to almost rounded, apex cuspidate, margins entire, slightly incurved when dried, blades bullate at apex, coriaceous, covered with stellate and dendritic yellowish hairs below, pinninerved, midrib raised on both surfaces, secondary veins 10–12, brochidodromous, tertiary veins reticulate, indistinct; stipular ligules 13–19 mm long, apex acute; petiole (half-)terete, 30–35 × 4–6.8 cm, smooth, covered with stellate and dendritic yellowish hairs when young, base swollen, apex not swollen; petiolules 3.5–6.5 cm long. **Inflorescences** 50–55 cm long, terminal, covered with yellowish stellate and dendritic hairs; bracts caducous; lateral branches spike-like, 50–55 cm long, 7–8 cm wide, length to breadth ratio 6.5–7; umbellules 3.5–4 cm long, spirally arranged with a terminal cluster, each with 11–13 flowers. **Flowers** sexual system unknown; calyx with an entire rim; petals not seen, described as white to pink; stamens unknown; ovary 5-locular, 1.6–1.8 mm diam., covered with glands; styles 5 with sessile stigmas at apex. **Fruits** ellipsoid, 3.5–3.4 × 2.8–3 mm, 5-angled, glabrous or with a few yellowish stellate hairs, apex covered in whitish glands, styles sessile.

Distribution. Endemic to Peninsular Malaysia, where it is known from southeastern Johor (Sungai Sedili and Sungai Tasin).

Ecology. Very local in lowland swamp forest or along rivers. Flowering and fruiting in August.

Provisional IUCN conservation assessment. This species is only known from two locations in southeastern Johor. Given the small area of occupancy (AOO = 8 km²) and its few known localities, it is assessed here as Endangered (EN B2ab(ii,iii)).

Additional specimen examined. PENINSULAR MALAYSIA: **Johor:** Sungai Sedili, *Corner SFN 28167* (K, SING).

Notes. When the type specimen was first collected, it was seen by Ben Stone, who thought that it might be a new species. Later David Frodin agreed and stated that he wished to describe it (see Frodin in Stone (1978)). However, he never did and so it is described here for the first time.

