



A taxonomic revision of *Pterisanthes* (Vitaceae) in Thailand and a new Thai record for *Pterisanthes cissioides*

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Abstract

A revision of *Pterisanthes* in Thailand is presented with three species: *P. eriopoda*, *P. polita* and *P. cissioides*. *Pterisanthes cissioides* Blume is newly recorded for Thailand. A description and illustration are provided. Full typification is presented for all species and synonyms and lectotypes are selected for five names. Distribution maps are presented.

Introduction

The genus *Pterisanthes* Blume (Vitaceae) comprises ca. 19–20 species (Latiff 1982, 2001; Wen 2007) with a distribution centred in Malaysia, extending northwards to Peninsular Thailand, Myanmar and the Philippines. In many cases the distribution of *Pterisanthes* species is quite restricted, with five species restricted to the Malay Peninsula, four to Borneo and two to Sumatra. In addition, around 5 species are only known from their type location and one species (*Pterisanthes pulchra* Ridl.) is only found in the forest of Fraser's Hill in Peninsular Malaysia (Latiff 1987). Three *Pterisanthes* species are widespread in their distribution and have wide intraspecific variation (Latiff 1982): *Pterisanthes polita* (Miq.) M.A. Lawson, *Pterisanthes eriopoda* (Miq.) Planch. and *Pterisanthes cissioides* Blume.

The genus *Pterisanthes* was first described by Blume in 1825 from plants collected in Java that presented a very distinctive inflorescence type. The genus is characterised by an inflorescence in the form of a leaf-opposed, somewhat fleshy, leaf-like, flat lamellate panicle. A sterile tendril is present at the base of the peduncle (Trias-Blasi *et al.* 2012). Often the lamellate flowers are partially immersed in the lamina. In 1858 Agardh suggested that *Pterisanthes* should be placed in its own family, the Pterisanthaceae; however this suggestion was never adopted (Latiff 1982). In 1863 Miquel transferred many Vitaceae species and genera to *Vitis* and then separated *Vitis* into several sections. One of the genera transferred was *Pterisanthes*, becoming *Vitis* Sect. *Pterisanthes*, which at the time contained five species. Even though authors such as Kuntze (1891) adopted Miquel's classification system, most authors agreed with Blume and retained generic status for *Pterisanthes*. Subsequently, new *Pterisanthes* species were described by several authors: Lawson (1875) 3 spp.; Planchon (1887) 8 spp.; Ridley (1893, 1912, 1931) 4 spp.; Merrill (1907, 1917, 1929, 1934) 5 spp.; van Steenis & Bakhuizen van den Brink (1967) 2 spp.; Latiff (1982) 3 spp. In 1982 Latiff separated the genus into two sections based on the nature of the inflorescences; while Sect. *Pterisanthes* has pedicellate flowers on the margin of the lamellae, Sect. *Paginiflora* has sessile flowers.

Van Steenis & Bakhuizen van den Brink suggested (1967) *Pterisanthes* might have its origins in *Ampelocissus* because of their shared morphological similarities such as seed morphology, petiole anatomy, indumentum types and association of the tendril to the inflorescence (Latiff 1982). Recent molecular studies (Soejima & Wen 2006; Wen *et al.* 2007; Trias-Blasi *et al.* 2012) have suggested relationships are with *Ampelocissus*, *Nothocissus* and *Vitis*.

In Thailand, the three species of *Pterisanthes* are restricted to the Peninsular floristic region (Figs. 1, 3, 4) and are described here. During the preparation of the revision of the Vitaceae for the Flora of Thailand two specimens from Phangnga and Narathiwat were discovered and were later identified as *Pterisanthes cissioides* Blume. This species has been recorded in Peninsular Malaysia, Java, Borneo and Sumatra (Latiff 1982), but never in Thailand until now.

Taxonomic treatment

Pterisanthes Blume (1825: 192). Type:—*Pterisanthes cissioides* Blume.

Embamma Griffith (1854: 694).

Vitis L. sect. *Pterisanthes* Miquel (1863: 73).

Slender wiry climbers. *Stem* slender, cylindrical, striate, glabrous. *Leaves* simple or palmately (2)3–7-foliolate, some species heterophyllous. *Inflorescence* a leaf-opposed flat lamellate panicle, leaf-like and slightly fleshy with associated tendrils at the peduncle; lamella shape very variable: horseshoe-shaped, rectangular, rounded to very narrow. *Flowers* in Sect. *Pterisanthes* lamellate and pedicellate, in Sect. *Paginiflora* lamellate; lamellate flowers hermaphrodite, sessile, partially embedded in the lamella, (3)-4-5-merous, *calyx* obscure, *corolla* petals ovate-triangular, *ovary* adnate to the disk; pedicellate flowers placed at the margin of the lamella, either male or sterile always 4-merous, *calyx* cupuliform; *corolla* petals ovate-oblong; *filaments* filiform, attached to the inner side of the petal by a thin membrane; anthers minute; *ovary* exserted; *style* short; stigma inconspicuous. *Seeds* obovate, rugose.

Distribution:—Brunei Darussalam, Indonesia (Java, Kalimantan, Sumatra), Malaysia (Peninsula, Sabah, Sarawak), Myanmar (Peninsula), Philippines (Mindanao), Singapore, Thailand (Ranong, Songkhla, Narathiwat).

Key to Thai species

1. Pedicellate flowers absent; leaves with a ferruginous margin; petioles 1–3 cm long..... *Pterisanthes eriopoda*
- Pedicellate flowers present; leaves without a ferruginous margin; petioles 3–7 cm long 2
2. Leaves simple and glabrous; lamella 1–3 cm wide..... *Pterisanthes polita*
- Leaves compound with abaxial side ferruginous; lamella 3–7 cm wide *Pterisanthes cissioides*

Pterisanthes eriopoda (Miq.) Planchon (1887: 418). *Vitis eriopoda* Miquel (1863: 95). *Pterisanthes ovata* Korth. nom. nud. Lectotype (designated here):—INDONESIA. Sumatra, *Korthals s.n.* (lectotype L! (electronic image with barcode L0715762); isolectotype L! (electronic image with barcode L0715763) and K!).

