

## A new species of *Brassaiopsis* (Araliaceae) from Thailand, and lectotypifications of names for related taxa

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### ABSTRACT

*Brassaiopsis spinosissima* Esser is described as a new species from Peninsular Thailand. It is compared with similar species from Thailand (*Brassaiopsis ciliata* Dunn and *B. griffithii* C.B. Clarke) and Peninsular Malaysia (*B. sumatrana* Ridl.). They are primarily distinguished by differences in inflorescence size and position and in details of the indumentum. Two names sometimes confused with the new species, *Panax palmatus* Roxb. and *Hedera polyacantha* Wall., are lectotypified and discussed in connection with *Brassaiopsis hainla* (Buch.-Ham. ex D. Don) Seem. in order to distinguish them from the new species.

KEYWORDS: *Hedera*, Malay Peninsula, *Panax*, typification

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### INTRODUCTION

*Brassaiopsis* Decne. & Planch. is a small genus of Asian Araliaceae with ca 25 species distributed from India and China to Java and Sumatra. They are characterized by spiny stems and branches, dendritic, yellowish-brown to reddish-brown trichomes, flowers with five united sepals and five free petals, and 2–3-locular ovaries and fruits. Most species bear palmately-lobed leaves. As in many Araliaceae, leaf dimorphism may be present with young leaves quite different from older ones. Species sometimes look superficially similar and there has been quite some confusion in the past about their names. *Brassaiopsis hainla* (Buch.-Ham. ex D. Don) Seem., as circumscribed here, can be distinguished by leaves that are lobed for less than half of their diameter (i.e., short lobes). Among the species with deeply-lobed leaves (lobed for more than half of their diameter), one species from Peninsular Thailand is described as new here.

The names *Panax palmatus* Roxb. [basionym of *Brassaiopsis palmata* (Roxb.) Kurz] and *Hedera polyacantha* Wall. [basionym of *Brassaiopsis polyacantha* (Wall.) R.N. Banerjee] have both been repeatedly misapplied. This confusion also concerns this new species. It is therefore necessary to lectotypify these two earlier names and clarify their circumscriptions.

### TAXONOMY

***Brassaiopsis hainla*** (Buch.-Ham. ex D. Don) Seem., J. Bot. 2: 291. 1864.— *Hedera hainla* Buch.-Ham. ex D. Don, Prodr. Fl. Nepal.: 187. 1825. Type: Nepal, Naramhetty, *Buchanan Hamilton s.n.* (holotype **BM!**).

— *Hedera polyacantha* Wall., Pl. Asiat. Rar. 2: 82, t. 190. 1831.— *Brassaiopsis polyacantha* (Wall.) R.N. Banerjee, Indian Forester 93: 341. 1967. Type: Nepal, 1821, *Wallich Cat. 4907 A* (*Wallich s.n.*) (lectotype **K-W!**, designated here).

— *Panax palmatus* Roxb. [Hort. Bengal.: 21. 1814, **nom. nud.**] Fl. Ind. ed. 1832, 2: 74. 1832. — *Brassaiopsis palmata* (Roxb.) Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 39: 77, pl. 2. 1870, *pro parte* as to type. Type: India, cultivated in Calcutta Botanic Gardens and indigenous ‘in the moist valleys between the hills over the province of Chittagong’, *Roxburgh s.n.* (lectotype **BM!**, designated here).

Notes.— 1. *Wallich Cat. 4907*, the type of *Hedera polyacantha*, is a mixture of two elements (*4907 A and B*), both collected by Wallich himself, as can be seen in the East India Company Herbarium at Kew and as it was also cited in Wallich’s catalogue (Wallich, 1831–1832). *Wallich Cat. 4907 A*, collected in Nepal, is a flowering specimen with shallowly 5-lobed leaves undoubtedly referable to *Brassaiopsis*