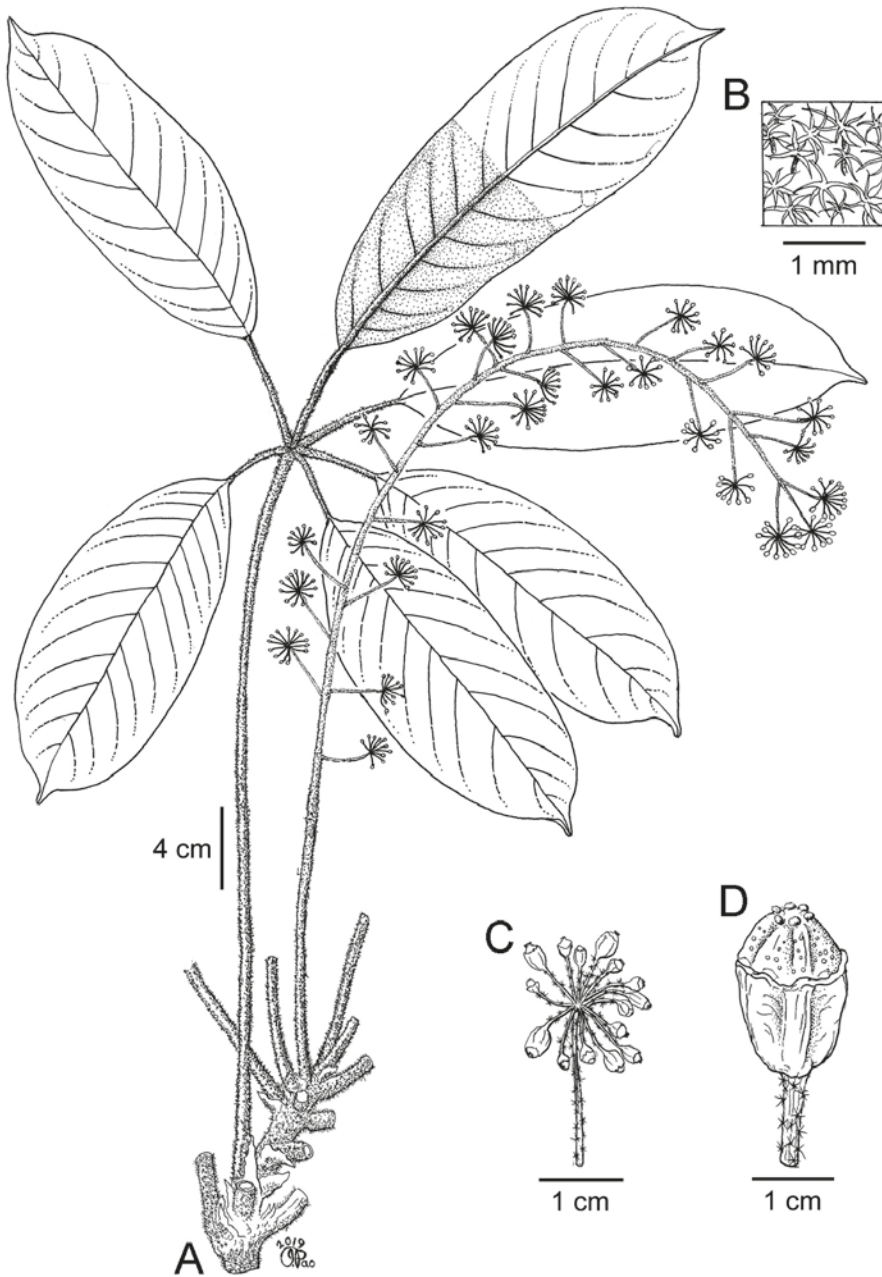


Fig. 3. *Heptapleurum lengguanii* de Kok. **A.** Portion of leafy twig with inflorescences. **B.** Detail of lower leaf surface with stellate hairs. **C.** Detail of inflorescences. **D.** Ovary with glands. From *Saw FRI 34097*. Drawn by Joseph Pao. Reproduced with permission of the Forest Research Institute Malaysia.

This new species is named after Saw Leng Guan (1955–), a Malaysian botanist and promoter of the *Flora of Peninsular Malaysia* project.

4. *Heptapleurum longicaudatum* de Kok, sp. nov.

This species differs from *Heptapleurum oxyphyllum* (Miq.) Seem. in having lanceolate leaflets that are 5–9 × 0.9–2.3 cm (rather than leaflets elliptic to lanceolate, 12–18 × (4–)5.5–7(–10.5) cm in *H. oxyphyllum*), with a sunken midrib (midrib raised on both surfaces in *H. oxyphyllum*), and inflorescences 10–15 cm long (16–35 cm long in *H. oxyphyllum*). – TYPE: Peninsular Malaysia, Perak, Bukit Larut, road after Tea Garden towards foothill, 22 March 2007, Phoon *et al.* FRI 53294 (holotype KEP [KEP131915]). (Fig. 4)

Schefflera longicaudata Frodin in Stone, Tree Fl. Malaya 3: 30, 35 (1978), nom. inval.

Schefflera scandens auct. non (Blume) R. Vig.: Ridley, Fl. Malay Penins. 1: 878 (1922).

Climber, often epiphytic, 1–1.3 m long, c. 1.5 cm diam., sapwood pale brown; stems glabrous, not shrunken at nodes when dried. **Leaves** palmate; leaflets simple, 3–5, lanceolate, 5–9 × 0.9–2.3 cm, base cuneate, apex acuminate, margins entire, glabrous, coriaceous, with a few reddish glands present on lower surface, trinerved from the base, pinninerved more distally, midrib sunken on upper surface, secondary veins 2–4 pairs, brochidodromous, tertiary venation reticulate, indistinct; petioles terete, 5–7.5 cm long, glabrous; petiolules 5–15 mm long; stipular ligules 3.8–4.3 mm long, apex acute. **Inflorescences** 10–15 cm long, terminal, glabrous except for a few simple white hairs at nodes; bracts 2.2–2.4 mm long, apex acute, densely hairy, with white simple hairs; lateral branches spike-like, 10–15 cm long, 6–7 cm wide, length to breadth ratio 1.6–2.2; umbellules 2.5–3 cm long, spirally arranged, with a terminal cluster, each with 10–12 flowers. **Flowers** bisexual; calyx with an entire rim; petals narrowly triangular, 1.3–1.5 × 0.8–1.2 mm, apex acute, glabrous; stamens 5, 2.7–3.5 mm long, glabrous, anthers 0.4–0.5 mm long, yellow; ovary 5-locular, 1–1.4 mm diam., covered with glands, styles fused into a column with sessile stigmas at apex. **Fruits** unknown.

Distribution. Endemic to Peninsular Malaysia, where it is only known from Perak and Perlis.

Ecology. Growing in hill forest and shrub land at 600–650 m altitude. Flowering from March to April.

Provisional IUCN conservation assessment. This species is only known from four collections from only two locations (AOO = 8 km²), from southern Perak and southern Perlis. Given the small area of occupancy and the few localities from which it is known, it is assessed here as Endangered (EN B2ab(ii,iii)).