P. coriacea var. *araneosa* King (1896: 408). Lectotype (designated here):—MALAYSIA. Peninsular Malaysia, Perak (central), Gopeng Kinta, July 1883, *King's Collector 4621* (K!).

P. beccarina Planchon (1887: 418). Lectotype (designated here):—Sarawak, *Beccari 796* (FI! (No: 2743); isolectotypes FI! (No: 2743A), FI! (No: 2743B)).

Tendrils branching from the inflorescence peduncle, mostly simple, sometimes bifurcate, 5–15 cm long, slender, slightly hairy or tendrils unrelated to the inflorescence, simple, robust, leaf-opposed. *Leaves* simple; petiole 1–3 cm long, with long and thin (ca. 3 mm × 0.1 mm) wavy ferruginous hairs; leaf blade ovate to elliptical, to 19 × 10 cm, base cordate, margin entire with 1–2 mm long black teeth at the end of the veins (to 5 per side), the leaf, apex acute to acuminate, coriaceous to frequently chartaceous; adaxial surface often glabrous, sometimes with a few scattered hairs more dense on the veins, abaxial surface arachnoid (occasionally sparsely pubescent) with long ferruginous wavy hairs, conspicuously dense on the protruding veins and persistent on the leaf margin; 5–6 main veins arising from the midrib on each side and numerous conspicuous secondary veins and venules. *Inflorescence* 10–17 × 1–3.5 cm, narrow, purple; peduncle 3–4.5 cm, slightly hairy; *lamellate flowers* present.

Distribution.—Indonesia (Java, Sumatra), Malaysia (Peninsula, Sarawak), Thailand (Ranong, Songkhla, Narathiwat (Fig. 1)).

Ecology.—It grows in evergreen forest. 100–650 m elev. Flowering and fruiting from November to July.

Specimens examined.—INDONESIA. **Sumatra:** *Korthals s.n.* (L (L0715762)); *Korthals s.n.* (L (L0715763), K). MALAYSIA. **East Malaysia:** Sarawak, 1865-68, *Beccari 796* (FI, FI, FI). **Peninsular Malaysia:** Pahang,

Gunung Tahan, ca 1,000 m, 19 June 1922, *Haniff & Nur 8027* (K); Negri Sembilan, Gumong Angsi falls to west, 610 m, 17 November 1923, *Nur 11752* (K); Perak (central), Gopeng Kinta, July 1883, *King's Collector 4621* (K). THAILAND. **Narathiwat:** Pah Bukethamong, Ra-ngae district, *Sangkachand 917* [BKF no. 54067] (BKF). **Ranong:** Khlong Nakha Wildlife Sanctuary, 200–300 m, 2 May 1927, *Larsen & Larsen 33585* (AAU, BKF). **Songkhla:** Kopah, Ban Krap, Bk. Tinggi, 300 m, 7 November 1917, *Haniff & Nur 2728* (SING).

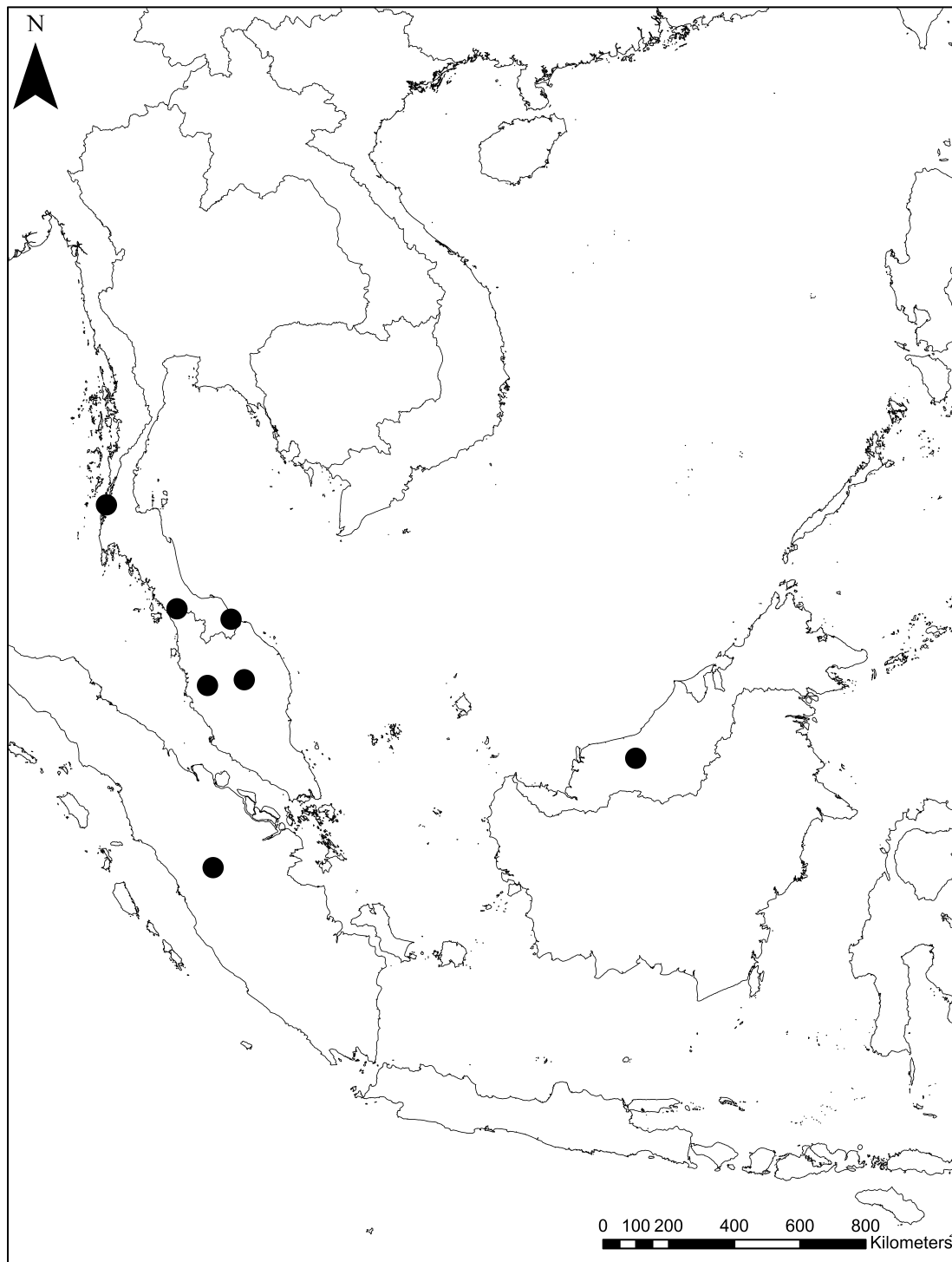


FIGURE 1. Distribution map of *P. eriopoda* based on specimen data.

