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A NEW COMBINATION IN *MONOCARPIA* (ANNONACEAE)

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The new combination *Monocarpia maingayi* (Hook.f. & Thomson) I.M.Turner (Annonaceae), based on *Cyathocalyx maingayi* Hook.f. & Thomson, is proposed and a lectotype is designated. *Monocarpia maingayi* is native to the Malay Peninsula and Sumatra. It has previously been referred to as *Monocarpia marginalis* (Scheff.) J.Sinclair. Differences between *Monocarpia maingayi* and *M. kalimantanensis* P.J.A.Kessler of Borneo are highlighted. Four species of *Monocarpia* are recognised, and a key to them is presented.

Keywords. *Cyathocalyx*, Indonesia, lectotype, Malaysia, *Monocarpia*, nomenclature.

Introduction

Monocarpia Miq. (Annonaceae) is a small genus of trees confined to the Malay Peninsula (Peninsular Thailand and Peninsular Malaysia), Sumatra and Borneo. The distinct intramarginal nerve of the leaves, few-flowered leaf-opposed inflorescences, the few carpels (1–3), and large, sessile, multi-seeded monocarps make the genus relatively easy to recognise.

In his family account for the Malay Peninsula, Sinclair (1955) considered *Monocarpia* to consist of a single species ranging across the Malay Peninsula, Sumatra and Borneo. He excluded the clearly misplaced *Monocarpia siamensis* Craib, transferring it to the new genus *Dasoclema*, which has recently been reduced to *Uvaria* (Zhou *et al.*, 2010). There were three names available for the single species of *Monocarpia*: *Monocarpia euneura* Miq., the type species of the genus, described from Borneo, *Cyathocalyx maingayi* Hook.f. & Thomson from the Malay Peninsula, and *Cyathocalyx marginalis* Scheff. from Bangka, Sumatra. Sinclair mistakenly believed that Scheffer's publication dated from 1855, making *Cyathocalyx marginalis* the oldest of the three names. Sinclair therefore transferred this species to *Monocarpia* to provide what he believed to be the correct name. However, Scheffer's publication appeared in 1885 (Scheffer, 1885), after, not before, the other two, and *Monocarpia euneura* Miq. remains the correct name for this species.

Kessler (in Kessler & van Heusden, 1993) described *Monocarpia kalimantanensis* from Borneo. Mols & Kessler (2000) added *Monocarpia borneensis*, with its highly

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distinctive muricate monocarps, when they revised the genus in Borneo. They recognised three species in the genus (*Monocarpia euneura*, *M. kalimantanensis* and *M. borneensis*), all of which occurred on Borneo. Following Sinclair, they tentatively placed *Cyathocalyx marginalis* and *Cyathocalyx maingayi* in the synonymy of *Monocarpia euneura*.

In revising the Annonaceae for the Tree Flora of Sabah and Sarawak, I was struck with the similarity between *Monocarpia kalimantanensis* from Borneo and the material from the Malay Peninsula that, following Sinclair, has been referred to *M. marginalis*. Material in the Kew Herbarium and material on loan from the Leiden Herbarium was examined in order to clarify these issues. It became clear that the Malayan plant was not *Monocarpia euneura*, which has a single carpel and a fleshy pericarp to the mature monocarps, unlike the three carpels and stony pericarp of *M. kalimantanensis* and the specimens from the Malay Peninsula. The clearest difference between the specimens from the Malay Peninsula and *Monocarpia kalimantanensis* is in the form of the mature monocarps. In the specimens from the Malay Peninsula, the mature monocarps are more or less globose and dry a speckled brown colour. Under a lens (×10) the cause of the speckling becomes clear – the surface of the monocarp has many tiny, flat-topped wart-like protrusions. The short red-brown hairs that cover the monocarp wear off, particularly on the warts, revealing a paler brown layer below. The mature monocarps of *Monocarpia kalimantanensis* are typically more cylindrical than globose and dry dark grey or blackish where the red-brown tomentum has been lost. Under magnification the surface is dark grey, slightly shiny and irregularly bumpy, reminiscent of worn tarmac. The regular warts of the Malayan material are not present. There is little difference in the flower form between the Malayan and Bornean specimens, but, beside carpel number, there is little variation in flower form among the species of *Monocarpia* in general. The only consistent difference that I have noted is that in *Monocarpia kalimantanensis* there is a longitudinal line of tiny wart-like protuberances generally seen most clearly on the abaxial surface of outer petals. In the Malayan material the petals are smooth.

The next problem is the much more limited material from Sumatra. Flowering specimens are in particularly short supply. In general the specimens appear closer to the Malayan than the Bornean form – notably a mature fruit specimen from Bangka (*Kostermans* & *Anta* 1065) is in close agreement with the brown warty monocarps of the Malay Peninsula. The Sumatran specimens do not bridge the morphological gap between the Malay Peninsula and Borneo.