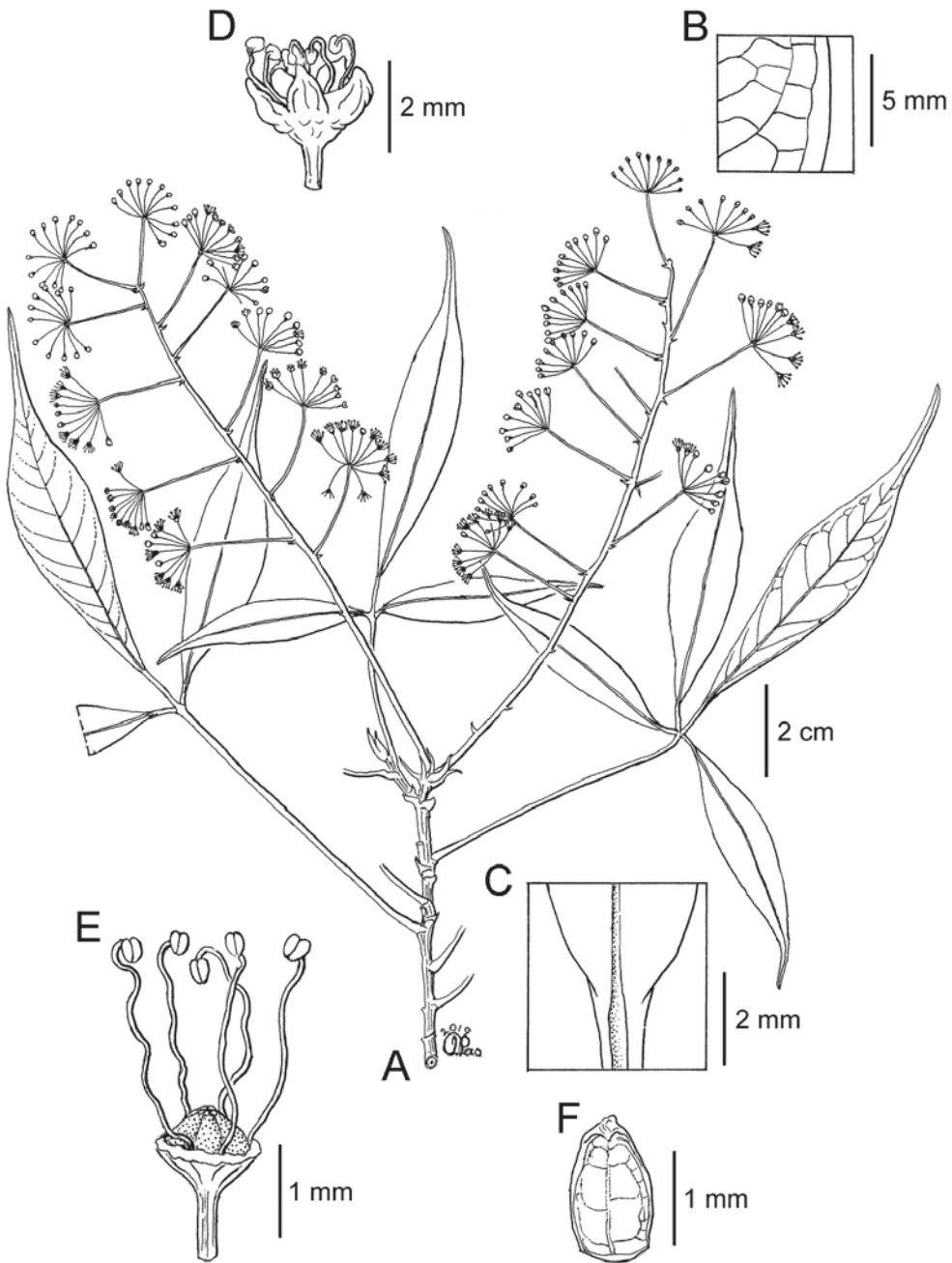


Fig. 4. *Heptapleurum longicaudatum* de Kok. **A.** Portion of leafy twig with inflorescences. **B.** Detail of lower leaf surface. **C.** Detail of leaflet with sunken midrib. **D.** Flower. **E.** Flower with petals removed. **F.** Inside of petal. From *Phoon et al. FRI 53294*. Drawn by Joseph Pao. Reproduced with permission of the Forest Research Institute Malaysia.

Additional specimens examined. PENINSULAR MALAYSIA: **Perlis:** Kuala Bintang, 1928, Henderson SFN 21079 (BM). **Perak:** s.l., *Scortechini s.n.* (BM, K); near tea gardens, 1890, Curtis 2687 (K).

Notes. The early material of this species was included in *Schefflera scandens* (Blume) R. Vig. by Ridley (1922). However, this name refers to a species which is only known from West Java. Frodin in Stone (1978: 30, 35) proposed a new name for this taxon in the genus *Schefflera* without formally describing it. It is therefore published here in the genus *Heptapleurum*.

5. *Heptapleurum nanocephalum* de Kok, sp. nov.

This species differs from *Heptapleurum cephalotes* C.B. Clarke in mostly having a smaller flowering and/or fruiting head (5–8 mm diam. rather than 7–14 mm in *H. cephalotes*) and inflorescences which are much more branched and compact. – TYPE: [Peninsular Malaysia], Pahang, Cameron Highlands, 8 April 1937, Nur SFN 32832 (holotype KEP [KEP194525]; isotypes K [2 sheets]). (Fig. 5)

Schefflera nanocephala Frodin in Stone, Tree Fl. Malaya 3: 31, 35 (1978), nom. inval.