Nomenclature notes.—Although originally named as *P. ovata* by Korthals it was never published and therefore the name is invalid. When Miquel (1863) was writing the account for these species using Korthals' specimens, he did not recognise *Pterisanthes* as a genus but a section within *Vitis*, thus he had to find a new name for it and named it *Vitis eriopoda* Miq.

In his description of this species Miquel (1863) indicated the presence of a specimen collected by Korthals from Sumatra. Two specimens with these characteristics were found in L and we believe they are both duplicates of the type specimen because they were collected by Korthals and the labels indicate the unpublished name given by this author (*P. ovata*). We have selected the specimen with barcode L0715762 as a lectotype because it is the most representative of this species.

In the first description of *Pterisanthes coriaceae* var. *araneosa*, King (1896) listed four syntypes, all collected in Perak. One of them was collected by “King’s collector” (No. 646), while the remaining specimens were collected by Wray (Nos. 2556, 3615, 4621). A specimen was found in the K herbarium supposedly collected by “King’s collector” but with one of Wray’s collection number mentioned above (No. 4621). The information on the label suggests that this specimen was in fact collected by Hermann Kunstler, who collected for King, as the collection dates, localities and notes match with his known itinerary (Narayanaswami 1933). It is possible the details on the labels got mixed up at some point as specimens from both collectors were likely sent from the State Museum in Taiping, where Wray was the Curator, to the Botanical Gardens in Calcutta. Regardless, the specimen matches King’s description and we have selected it here as the lectotype. This taxon was later recognised as a synonym of *P. eriopoda* (Latiff 1982).

The synonym *P. beccarina* was described by Planchon (1887) from a specimen collected by Beccari in Sarawak. We have found three isotypes in FI and we have selected the one with FI herbarium number 2743 (not 2743A or 2743B) to be the lectotype.

Latiff (1982) mentioned the synonym *P. polita* var. *lanceolata*, which was described by Ridley (1893) from a specimen collected by Haviland in the Malay Peninsula. Most of Haviland’s collections are in SING and K, however we have been unable to locate a relevant specimen after extensive searches in these and other herbaria. Additionally, we have found no specimens labelled with the above name nor have we found specimens with clearly lanceolate leaves as per Ridley’s (1893) description. Thus, this is a case of *incertae sedis* as we are unable to confirm the taxonomic status of this taxon.

Pterisanthes cissioides Blume (1825: 193) [as *cissioides*]. *Vitis cissioides* (Blume) Backer (1911: 245). Lectotype (designated here):—INDONESIA. Java, Bogor, *Blume s.n.* (L! (electronic image with barcode L0747475); isolectotype L! (electronic image with barcode L0715778).

Vitis ptersiantha Miquel (1863: 94). Holotype:—INDONESIA. Sumatra, *Korthals s.n.* (L! (electronic image with barcode L0715787); isotype L! (electronic image with barcode L0715788)).

Ptersianthes dalhousiae var. *major* Ridley (1922: 481). Holotype:—MALAYSIA. Peninsular Malaysia, Perak, Hermitage, December 1887, *Curtis 1289* (K!).

Pterisanthes trifoliata Merrill (1929: 182). Lectotype (designated here):—MALAYSIA. Sabah, Tawao, Elphinstone Province, British North Borneo, October 1922 to March 1923, *Elmer 20829* (UC!; holotype PNH likely lost; isolectotypes K!, L! (electronic image with barcode L0013712)).

Tendrils branching from the inflorescence peduncle, mostly simple, 10–15 cm long, slender, glabrous. *Leaves* compound, trifoliolate or 5-pedate; petiole 3–10 cm long, glabrous; terminal leaflet leaf blade ovate to elliptical, 10–19 × 4–8 cm, base attenuate, petiolule 2–3.5 cm long; lateral leaflet leaf blade ovate to elliptical, 10–14 × 3–5 cm, base obliquely rounded, petiolule 0.5–1.5 cm long; margin conspicuously dentate with teeth 0.5–1 mm long at the end of the secondary veins, apex acute to apiculate; adaxial side glabrous, abaxial arachnoid then becoming glabrescent; 5–6 main veins growing from the midrib on each side and numerous secondary veins. *Inflorescence* 10–13 × 3–7 cm, rectangular, brownish-green; peduncle to 26 cm × 1.5 mm, slightly hispid with minute hairs 0.1 mm long; *lamellate flowers* present; *pedicellate flowers* pedicel 1.5–2.5 cm long; *Fruit* reddish, 1–2 seeded, globose, 0.75 cm diameter. Fig. 2.

Distribution.—Brunei Darussalam, Indonesia (Java, Kalimantan, Sumatra), Malaysia (Peninsula, Sabah), Thailand (Phangnga, Narathiwat (Fig. 3)).

Ecology.—Forest border, mixed forest, tropical rainforest, thickets. 50–1200 m elev. Flowering from January to February.