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*hainla*, whereas *Wallich Cat. 4907 B*, likewise from Nepal, is a sterile specimen with deeply lobed leaves with seven very narrow, nearly glabrous lobes. In his *Plantae Asiaticae Rariores*, Wallich (1831) illustrated *4907 A* in his plate, but with seven leaf lobes; he cited no collection but indicated Nepal as the collecting locality. The presence of the quite different parts of *Wallich Cat. 4907 B* explains why *Hedera polyacantha* Wall. with deeply divided, 7-lobed leaves, based on *Wallich Cat. 4907 B*, was sometimes distinguished from *H. polyacantha* Wall. ex G. Don with shallowly divided, 5-lobed leaves, referring to the illustration. Seemann (1864) cited *Hedera polyacantha* as a synonym of *Brassaiopsis hainla*, based on *Wallich Cat. 4907* (Nepal). Clarke (1879), however, listed *Hedera polyacantha* as a synonym of *Brassaiopsis palmata* sensu Kurz, referring only to Wallich's plate. King (1898) discussed this confusion in some detail, and he cited only *Wallich Cat. 4907 B* under *Brassaiopsis palmata*. The name was not mentioned again until Indian botanists (e.g. Balakrishnan, 1970, under *Euaraliopsis* Hutch., a synonym of *Brassaiopsis*) re-discovered it, followed by Philipson (1979). The leaf comprising *Wallich Cat. 4907 B* is difficult to name. Because flowers and shallowly lobed leaves were illustrated by Wallich, *Wallich Cat. 4907 A* is chosen here as the lectotype, despite the fact that the number of lobes shown in the illustration differs. In this way *Brassaiopsis polyacantha* is unambiguously a synonym of *B. hainla*, as it had been treated by Seemann (1864) and Grierson (1991).

2. The type of *Panax palmatus* at BM is undoubtedly referable to *Brassaiopsis hainla*, as can also be seen in *Icones Roxburghianae* 2208 at Kew. Seemann (1864) was correct when he placed *Panax palmatus* in synonymy. However, Kurz (1870, 1877) applied Roxburgh's basionym to plants of the Andaman Islands, which differ in having deeply lobed leaves. This was an error, and because he was followed by most other authors for over a century, the combination *Brassaiopsis palmata* was very often misapplied to various species with deeply lobed leaves (e.g., Ridley, 1922). As far as could be traced, Seemann's correct synonymy was re-established only recently by Grierson (1991).

3. Another consequence of these typifications is that *Brassaiopsis hainla* is now a Himalayan species, just reaching Thailand but not Malesia. Esser (2004)

cited the correct synonymy, but erroneously included the Malay Peninsula for the distribution of *Brassaiopsis hainla*.

### ***Brassaiopsis spinosissima* Esser, sp. nov.**

This species is characterized by deeply-lobed leaves with (7–)9 lobes scarcely constricted at base that are sparsely pubescent on both sides, with distinct reticulate venation below, and by large inflorescences up to 60 cm in length. It is similar to two species with deeply-lobed leaves that are found in Northern Thailand, namely *Brassaiopsis ciliata* Dunn, which is distinguished by its (7–)9–11-lobed leaves that have characteristic, setose ciliate trichomes above and are usually constricted at base, and with inflorescences ca 15–30 cm long, and *B. griffithii* C.B. Clarke, which has (5–)7–9-lobed leaves with the lobes never constricted at base and glabrous at least above if not on both sides, and with inflorescences ca 20 cm long. Type: Thailand. Surat Thani, Phanom District, Khlong Phanom National Park, 'Giant Bamboo' nature trail, 8°48'N, 98°44'E, 300 m, 28 Nov. 2005 (fl), Gardner, Sidisunthorn & Tippayasri ST 1705a (holotype **BKF!**; isotype **M!**). Fig. 1.

— *Brassaiopsis polyacantha* auct. non (Wall.) R.N. Banerjee: Gardner *et al.*, Forest Trees S. Thailand 1: 231, pl. 323. 2015.

