



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

Anna TRIAS-BLASI<sup>1,2,3\*</sup>, Kongkanda CHAYAMARIT<sup>4</sup>, Atchara TEERAWATANANON<sup>5</sup> & John A.N. PARNELL<sup>1,2</sup>

<sup>1</sup>Herbarium, Department of Botany, School of Natural Sciences, Trinity College Dublin, University of Dublin, D2, Ireland.

<sup>2</sup>Trinity Centre for Biodiversity Research, School of Natural Sciences, Trinity College Dublin, D2, Ireland.

<sup>3</sup>Herbarium, Library, Art and Archives, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB, U. K. (\*Correspondence author: [a.triasblasi@kew.org](mailto:a.triasblasi@kew.org)).

<sup>4</sup>Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation, Chatuchak, Bangkok 10900, Thailand.

<sup>5</sup>Thailand Natural History Museum, National Science Museum, Technopolis, Pathum Thani 12120, Thailand.

### 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*.

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.