

Notes on the Annonaceae of the Malay Peninsula

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ABSTRACT. Notes concerning the three genera *Alphonsea* Hook.f. & Thomson, *Artabotrys* R.Br. ex Kew Gawl. and *Stelechocarpus* Hook.f. & Thomson (Annonaceae) for the Malay Peninsula are presented. *Alphonsea kingii* J.Sinclair is accepted as an endemic species and a second-stage lectotypification is presented for *Alphonsea cylindrica* King. Seven species of *Artabotrys* are lectotypified. The recently described genus *Winitia* Chaowasku is reduced to *Stelechocarpus* and a new combination is made for *Winitia expansa* Chaowasku.

Keywords. *Alphonsea*, *Artabotrys*, new combination, *Stelechocarpus*, typification, *Winitia*

Alphonsea

Alphonsea kingii

Sinclair (1955) described *Alphonsea kingii* J.Sinclair as a new species in his account of the Annonaceae of the Malay Peninsula. It had earlier been confused with a species of *Xylophia* L. by King (1892, 1893). Kessler (1995), in revising the genus *Alphonsea* Hook.f. & Thomson, excluded *A. kingii*, suggesting that it belonged in *Mitrephora* Hook.f. & Thomson. Kessler did not report seeing any specimens; his decision was apparently based on King's plate (King 1893: t. 189A). In studying the genus in Peninsular Malaysia it became necessary to reconsider *Alphonsea kingii*. I was kindly sent photographs of the type material from the Central National Herbarium of the Botanical Survey of India (CAL). The second specimen cited by Sinclair (1955), a Scortechini collection from Perak, could not be located in SING (D.J. Middleton pers. comm.). However among material on loan from the herbarium of the Forest Research Institute of Malaysia (KEP), I found another specimen of the species, which had previously been determined as *Alphonsea elliptica* Hook.f. & Thomson. Study of the images and specimen gave no indication that Sinclair was wrong in his assignment of the species to *Alphonsea*. Flowers are still unknown, but in vegetative and fruit characters the specimens are congruent with *Alphonsea*, with leaves similar to those of *A. malayana* P.J.A.Kessler, *A. johorensis* J.Sinclair and *A. elliptica*. Notable features of the species include the rather dense reticulations of the lamina venation, and particularly the verrucose fruits that dry blackish. It seems to be a species of limestone outcrops – a habitat affinity not previously reported in Malayan *Alphonsea*. I conclude that *Alphonsea kingii* is a good species that should be listed in the Annonaceae flora of Peninsular Malaysia.

Alphonsea kingii J.Sinclair, Gard. Bull. Singapore 14: 386 (1955). – TYPE: Peninsular Malaysia, Perak, Kinta, top of limestone hills near G.M. [possibly Gunung Mesua, R. Kiew pers. comm.], January 1885, *King's Collector* [Kunstler, H.H.] 7097 (lectotype CAL [CAL0000025047], designated here; isolectotypes CAL [CAL000025046], DD, K (reported by Sinclair (1955: 386) but not seen lately)).

Additional specimen studied. PENINSULAR MALAYSIA: **Pahang:** Raub, Bukit Serdam, 20 Jun 1971, *Chin, S.C. 1073* (KEP [138213]).

A second-stage lectotypification

Kessler (1995: 88) reported the holotype of *Alphonsea cylindrica* King to be located in the Central Herbarium of the Botanical Survey of India (CAL), without seeing the specimen. As there are duplicates of this collection in other herbaria, Kessler (1995) effectively lectotypified the name to this specimen. However, enquiries addressed to the Botanical Survey of India were very kindly answered and I was informed that there were two specimens under the type number in CAL. Therefore, here I propose a second-stage typification to restrict Kessler's choice of lectotype to the better of the two sheets in CAL.