Specimens examined.—BRUNEI DARUSSALAM. Tutong District, Upstream from Belabau on Tutong river, 20 m, 28 March 1990, *M.J.E. Coode et al.* 6357 (K). INDONESIA. **Java:** Bogor, *Blume s.n.* (L (L0715776)); Bogor, *Blume s.n.* (L (L0715778)); Bogor, *Blume s.n.* (L (L0747475), (L0715778)). **Kalimantan:** Wanariset, Plot

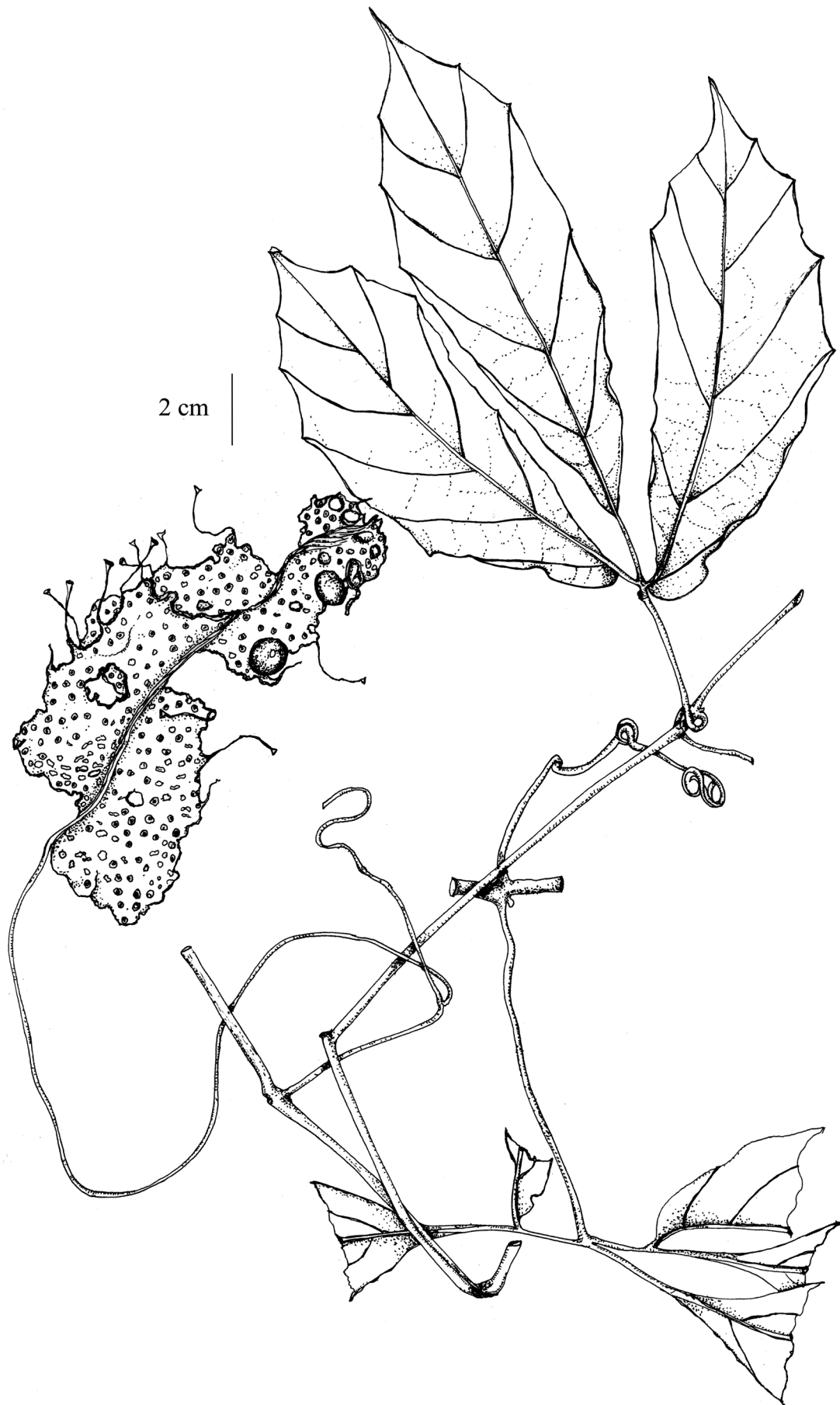


FIGURE 2. *Pterisanthes cissioides* Blume. Flowering Stem. From *Puudjaa* 459 (BKF). Drawing by A. Teerawatananon.

Matthys, 1° S 117° E, 50 m, 15 May 1990, *van Balgooy & P. Kessler 5959* (K); Serawai. Desa Jelundung, 0° 29' 43.5" S 112° 32' 3.1" E, 120 m, 2 October 1995, *Church, Ismail, Ruskandi 2187* (K); Ketapang. Gunung Palung National Park, Cabang Panti Research Site, 1° 13' S 110° 6' E, 20 m, 24 October 1996, *Laman, Rachman, Mirmanto TL112* (K). **Sumatra:** *Korthals s.n.* (L (L0715787), (L0715788)). **MALAYSIA. East Malaysia:** Sabah, Tawao, Elphinstone Province, British North Borneo, October 1992 to March 1923, *Elmer 20829* (K, L, UC); Sabah, Mount Kinabalu, Tenompok, 1500 m, 20 February 1932, *J. & S. Clemens 26042* (K). **Peninsular Malaysia:** Pahang, Sg. Serunai, 17 October 1931, *Osman 28218* (K); Perak, Hermitage, December 1887, *Curtis 1289* (K); Perak, July 1885, *King's Collector 7914* (K). **THAILAND. Narathiwat:** Bala-Hala, Waeng, 24 January 1998, *Puudjaa 459* (BKF). **Phangnga:** Sra Nang Manora Forest Park, Muang, 60 m, 23 February 2001, *Chayamarit, Pooma, Chamchumroon 2658* (BKF).