Tree up to 6.5 m tall or climber up to 25 m tall, terrestrial or epiphytic, several-branched; stems sparsely hairy when young; hairs stellate, reddish. **Leaves** palmate; leaflets simple, 5–7, elliptic to lanceolate, 11–14 × (2.5–)3–5.5 cm, base rounded, apex cuspidate, margins entire, coriaceous, glabrous or covered along midrib on lower surface with reddish stellate hairs when young, pinninerved, midrib raised on both surfaces, secondary nerves 12–15 pairs, tertiary nerves reticulate, whitish beneath; petioles terete, 14–22 cm long, sparsely hairy; hairs stellate, appressed, reddish; ligules 5–20 mm long, apex acute; petiolules 3.5–5.5 cm long. **Inflorescences** 20–35 cm long, terminal, densely hairy; hairs reddish, stellate; bracts 3.5–5 mm long, apex rounded; lateral branches spike-like, 15–20 cm long, 2.5–2.8 cm wide, length-breadth ratio 7–10; umbellules forming dense heads 5–8 mm diam., spirally arranged, white to pale yellow. **Flowers** sexual system unknown; calyx with an undulating rim; petals, stamens, ovary and styles unknown. **Fruits** globular, 1.9–2.6 × 1.8–2.4 mm, with truncated apex, glabrous, 5-ribbed when dry, stigma sessile.

Distribution. Endemic to Peninsular Malaysia, where it is known from Perak, Pahang, Selangor and Kelantan.

Ecology. Growing in montane forest at about 1100–1560 m altitude. Flowering and fruiting between February and April.

Provisional IUCN conservation assessment. This species is only known from four collections from four locations (AOO = 16 km²), and there are threats of deforestation and habitat destruction at all the known locations. Given these threats and its restricted range, it is assessed here as Endangered (EN B2ab(i,ii,iii)).