I conclude that there are two species represented in the specimens with three carpels and stony-walled monocarps. There is the brown round-fruited species from the Malay Peninsula and Sumatra and the black cylindrical-fruited species from Borneo (*Monocarpia kalimantanensis*). The oldest name available for the former is *Cyathocalyx maingayi*. I therefore make the transfer of this species to *Monocarpia* below. The differences among the species are summarised in the key to the species provided below.

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While *Monocarpia marginalis* was nomenclaturally superfluous as a new combination in Sinclair's publication, it was not illegitimate (ICBN Art. 52.3 (McNeill *et al.*, 2006)) as it is based on the legitimate name *Cyathocalyx marginalis*. These names are considered by me to be synonyms of *Monocarpia maingayi*.

Key to Monocarpia *species*

1a. Young twigs glabrous, carpels 3, pericarp leathery to stony _____ 2
1b. Young twigs pubescent, carpels 1–3, pericarp muricate or fleshy _____ 3

2a. Outer petals with longitudinal line of tiny warts abaxially, monocarps cylindrical or ellipsoidal, surface beneath tomentum drying blackish or dark grey and minutely irregularly bumpy _____ **M. kalimantanensis**
2b. Outer petals smooth abaxially, monocarps globose, surface beneath tomentum drying brown with minute flat-topped warts _____ **M. maingayi**

3a. Carpels 3, monocarps muricate _____ **M. borneensis**
3b. Carpel 1, monocarps not muricate _____ **M. euneura**

THE SPECIES OF *MONOCARPIA*

Monocarpia borneensis Mols & Kessler, Bot. Jahrb. Syst. 122: 235 (2000). – Type: Borneo, Brunei, Labi Hills, Sungai Mendaram, 27 ix 1957, *P.S. Ashton* & *T.C. Whitmore* BRUN 660 (holo L (barcode no. L 0048235); iso K, L, SAR, SING).

Monocarpia euneura Miq., Ann. Mus. Bot. Lugd.-Bat. 2: 12 (1865). – Type: Borneo [Mt Sakoembang], *P.W. Korthals* s.n. (lecto L (barcode no. L 0048220), designated by Mols & Kessler (2000); iso BO, K, L[×2]).

Monocarpia kalimantanensis Kessler, Rheedea 3: 73 (1993). – Type: Borneo, Kalimantan, East Kalimantan, Wanariset Research Area, km 5 Samboja–Semoi Road, 13 ii 1991, *Ambriansyah* & *Arifin* W670 (holo L (barcode no. L 0048402); iso BO, WAN).

Monocarpia maingayi (Hook.f. & Thomson) I.M.Turner, **comb. nov.**
Cyathocalyx maingayi Hook.f. & Thomson, Fl. Brit. India 1: 53 (1872). – Type: Malay Peninsula, Malacca, 26 vii 1867, *A.C. Maingay* 1344A [Kew Distribution no. 94] (lecto K [mounted on two sheets] (barcode nos. K000691263 and K000691264), designated here). [Note Kew Distribution no. 94 also includes *A.C. Maingay* 1344 – a separate gathering.]
Cyathocalyx marginalis Scheff., Ann. Jard. Bot. Buitenzorg 2: 6 (1885). – *Monocarpia marginalis* (Scheff.) J.Sinclair, Gard. Bull. Singapore 14: 273 (1955). – Type: Sumatra, Bangka prope Sg Liar, Bukit Itam, *J.E. Teijsmann* s.n. [Herb. Bogor no.

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17662] (lecto BO (sheet no. BO-76669), designated by Sinclair (1955); iso L (barcode no. L 0048000)).

Excluded species

Monocarpia blancoi Fern.-Vill., Nov. App. 6: 1880, nom. superfl. pro *Macanea arborea* Blanco, Fl. Filip. 431 (1837). – *Alphonsea arborea* (Blanco) Merr., Philipp. J. Sci. C 10: 233 (1915). – Type: Philippines, Luzon, Laguna Province, Mount Maquiling, iii 1915, *Species Blancoanae* no. 838 (neo L, designated by Kessler (1988); iso A, BM, GH, K, NY, P, US[×2]). = **Platymitra arborea** (Blanco) Kessler, Blumea 33: 473 (1988).

Monocarpia siamensis Craib, Bull. Misc. Inform. Kew 1924: 81 (1924). – *Dasoclema siamensis* (Craib) J.Sinclair, Gard. Bull. Singapore 14: 273 (1955). – Type: Thailand, Nakawn Sawan, Kampêng Pêt, Mê Lamung, c.600 m on limestone rocks, 8 vi 1922, *A.F.G. Kerr* 6087 (holo K [mounted on two sheets] (barcode nos. K000691506 and K000691507); iso ABD, BK, BM, E). = **Uvaria dasoclema** L.L.Zhou *et al.*, Bot. J. Linn. Soc. 163: 37 (2010).

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