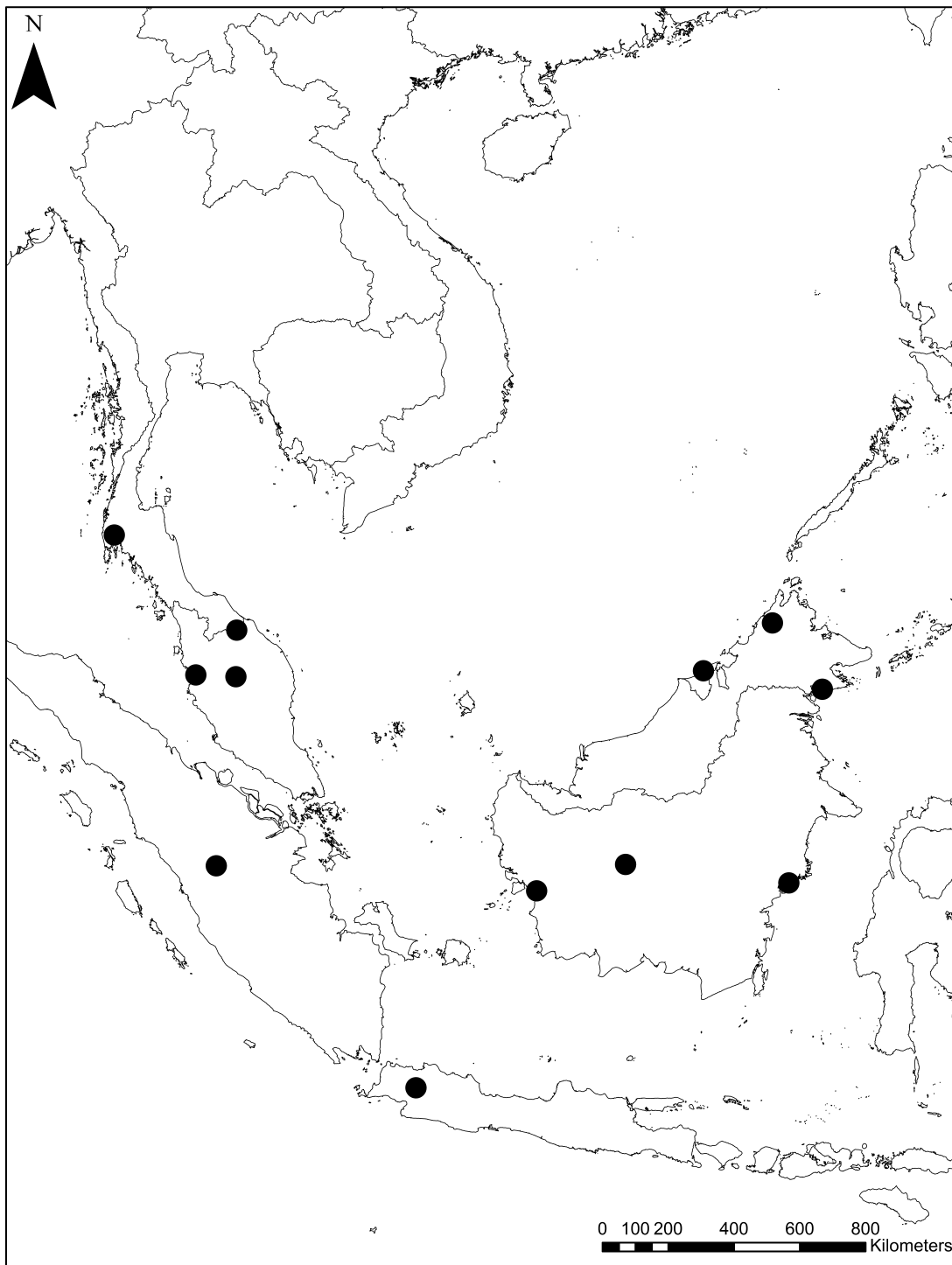


FIGURE 3. Distribution map of *P. cissioides* based on specimen data.

Nomenclature notes.—In 1825 Blume described the genus *Pterisanthes* based on a specimen collected in Java, which he named *P. cissioides* (at the time *P. cissioides*). We have selected here the lectotype for *P. cissioides* from a specimen found in L with a label written in Blume's handwriting (Van Welzen pers. comm.). Even though it is quite likely that this specimen is the holotype, we are not completely certain since there are several specimens of *P. cissioides* in L with Blume's handwriting; therefore, we have selected the most representative specimen with the species name in Blume's handwriting as the lectotype (barcode L0747475).

In 1863, Miquel described the species *Vitis pterisantha* from a specimen collected by Korthals in Sumatra; this has later been recognised as a synonym of *P. cissioides*. The holotype of this specimen was also thought to be held in L. Two duplicates from Korthals' collections with the species name written on the label were found; one of the duplicates was sent to the herbarium in Groningen (Van Welzen pers. comm.) but after its closure, the specimen was returned to L. For this reason, the specimen that was kept in L is most likely to have been used as the holotype. Ridley (1922) described the variety *P. dalhousiae* var. *major* from a specimen collected by Curtis in Hermitage Hill, Perak (Peninsular Malaysia). A specimen with these characteristics was located in the K herbarium and it is considered to be the holotype as no other duplicates have been found. Latiff (1982) suggested this variety should be a synonym of *P. cissioides* and we are in agreement. However, he indicated the wrong type specimen; which was also collected by Curtis, but in a different locality (Peninsular Malaysia, Penang, West Hill) and it was identified by Latiff himself as the morphologically distinct *P. dalhousiae*.

The synonym *P. trifoliata* was described by Merrill (1929) from a specimen collected by Elmer in Sabah. It is known that the top set of Elmer's collections was generally stored in PNH (Van Steenis-Kruseman 1950), but as Manila was almost completely destroyed in 1945 during World War II, it is quite likely that the holotype was lost. However, we have found three isotypes in different herbaria; only one of them has an inflorescence present, and this has been selected as the lectotype.

Pterisanthes polita (Miq.) Lawson (1875: 663). *Vitis polita* Miquel (1863: 95). *P. coriacea* Korth. ex King (1896: 693). *nom. superfl.* Lectotype (designated here):—INDONESIA. Sumatra, in fruticetis prope Pao, *Korthals s.n.* (lectotype L! (electronic image with barcode L0013706); isolectotypes L! (electronic image with barcode L0013704, L0013705, L0013707)).

Pterisanthes sinuosa Merrill (1907: 423). Lectotype (designated here):—PHILIPPINES. Mindanao, Lake Lanao, Camp Keithley, November 1906, *Clemens 647* (A! (electronic image)).

Pterisanthes parvifolia Merrill (1917: 76). Lectotype (designated here):—MALAYSIA. Sarawak, Baram District, Marudi, 26 October 1894, *Hose 231* (K!; isolectotypes, A! (electronic image with barcode 00051640), BM, L! (barcode L0672034)).

Pterisanthes gladiata Van Steenis (Van Steenis & Bakhuizen Van Den Brink 1967: 388) Holotype:—Sabah, Mount Kinabalu, 1200–1500 m, 15 February 1933, *J. & M. Clemens 31582* (L! (electronic image with barcode L0013703)).