Deciduous single-stemmed or sparsely branched tree to 14 m, dbh to 30 cm, flowering when in leaf but often leafless when fruiting; bark pale grey to creamy, middle bark green, inner bark white; stem and branches very spiny. *Indumentum* of pale-brownish to yellowish-brown trichomes ca 0.2–0.3 mm long. *Leaves*: stipules ca 1.2 mm long; petiole 18–37 cm long, nearly glabrous; blade chartaceous, to ca 30 × 40 cm, palmately (7–)9-lobed, base rounded to decurrent, the basal 7–12 cm undivided, the lobes to 14–18 × 4–9 cm, longer than the undivided basal part, elliptic and scarcely constricted at base, margin serrate, apex acuminate, paler below, both surfaces with scattered trichomes, veins of each lobe ca 7(–)9 pairs, complete venation including reticulate veinlets distinctly visible below, indistinct above. *Inflorescences* terminal, at least 30 × 50 cm on specimens (described as 60 cm long by Gardner *et al.* 2015), sometimes with spines near base, with numerous (often 10–14) side branches, each subtended by a scaly, persistent bract ca 3 × 1.5 mm, main axis with scattered trichomes;

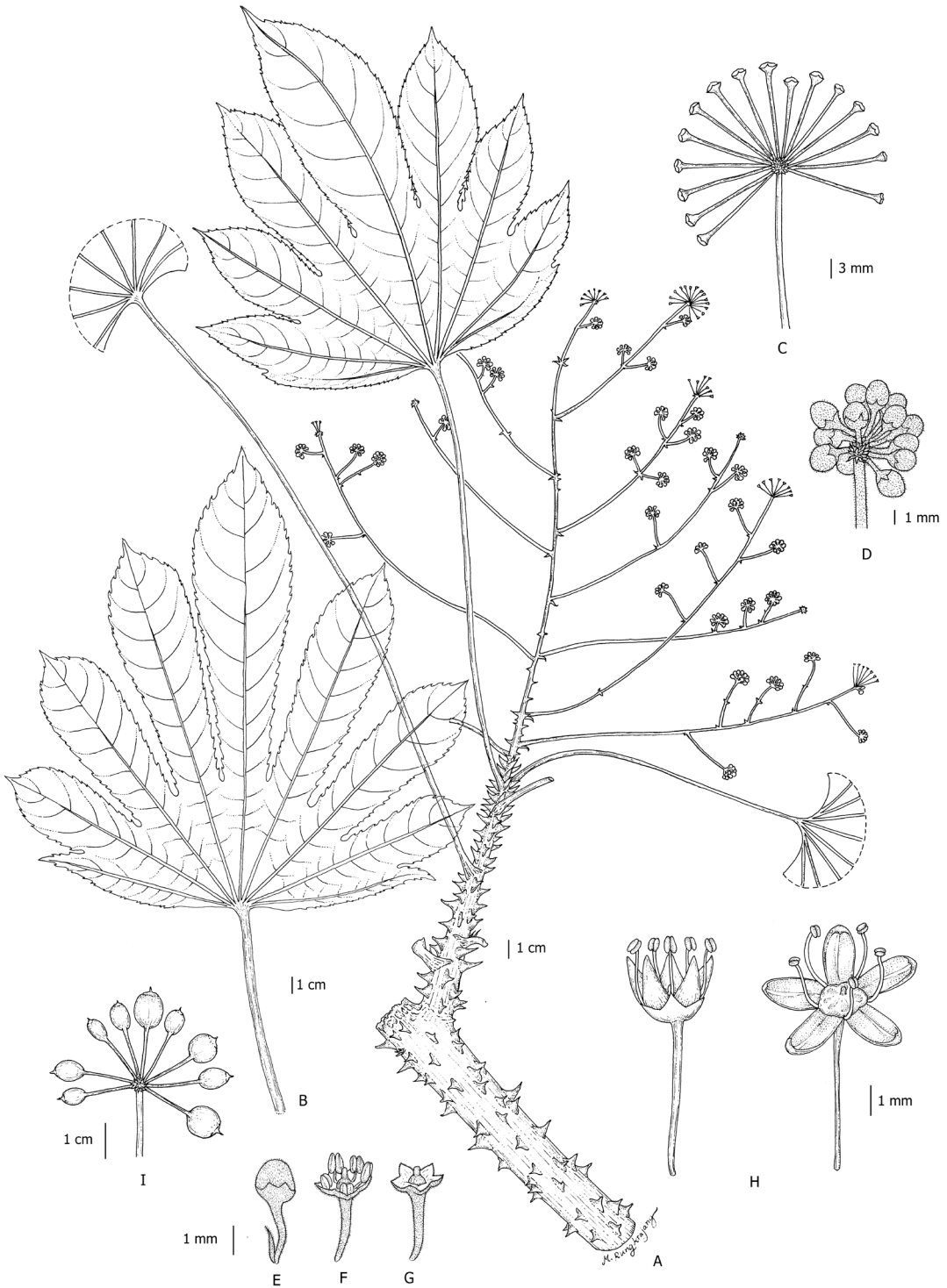


Figure 1. *Brassaiopsis spinosissima*. A. habit; B. leaf; C. flowering umbel; D. umbel in bud; E. flower in bud; F. flower bud, petals removed showing stamens; G. flower bud, petals and stamen removed, disc and style; H. mature flowers; I. umbel of immature fruits. After Gardner *et al.* ST 1705a (BKF).

side branches to 25 cm long, with a larger terminal umbel and numerous smaller lateral umbels each on a peduncle of ca 5 cm; terminal umbel of each branch 3 cm diam. [4(–5) cm in fruit], with 15–25 flowers, bracts ca 1 mm long. *Flowers* brownish-cream; densely tomentose in bud, soon glabrescent; pedicels 9–12 mm long, with scattered trichomes; sepals 5, mostly united, 2 mm long, free apical lobes ca 0.5 mm long, glabrous; petals 5, greenish-white to dull cream, free, 2.5 × 1 mm; stamens 5, not seen in mature flowers; ovary 2–3-locular; style short, undivided. *Fruits* grey-green when immature; pedicels 8–12 mm long, with scattered trichomes; drupes subspherical, not sulcate when dry, 7–8 × 7–8 mm, glabrous, style 1.5 mm long.