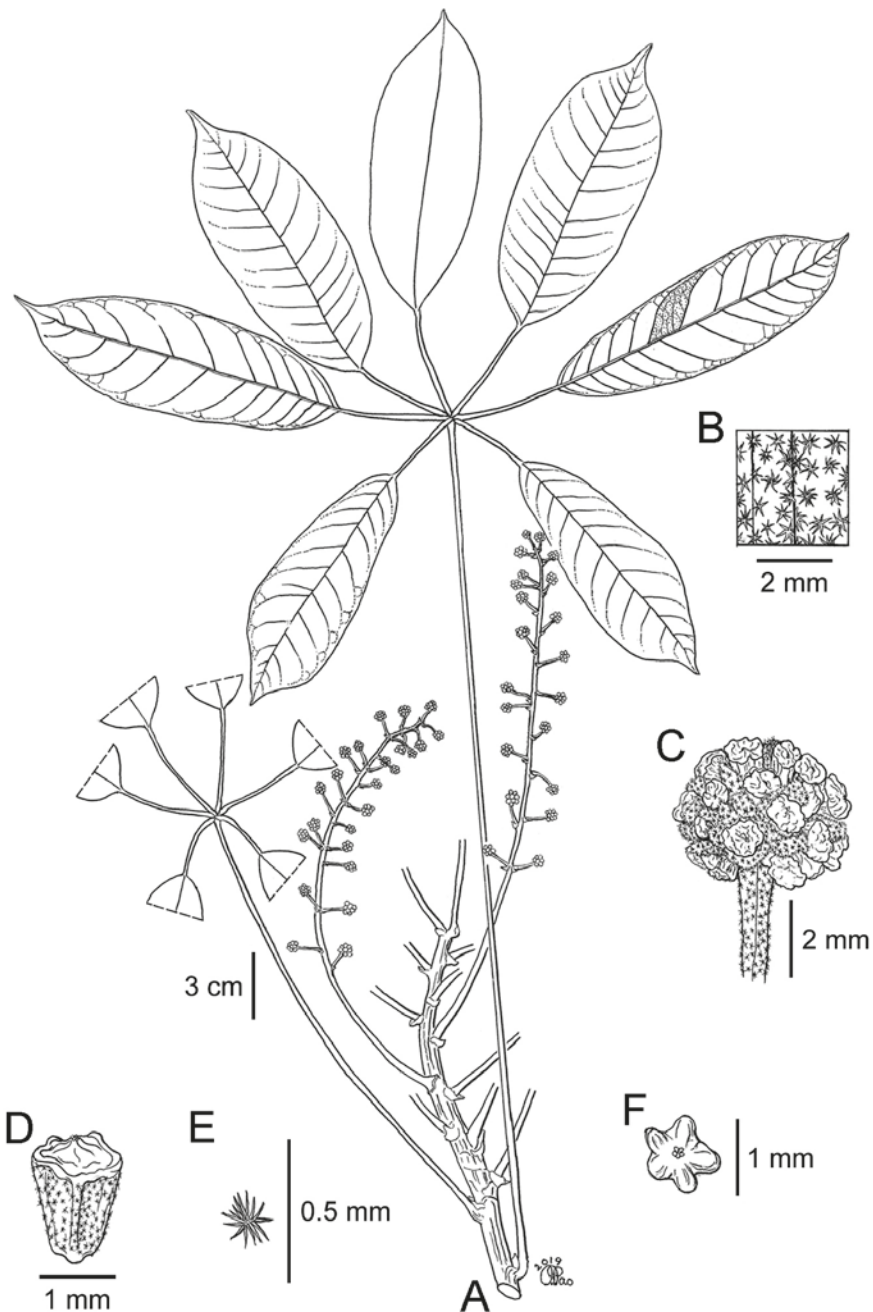


Fig. 5. *Heptapleurum nanocephalum* de Kok. **A.** Portion of leafy twig with infructescences. **B.** Detail of lower leaf surface with stellate hairs. **C.** Detail of infructescence. **D.** Fruit. **E.** Stellate hair. **F.** Calyx with an undulating rim. From Nur SFN 32832. Drawn by Joseph Pao. Reproduced with permission of the Forest Research Institute Malaysia.

Additional specimens examined. PENINSULAR MALAYSIA: **Perak:** Ulu Batang Padang, *Wray 1542* (K). **Kelantan:** Strong Tengah Forest Reserve, 9 Feb 2007, *Chew et al. FRI 53556* (KEP). **Selangor:** Gunung ?, 1913, *Robinson s.n.* (K).

Notes. This species was first recognised and named by Frodin in Stone (1978: 31, 35) but was never formally described. The name refers to the small heads which are characteristic of its inflorescence.

Lectotypifications

The names are listed by the basionym of the name being lectotypified. If the basionym is not the currently accepted name, it is listed in italics; if the currently accepted name is homotypic, it is included in the nomenclatural paragraph in bold script. If the currently accepted name is not homotypic, it is listed separately at the end of the paragraph in bold script.

1. *Acanthopanax malayanus* M.R.Hend., Gard. Bull. Singapore 7: 105 (1933). – ***Gamblea malayana*** (M.R.Hend.) C.B. Shang et al., Adansonia sér. 3, 22(1): 53 (2000). – TYPE: [Peninsular Malaysia], Pahang, Cameron Highlands, Tanah Rata, 7 April 1930, *Henderson 23476* (lectotype SING [SING0057321], first step designated by Shang et al., Adansonia, sér. 3, 22: 53 (2000), second step designated here; isolectotypes A [A00055413], K [K000810228, K000810229, K000810230, K000810231, K000810232, K000810233], KEP [KEP47559], NY [NY01104744], SING [SING0057322]).

Notes. Henderson's original description (Henderson, 1933) of *Acanthopanax malayanus* M.R.Hend. was based on *Henderson 23476*. There are numerous specimens of this gathering distributed amongst several herbaria. In the revision of the genus *Gamblea* C.B.Clarke, in which this species is now placed, Shang et al. (2000) stated that the holotype was at SING which counts as an effective lectotypification. However, there are two sheets of this gathering at SING, one of which [SING0057321] is designated here as the lectotype in a second step lectotypification.

2. *Actinophyllum farinosum* Blume, Cat. Gew. Buitenzorg 43 (1823). – ***Heptapleurum farinosum*** (Blume) Lowry & G.M.Plunkett, Novon 28(3): 152 (2020). – TYPE: [Indonesia], Java, *Blume s.n.* (lectotype L [L0008585], designated here).

Notes. In the protologue of *Actinophyllum farinosum* Blume (Blume, 1823), the following information was given: Java 'Pangang tapok'. In L, only one specimen [L0008585] collected by Blume with this name could be found. It is, however, without the label information mentioned in the protologue. Nevertheless, this specimen is designated here as the lectotype.

3. *Aralia glomerulata* Blume, Bijdr. 15: 872 (1826). – ***Brassaiopsis glomerulata*** (Blume) Regel, Gartenflora 12: 275, t. 411 (1863). – TYPE: [Indonesia, Java], Pangan, Kapala Tjiburru, *Blume s.n.* (lectotype L [L0008434], designated here).

Notes. In the protologue of this name, the only information given by Blume (1826) was ‘*sylvis altioribus*’ (in higher forest) and ‘*montium Buraugrang et Tjerimai*’ (in the mountains of Burangrang Dapur and Ciremay). Only one specimen collected by Blume of this species could be found but it lacks any of this original information on its label; despite this, it is designated here as the lectotype.

4. *Arthrophyllum alternifolium* Maingay ex Ridl., Fl. Malay Penins. 1: 886 (1922). – ***Polyscias alternifolia*** (Maingay ex Ridl.) Lowry & G.M.Plunkett, Pl. Diversity Evol. 128: 68 (2010). – TYPE: [Peninsular Malaysia], Malacca, *Griffith 2676* (lectotype SING [SING0057325], designated here; isolectotype K [K000792909]).