Tendrils branching from the inflorescence peduncle, mostly simple, sometimes bifurcate, slender or tendrils unrelated to the inflorescence, simple, robust, leaf-opposed. *Leaves* simple; petiole 3–6.5 cm long, glabrous; leaf blade cordate, deltoid to ovate, to 18 × 10.5 cm, base cordate, margin entire with minute teeth at the end of the venations, apex acute to acuminate, coriaceous to frequently chartaceous, both sides glabrous, shiny with numerous veins protruding; 6–8 main veins growing from the midrib and numerous secondary veins and venules all extremely conspicuous. *Inflorescence* 10–28 × 1–3 cm, narrowly rectangular to gladiate, green turning reddish when mature; peduncle 5–15 cm long, slender, glabrous; *lamellate flowers* present; *pedicellate flowers*, pedicel 1–2.5 cm long.

Distribution.—Brunei Darussalam, Indonesia (Kalimantan, Sumatra), Malaysia (Peninsula, Sabah, Sarawak), Myanmar (Peninsula), Philippines (Mindanao), Singapore, Thailand (Peninsula) [specimen lost]. Fig. 4.

Ecology.—Forest border, mixed forest, tropical rainforest. 15–3300 m elev. Flowering and fruiting all year.

Specimens examined.—BRUNEI DARUSSALAM. Tutong, Rambai, Ladan Hill Forest Reserve, Bukit Bedawan, Southern of LP-263, 4° 29' 33" N, 114° 48' 52" E, 485 m, 26 March 1997, *Kalat et al BRUN 18076* (K); Temburong Distr., Subd. Amo. Upper Belalong river west of Bukit Belalong, 4° 30' N, 115° 08' E, 130 m, 24 March 1991, *Johns et al. 7021* (K); Belait, Melilas, Ulu Sungai Belait, along trail from Ingei to Melilas-Sukang, 4° 10' N, 114° 42' E, 25 m, 25 August 1995, *Kalat et al. BRUN 17075* (K); Nelait Labi, ukit Teraja, ridge running N from summit, 4° 18' N, 114° 26' E, 350 m, 18 October 1991, *Simpson with Marsh 2124* (K). INDONESIA. **Kalimantan:** G. Bentuang area, 5–10 km NE of Pontianak, W Kalimantan province, beside Sembawang river, 0°

52° N, 100° 26' E, 150 m, 8 June 1989, *Burley, Tukirin et al. 2351* (K); East Kalimantan, PT. Limbang Ganeca, Ulu Mahakam, Belayan river area, 0° 12' N, 116° 02' E, 50 m, 15 June 1999, *Sidiyasa & Ambriansyah 1656* (K). **Sumatra:** in fruticetis prope Pao, *Korthals s.n.* (L (L0013706, L0013704, L0013705, L0013707)); N Sumatra, Bt. Lawang, Bohorok, Langkat, 200 m, 25 February 1973, *Dransfield 3331* (K); old jungle near the Aek Kanopak, Loendoet concession, Koealoe, 1–17 April 1927, *Bartlett 7321* (K). MALAYSIA. **East Malaysia:** Sabah, Mount Kinabalu, 1200–1500 m, 15 February 1933, *J. & M. Clemens 31582* (L! (electronic image with barcode L0013703)); Sabah, Tenom district, HS. Kalang, Summit of Kalang hill, 3300 m, 18 September 1991, *Gambio et al. 133697* (K); Sabah, Beluran district, West of Bt. Luminitong, 11 March 1982, *Gibot SAN94482* (K); Sabah, Sandakan district, Sg. Ruku-ruku, Telupid, 6 August 1981, *Gibot SAN94034* (K); Sarawak, Baram District, Marudi, 26 October 1894, *Hose 231* (K, A (electronic image with barcode 00051640), L (barcode L0672034); Sarawak, 1865–68, *Beccari 1333* (K); Sarawak, Bkt. Kelaby, Ulu Dapoi, Tinjar, Marudi, 4th division, 122 m, 3 April 1965, *Pa'ie S22945* (K); Sarawak, Gunong, Api, ulu Melinau, Tutoh, Baram District, NE flank of mountain, 4° 07' N 115° 15' E, 850m, 1 October 1971, *Anderson S30870* (K); Sarawak, Gunong Gading, Lundu District, 2nd division, 683 m, 22 September 1974, *Mamit S35129* (K). **Peninsular Malaysia:** Perak, Taiping, March 1894, *Scortechini 111* (BM); Perak, Blanjo?, 30.5 m, *L. Wray 150* (K). MYANMAR. Moulmeine, *Lobb s.n.* (K). PHILIPPINES. **Mindanao:** Lake Lanao, Camp Keithley, November 1906, *Clemens 647* (A! (electronic image)). SINGAPORE. Chanchu Kang, November? 1889, *N.H.R. s.n.* (BM).

Nomenclature notes.—This species was first described as *Pterisanthes coriacea* by Korthals, however this was never published and thus the name remained invalid. At the time Miquel (1863) was writing the account for these species using Korthals' specimens, he did not recognise *Pterisanthes* as a genus but a section within *Vitis*, so he had to find a new name for this species. Since the name “*Vitis coriacea*” was already in use as *Cissus coriacea* DC and *Vitis coriacea* Miq., Miquel (1863) gave the species the new name *Vitis polita* Miq. Independently, in 1896 King validated the name *Pterisanthes coriacea*.

A total of four *P. polita* specimens labelled as isotypes and likely to have been used by Miquel (1863) were found at L. We have selected the specimen with barcode L0013706 as the lectotype as we believe it is the most representative for this species. Although this specimen could be the holotype for this species, we cannot be completely sure since neither the first description, nor the label indicate any distinctive data and therefore a lectotype status is more suitable here.

Merrill described two new *Pterisanthes* species (*P. sinuosa* (1907) and *P. parvifolia* (1917)), both of which have since been synonymised under *P. polita* (Latiff 1982). *Pterisanthes sinuosa* was described from a specimen from the Philippines collected by Clemens. It is known that the top set of Clemens' collections from Mindanao were generally stored in PNH (Van Steenis-Kruseman 1950), but as Manila was almost completely destroyed in 1945 during World War II, it is quite likely that the holotype was lost. An isotype was found at A and it has been selected as the lectotype. *Pterisanthes parvifolia* was described from a specimen from Sarawak (Malaysia) collected by Hose. Duplicates of the type collection have been found in several herbaria and we have selected here as the lectotype the one that represents best the taxon.