Thailand.—PENINSULAR: Surat Thani [Phanom District, Khlong Phanom National Park, ‘Giant Bamboo’ nature trail, 8°48’N, 98°44’E, 300 m, 20 Mar. 2005 (fr), *Gardner et al. ST 1705 (BKF, M)*; same locality, 28 Nov. 2005 (fl), *Gardner et al. ST 1705a (BKF, M)*]; Nakhon Si Thammarat [Lan Saka District, Khao Luang National Park, SE side of Khao Luang Mountain, between Khirivong village summit, 8°28’N, 99°45’E, 650 m, 7 Mar. 2006 (fr), *Gardner ST 2454 (BKF, M)*].

Etymology.—The name refers to the particularly dense spines of the species. All species of *Brassaiopsis* have spiny stems and branches. In this species, however, the spines are denser and more pronounced than in most other species, and notably even the basal part of the inflorescence is spiny.

Distribution and Ecology.—Found at the edge of relatively undisturbed evergreen forest, on rugged limestone terrain or over granitic bedrock, between 300 and 650 m elevation.

Notes.— *Gardner et al.* (2015) provide an excellent illustration under *Brassaiopsis polyacantha*. The present author is partly responsible for their mis-identification.

In Thailand, other species with a similar leaf shape are only known from Northern Thailand as mentioned above, *Brassaiopsis ciliata* Dunn (only known from Nan) and *B. griffithii* C.B. Clarke (only known from Chiang Mai). They differ, among other characters, by their smaller inflorescences and the different indumentum on their leaves. Large inflorescences of comparable sizes occur in Thailand only in *Brassaiopsis glomerulata* (Blume) Regel, which

however has digitately compound leaves of a very different shape.

In Peninsular Malaysia, plants from Pahang and Kedah which are very similar have been named as *Brassaiopsis palmata* or *Brassaiopsis polyacantha* by Ridley (1922), Stone (1977) and Philipson (1979). They appear to differ mainly in minor characters such as subtire leaf lobes, being in leaf when in fruit, and are found on streambanks and along rivers. They may be conspecific with *Brassaiopsis spinosissima* but further studies are needed to clarify their status. The only other Malesian species with a similar leaf shape is *Brassaiopsis sumatrana* Ridl., from Sumatra and the Malay Peninsula, which is however clearly distinct by its much smaller inflorescences (less than 20 cm long) which appear laterally (pseudolateral, overtopped by leaves) with a dense, reddish-brown indumentum, and leaves with very indistinct venation.

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