Notes. In the protologue of the name *Arthrophyllum alternifolium* Maingay ex Ridl. (Ridley, 1922), at least two gatherings from Mt Ophir, Malacca are mentioned, *Griffith s.n.* and *Maingay s.n.* Two specimens of the *Griffith 2676* gathering from Malacca were found and the SING sheet [SING0057325] is designated here as the lectotype.

5. *Arthrophyllum nitidum* Ridl., J. Fed. Malay States Mus. 7: 42 (1916). – TYPE: [Peninsular Malaysia, Kedah], Kedah Peak, 6 November 1915, *Robinson & Boden-Kloss 6093* (lectotype SING [SING0057333], designated here; isolectotypes K [K000792910], SING [SING0057332]). = ***Polyscias montana*** (Ridl.) Lowry & G.M.Plunkett.

Notes. In the protologue of *Arthrophyllum nitidum* Ridl. (Ridley, 1916), only one gathering was mentioned, *H.C. Robinson & C. Boden-Kloss 6093* from Kedah Peak in Peninsular Malaysia. Three morphologically similar specimens of this gathering were found, two at SING and one at K. One of the specimens at SING [SING0057333] is selected here as the lectotype.

6. *Arthrophyllum ovatum* Ridl., J. Fed. Malay States Mus. 7: 42 (1916). – TYPE: [Peninsular Malaysia], Kedah Peak, 30 November 1915, *H.C. Robinson & C. Boden-Kloss 5995* (lectotype SING [SING0057337], designated here; isolectotype K [K000792913]). = ***Polyscias montana*** (Ridl.) Lowry & G.M.Plunkett.

Notes. In the protologue of *Arthrophyllum ovatum* Ridl. (Ridley, 1916), two gatherings are mentioned: *H.C. Robinson & C. Boden-Kloss 5995* from Kedah Peak and *Ridley 15617* from Gunung Semangkok in Perak. There are two specimens of the first gathering [SING0057337, K000792913] and only one of the second [SING0059855]. The SING sheet [SING0057337] of the first gathering is designated here as the lectotype.

7. *Hedera heterophylla* Wall. ex G.Don, Gen. Hist. 3: 394 (1834). – ***Heptapleurum heterophyllum*** (Wall. ex G.Don) Seem., J. Bot. 3: 77 (1865). – TYPE: [Peninsular Malaysia], Penang, July 1824, *George Porter s.n.* [EIC 4919a] (lectotype K-W [K001104215], designated here).

Notes. In the protologue of *Hedera heterophylla* Wall. ex G.Don (Don, 1834), the only information mentioned was ‘Wall. Cat. No. 4919’, and that the plant is native to Penang Island. There are several gatherings under this number: Penang, July 1824, *George Porter (EIC 4919a)* [K001104215]; Penang, *Unknown s.n. (EIC 4919a)* [K001104216]; Penang, *Unknown s.n. (EIC 4919b)* [K001104217]; Penang, 1833, *Unknown s.n. (EIC 4919)* [G00237075]. The sheet collected by George Porter (EIC 4919a) at K-W [K001104215] is designated as the lectotype.

8. *Hedera jackiana* G.Don, Gen. Hist. 3: 394 (1834). – ***Polyscias jackiana*** (G.Don) Lowry & G.M.Plunkett, Pl. Diversity Evol. 128: 69 (2010). – TYPE: Singapore, 1822, *Wallich s.n.* [EIC 4931] (lectotype K-W [K0011004254], designated here).

Notes. In the protologue of *Hedera jackiana* G.Don (Don, 1834) the only gathering mentioned was ‘Wall. Cat. 4901, a native of Singapore’. He also cited Jack’s unpublished name *Mormorphis sumatrana* which was subsequently cited in the Wallich Catalogue under number 4931. Given that the Wallich specimen with number 4901 is a specimen of *Blackwellia paniculata* Lam. from Mauritius, it is assumed here that Don meant to cite *Wall. Cat. No. 4931*, from Singapore. Only one specimen of this gathering could be found: *Wallich s.n.* [EIC 4931] in K-W [K001104254], which is designated here as the lectotype.

9. *Hederopsis maingayi* C.B.Clarke, Fl. Brit. India 2: 739 (1879). – ***Macropanax maingayi*** (Clarke) Philipson, Fl. Males., ser. 1, 9(1): 87 (1979). – TYPE: [Peninsular Malaysia], Malacca, 21 November 1867, *Maingay 3008* [Kew distribution no. 683] (lectotype K [K000810248], designated here; isolectotypes K [2 sheets]).

Notes. In the protologue of *Hederopsis maingayi* C.B.Clarke (Clarke, 1879) only one gathering was mentioned: *Maingay 683* from Malacca. There are three morphologically similar specimens of this gathering, all at K. The sheet [K000810248] is designated here as the lectotype.