We have only been able to find one record of a specimen belonging to *P. polita* occurring in Thailand. This specimen was reported by Latiff (1982) as being located in K and has the same collection details as another specimen in SING that Latiff (1982) identified as *P. eriopoda* in the same publication. We have been able to confirm the identification of the specimen in SING but it seems that the one held in K has been lost and therefore we are unable to confirm its taxonomic status. However, records of *P. polita* have been reported in localities close to the southernmost Thai provinces in the Malay Peninsula such as the state of Perak. Hence, we think *P. polita* is extremely likely to occur in Thailand and therefore it has been included in this account.

Morphological notes.—The species *P. polita* and *P. eriopoda* are in fact very similar, with the main difference being the presence/absence of the pedicel in the flowers, which is the character used by Latiff (1982) to separate *Pterisanthes* into two sections. *P. polita* has pedicellate flowers along the margin of the lamella, while *P. eriopoda* does not have pedicellate flowers associated on the lamella. These two species together with *P. cissioides* are the most widely distributed and also have the most intraspecific variation within *Pterisanthes* (Latiff 1982). The morphological difference used to separate *P. polita* from *P. eriopoda* could be explained by this wide range of variation within species, thus suggesting that they are in fact the same species. However, upon examination of several specimens we have noticed the following additional differences: 1. Petiole length in *P. eriopoda* is shorter (under 3 cm), while *P. polita* is longer (over 3 cm); 2. Leaves in *P. eriopoda* have a hairy margin covered with wavy

ferruginous hairs, while leaves in *P. polita* are glabrous. Due to all these observations we have decided to maintain them as separate species.

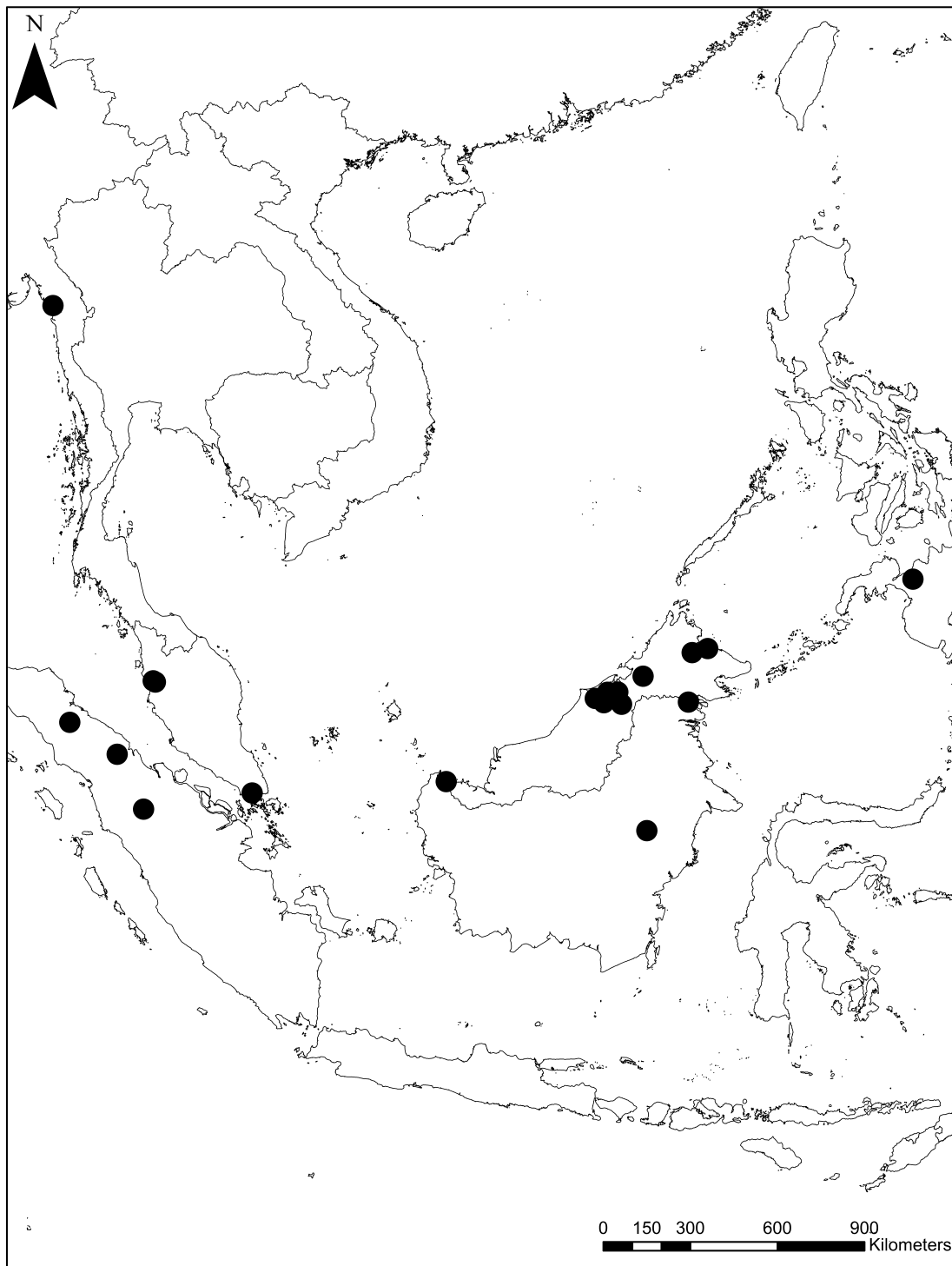


FIGURE 4. Distribution map of *P. polita* based on specimen data.

Acknowledgements

This work formed part of the Ph.D. thesis of the first author and was supported by a Trinity College Postgraduate Award, the Trinity College Postgraduate Travel Fund, Synthesis (European Union-Funded Integrated Infrastructure Initiative Grant), the Davis Expedition Fund, the IAPT Research Grants Program in Plant

Systematics, the William Dickson Travelling Fund, the TRF/BIOTEC Special Program for Biodiversity Research and Training Grant and the Trinity College Dublin Botany Department. The authors are grateful to the staff and students at the Department of Botany in Trinity College Dublin and especially to Dr. Caroline Byrne. The authors are also grateful to the staff in A, AAU, BKF, BM, FI, K, L, SING and UC for their help and for the loan of or access to specimens, in particular to Anthony Brach (A), Julie Shapiro (A), Somran Suddee (BKF), Ranee Prakash (BM), Egildo Luccioli (FI), Serena Lee (SING), Siti Nur Bazilah Mohamed Ibrahim (SING) and Ana Penny (UC). Thanks to Prof. Dr. Peter C. Van Welzen for his helpful suggestions during the examination process of the Ph.D. thesis and for help with L specimens.

References

- Agardh, J.G. (1858) *Theoria systematis plantarum; accedit familiarum phanerogamarum in series naturales dispositio*. C.W.K. Gleerup, Lund, 404 pp.
- Backer, C.A. (1911) *Schoolflora voor Java*. N.V. Boekh. Visser & Co, Weltevreden, 676 pp.
- Blume, C.L. (1825) Ampelideae. In: Blume, C.L. *Bijdragen tot de flora van Nederlandsch Indie*, 1. Ter Lands Drukkenj, Batavia, pp. 180–195.
<http://dx.doi.org/10.5962/bhl.title.395>
- Griffith, W. (1854) *Notulae ad Plantas Asiaticas*, 4. Charles A. Sarrao, Calcutta, 764 pp.
- King, G. (1896) *Materials for a Flora of the Malayan Peninsula*, Disciflorae 6-8. Baptist Mission Press, Calcutta, 802 pp.
- Kuntze, O. (1891) *Revisio generum plantarum*. 1. Arthur Felix: Leipzig, 374 pp.
- Latiff, A. (1982) Studies in Malesian Vitaceae I-IV. *Federation Museums Journal* 27: 46–93.
- Latiff, A. (1987) Portraits of threatened plants. 13. *Pterisanthes pulchra* Ridl. *Malayan Naturalist* 41(2): 25–26.
- Latiff, A. (2001) Diversity of the Vitaceae in the Malay Archipelago. *Malayan Nature Journal* 55: 29–42.
- Lawson, M.A. (1875) Ampelideae. In: Hooker, J.D. (ed.) *Flora of British India*, 1. L. Reeve & Co., London, pp. 644–668.
- Merrill, E.D. (1907) Some genera and species new to the Philippine flora. *Philippine Journal of Science. Section C, Botany* 2: 421–428.
- Merrill, E.D. (1917) Contributions to our knowledge of the Flora of Borneo. *Journal of the Straits Branch of the Royal Asiatic Society* 76: 75–117.
- Merrill, E.D. (1929) Plantae Elmerianae Borneenses. *University of California Publications in Botany* 15: 1–316.
- Merrill, E.D. (1934) New Sumatran plants, I. *Papers of the Michigan Academy of Science, Arts and Letters* 19: 149–203.
- Miquel, F.A.W. (1863) *Annales Musei Botanici Lugduno-Batavi*, 1. Van der Post, Amsterdam, 332 pp.
- Narayanaswami, V. 1933. Provenance of early Malayan Plant Collections. *Journal and Proceedings of the Asiatic Society of Bengal* 27: 327–477.
- Planchon, J.E. (1887) Monographie des Ampélidées vrais. In: De candolle, A.F.P.P. & De Candolle, C. (eds.) *Monographiae Phanaerogamarum*, 5. G. Masson, Paris, pp. 305–654.
- Ridley, H.N. (1893) On the flora of the eastern coast of the Malay Peninsula. *Transactions of the Linnean Society of London. Series 2*. 3: 267–408.
<http://dx.doi.org/10.1111/j.1095-8339.1893.tb00678.x>
- Ridley, H.N. (1912) A botanical excursion to Pulau Adang. *Journal of the Straits Branch of the Royal Asiatic Society* 61: 46.
- Ridley, H.N. (1922) Ampelideae. In: Ridley, H.N. *The Flora of the Malay Peninsula*, 1. L. Reeve & Co. Ltd, London, pp. 469–487.
- Ridley, H.N. (1931) Additions to the Flora of Borneo and Other Malay Islands: III *Bulletin of Miscellaneous Information, Royal Gardens, Kew* 1931(10): 493–499.
- Soejima, A. & Wen, J. (2006) Phylogenetic analysis of the grape family (Vitaceae) based on three chloroplast markers. *American Journal of Botany* 93: 178–187. DOI: <http://dx.doi.org/10.3732/ajb.93.2.278>
- Trias-Blasi, A., Parnell, J.A.N. & Hodkinson, T.R. (2012) Multi-gene Region Phylogenetic Analysis of the Grape Family (Vitaceae). *Systematic Botany* 37: 941–950.
<http://dx.doi.org/10.1600/036364412x656437>
- Van Steenis, C.G.G.J. & Bakhuizen Van Den Brink, R.C. (1967) Miscellaneous botanical notes XVI. 104: Two new Bornean *Pterisanthes* (Vitaceae). *Engler's Botanische Jahrbücher* 86: 385–390.
- Van Steenis-Kruseman, M.J. (1950) Malaysian Plant Collectors and Collections: Being a Cyclopaedia of Botanical Exploration in Malaysia and a Guide to the Concerned Literature to the Year 1950. In: Van Steenis, C.G.G.J. *Flora Malesiana, Series 1, Volume 1*. Noordhoff-Kolff, Jakarta, 1–639 pp.
- Wen, J. (2007) Vitaceae. In: Kubitzki, K. *The families and genera of vascular plants, Vol.9: Flowering plants. Eudicots: Berberidopsidales, Buxales, Crossosomatales, Fabales p.p., Geraniales, Gunnerales, Myrtales p.p., Proteales, Saxifragales, Viales, Zygophyllales, Clusiaceae Alliance, Passifloraceae Alliance, Dilleniaceae, Huaceae, Picramniaceae, Sabiaceae*. Springer-Verlag, Berlin, 467–479 pp.
- Wen, J., Nie, Z.-L., Soejima, A. & Meng, Y. (2007) Phylogeny of Vitaceae based on the nuclear *GAI1* gene sequences. *Canadian Journal of Botany* 85: 731–745.