10. *Heptapleurum biternatum* C.B.Clarke, Fl. Brit. India 2: 731 (1879). – TYPE: [Peninsular Malaysia], Malacca, *Maingay s.n.* [Kew distribution no. 684] (lectotype K [K000792945], designated here). = ***Heptapleurum heterophyllum*** (Wall. ex G.Don) Seem.

Notes. In the protologue of *Heptapleurum biternatum* C.B. Clarke (Clarke, 1879), one gathering is mentioned: Malacca, *Maingay 684*. I could only find one specimen of *Maingay 684* [K000792945], which is designated here as the lectotype.

11. *Heptapleurum cephalotes* C.B. Clarke, Fl. Brit. India 2: 731 (1879). – TYPE: [Peninsular Malaysia], Malacca, *Griffith s.n.* [Kew distribution no. 2700] (lectotype K [K000792964]), designated here; isoelectotypes BR [BR0000006964146], K [K000792963]).

Notes. In the protologue of *Heptapleurum cephalotes* C.B. Clarke (Clarke, 1879), only one gathering was mentioned: Malacca, *Griffith s.n.* [Kew distribution no. 2700]. There are two specimens of this gathering at K [K000792963, K000792964] and one at BR [BR0000006964146]. Only the sheet [K000792964] has the characteristic inflorescence and so this specimen is selected here as the lectotype.

12. *Heptapleurum hullettii* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 67: 54 (1898). – TYPE: [Peninsular Malaysia], Perak, June 1888, *Wray 2323* (lectotype BM [BM000944842], designated here; isoelectotype K [K000792958]).

Notes. In the protologue of *Heptapleurum hullettii* King (King, 1898), several gatherings were cited: *Hullett 602* (K [K000792955, K000792956]); *Ridley 447* (K [no barcode]), *4591* (K [no barcode]), SING [SING021796]), *6012* (SING [SING0201795]); *Wray 2323* (BM [BM000944842], K [K000792958]); *King's Collector 3048* (BM [BM000944841], K [K000792957]). The BM specimen of *Wray 2323* is the most complete; it has a good palmate leaf with most of its leaflets attached and a full inflorescence with plenty of flowers and so this specimen [BM000944842] is designated here as the lectotype.

13. *Heptapleurum luridum* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 67: 48 (1898). – TYPE: [Peninsular Malaysia], Perak, Taiping, November 1885, *King's Collector 8304* (lectotype K [K000792966], designated here).

Notes. In the protologue of *Heptapleurum luridum* King (King, 1898), two gatherings were mentioned: *Scortechini 1191* and *King's Collector 8304*. Only one specimen of each gathering has been found and a sheet at K [K000792966] of *King's Collector 8304* is designated as the lectotype.

14. *Heptapleurum ridleyi* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 67: 54 (1898). – TYPE: Singapore, Sungai Morai, 1894, *Ridley 6336* (lectotype SING [SING0093727], designated here; isoelectotypes BM [BM000944838], K [K000792949]).

Notes. In the protologue of *Heptapleurum ridleyi* King (King, 1898), only one gathering was mentioned: *Ridley 6336*, for which three morphologically similar specimens were found. The sheet [SING0093727] is designated here as the lectotype.

15. *Heptapleurum scortechinii* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 67: 49 (1898). – TYPE: [Peninsular Malaysia], Perak, *Scortechini 2008* (lectotype K [K000792953], designated here; isolectotype BM [BM000944843]). = *Heptapleurum hullettii* King.

Notes. In the protologue of *Heptapleurum scortechinii* King (King, 1898), only one gathering was mentioned: *Scortechini 2008*, for which there is one specimen at K [K000792953] and one at BM [BM000944843]. The sheet at K is designated here as the lectotype.

16. *Heptapleurum subracemosum* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 67: 49 (1898). – TYPE: [Peninsular Malaysia], Perak, September 1885, *King's Collector 8283* (lectotype BM [BM000944840], designated here; isolectotype K [no barcode]). = *Heptapleurum oxyphyllum* (Miq.) Seem.

Notes. In the protologue of *Heptapleurum subracemosum* King (King, 1898), only one gathering was mentioned: *King's Collector 8283*, for which morphologically similar specimens were found at K [no barcode] and BM [BM000944840]. The BM specimen is designated here as the lectotype.

17. *Kalopanax sumatranus* Miq., Ann. Mus. Bot. Lugduno-Batavi 1: 17 (1863). – *Brassaiopsis sumatrana* (Miq.) Ridl., J. Fed. Malay States Mus. 8(4): 43 (1917). – TYPE: [Indonesia], West Sumatra, *Korthals s.n.* (lectotype K [K000810253], designated here).

Notes. In the protologue of *Kalopanax sumatranus* Miq. (Miquel, 1863), the only label data given was *Korthals s.n.* from West Sumatra. Four *Korthals* specimens from Sumatra could be found at L [L.2562412, L.2562413, L0066281, L0066282] and one at K [K000810253]. The sheet of this gathering at K is designated here as the lectotype.

18. *Schefflera capitellata* Ridl., J. Fed. Malay States Mus. 10: 137 (1920). – TYPE: [Peninsular Malaysia], Penang Hill, May 1886, *Curtis s.n.* (lectotype K [K000792960], designated here). = *Heptapleurum cephalotes* C.B.Clarke.

Notes. In the protologue of *Schefflera capitellata* Ridl. (Ridley, 1920), two gatherings were mentioned: *Anonymous s.n.* from Perak, Bujong Malacca, and *Curtis s.n.*, from Penang Hill, collected in May 1886. No specimens of the first gathering could be found, while for the second, the single sheet at K [K000792960] is designated here as the lectotype.

19. *Schefflera musangensis* M.R.Hend., Gard. Bull. Straits Settlem. 7: 105 (1933). – TYPE: [Peninsular Malaysia], Kelantan, Sungai Galas at Gua Musang, 11 August 1989, *Henderson SF 22599* (lectotype K [K000792950], designated here; isolectotypes K [2 sheets, no barcodes]). = *Heptapleurum ridleyi* King.

Notes. In the protologue of this name (Henderson, 1933), only one gathering was mentioned: *Henderson 22599*. Three morphologically similar specimens of this gathering were found at K and the specimen [K000792950] is designated here as the lectotype.

20. *Sciodaphyllum ellipticum* Blume, Bijdr. 15: 878 (1826). – *Heptapleurum ellipticum* (Blume) Seem., J. Bot. 3: 78 (1865). – TYPE: [Indonesia], Java, Salak, *Blume s.n.* (lectotype L [L.2563050], designated here).

Notes. In the protologue of *Sciodaphyllum ellipticum* Blume (Blume, 1826), the only information given about the type was that it was from the foot of Mt Salak and was flowering in October, along with the vernacular name ‘*Ramo Gunti*’. Three specimens collected by Blume of this species are present at L [L0008517, L.2563048, L.2563050] and one has the label data Salak. This specimen [L.2563050] is designated as the lectotype.

21. *Sciodaphyllum tomentosum* Blume, Bijdr. 15: 877 (1826). – TYPE: [Indonesia], Java, *Blume s.n.* (lectotype L [L.2568553], designated here). = *Heptapleurum farinosum* (Blume) Lowry & G.M. Plunkett.

Notes. In the protologue of *Sciodaphyllum tomentosum* Blume (Blume, 1826), it is stated that it is from mountain forests in Burangrang, flowering from July to September. In L, only three specimens collected by Blume of this species could be found, none with the label information mentioned in the protologue. Among these, one specimen is sterile [L.2568552], one consists only of an inflorescence [L.2568554], and one has leaves and an infructescence [L.2568553]. This last sheet is designated here as the lectotype.

22. *Wardenia simplex* King, J. Asiat. Soc. Bengal 67(2): 60 (1898). – *Brassaiopsis simplex* (King) Stone, Gard. Bull. Singapore 30: 282 (1976). – TYPE: [Peninsular Malaysia], Perak, Ulu Kerling, March 1886, *King's Collector 8622* (lectotype BM [BM000944900], designated here; isolectotypes G [G00236858], K [K000810261], P [P02286544, P02286545]).

Notes. In the protologue of *Wardenia simplex* King (King, 1898), only one gathering was cited: *King's Collector 8622*. There are several morphologically similar specimens of this gathering present in four herbaria. The specimen at BM [BM000944900] is designated here as the lectotype.

Neotypifications

1. *Hederopsis major* Ridl., Bull. Misc. Inform. Kew, 1929: 124 (1929). – TYPE: Peninsular Malaysia, Perak, Grik, Temenggor Forest Reserves, 24 September 1993, *Mat Asri bin Ngah Sanah FRI 26882* (neotype KEP [KEP87307]), designated here; isoneotype KEP [KEP77321]. = *Macropanax maingayi* (C.B. Clarke) Philipson.

Notes. In the protologue of *Hederopsis major* Ridl. (Ridley, 1929), only one gathering was mentioned: *R.H. Yapp 205* from Kelantan. As I could not find this gathering at either BM, K, KEP, L or SING, I, therefore, designate a neotype for this name.

2. *Heptapleurum coriifolium* Ridl., J. Fed. Malay States Mus. 4: 24 (1909). – TYPE: [Peninsular Malaysia], Pahang, Gunung Taliau, July 1917, *Ridley 16033* (neotype K [no barcode]), designated here; isoneotype K [no barcode]). = *Heptapleurum tristis* King.

Notes. In the protologue of *Heptapleurum coriifolium* Ridl. (Ridley, 1909), only one gathering was mentioned: Gunung Berembun, 6500 feet altitude, *Ridley s.n.*, with flowers and fruits. I could not find any sheets of this gathering at BM, K, KEP, L or SING and, therefore, I am proposing a neotype for this name, *Ridley 16033*, as it has in Ridley's own handwriting the name *Heptapleurum coriifolium* on the original label. The specimen at K with two large leaves is selected as the neotype, and the one with three smaller leaves is an isoneotype.

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