Alphonsea cylindrica King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61(2): 127 (1892). – TYPE: Peninsular Malaysia, Perak, Ulu Bubong, July 1886, *King's Collector* [Kunstler, H.H.] 10633 (lectotype CAL [CAL0000004699], designated by Kessler (1995) at the first stage and here at the second stage; isolectotypes A, BM [×2 mounted on same sheet], BO, CAL [CAL0000004700], DD, G, K [K000574904], L, WU).

Artabotrys

A number of names among *Artabotrys* species from Peninsular Malaysia require lectotypification. These are dealt with here.

Artabotrys crassifolius Hook.f. & Thomson, Fl. Brit. Ind. 1: 54 (1872). – TYPE: Peninsular Malaysia, Malacca, *Griffith, W. s.n.* [HEIC (Herbarium of the East India Company) no. 426] (lectotype K, designated here).

Remaining syntype. Burma, Martaban, *Brandis, D.* (n.v.).

Artabotrys lowianus Scort. ex King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61(2): 34 (1892). – TYPE: Peninsular Malaysia, Perak, *Scortechini, B. 2012* (lectotype K [K000381019], designated here; isolectotypes BM [BM000898096], CAL [CAL0000004298, CAL0000004297, CAL0000004299], SING [SING0096241]).

Artabotrys oblongus King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61(2): 33 (1892). – TYPE: Peninsular Malaysia, Perak, Larut, August 1884, *King's Collector* [Kunstler, H.H.] 6524 (lectotype K [K000381015], designated here; isolectotypes BM [BM000898111], CAL [CAL0000004314, CAL0000004313]).

Artabotrys oxycarpus King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61(2): 34 (1892). – TYPE: Peninsular Malaysia, Perak, November 1883, *King's Collector 5150* (lectotype K [K000381016], designated here; isolectotypes BM [BM000898086], CAL, DD).

Remaining syntypes. Peninsular Malaysia, Larut, February 1884, *King's Collector 5605* (BM [BM000898087], CAL, K [K000381017]); s. loc., *Wray, L. 328b* (CAL, K [K000381018], SING [SING00096242]).

Artabotrys pleurocarpus Maingay ex Hook.f. & Thomson, Fl. Brit. India 1: 54 (1872). – TYPE: Peninsular Malaysia, Malacca, 6 February 1868, *Maingay, A.C. 3261* [Kew distrib. no. 34] (lectotype K [K000381010], designated here explicitly excluding material in attached packet which represents another gathering).

Remaining syntypes. Peninsular Malaysia, Malacca, 14 April 1868, *Maingay, A.C. 3261A* [Kew distrib. no. 34] (K [K000381009]).

Artabotrys scortechinii King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61(2): 32 (1892). – TYPE: Peninsular Malaysia, Perak, *Scortechini, B. s.n.* (lectotype K [K000381008], designated here).

Remaining syntypes. Peninsular Malaysia, Perak, *Scortechini, B. 488* (BM [BM000898101], CAL [CAL0000004270, CAL0000004271, CAL0000004278], SING [SING0096243]).

Artabotrys wrayi King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61(2): 37 (1892). – TYPE: Peninsular Malaysia, Perak, Larut, November 1882, *King's Collector 3615* (lectotype K [K000381023], designated here; isolectotypes BM, CAL).

Remaining syntypes. Peninsular Malaysia, Perak, *Wray, L. 4006* (SING [SING0096239]); *ibidem, Wray, L. 2663* (SING [SING0096240]).

Stelechocarpus/Winitia

In a recent analysis of the genera *Stelechocarpus* Hook.f. & Thomson and *Sageraea* Dalzell based on morphological and molecular data, Chaowasku & Van der Ham (2013¹) demonstrated the presence of three groups. These corresponded to two strongly supported clades; one consisting of the *Sageraea* species sampled, and the other to *Stelechocarpus cauliflorus* (Scheff.) R.E.Fr. plus another species. *Stelechocarpus burahol* (Blume) Hook.f. & Thomson, the type species of *Stelechocarpus*, formed the third, less strongly supported clade as sister to the *S. cauliflorus* clade. As Chaowasku & Van der Ham noted, there were three taxonomic options for reflecting this phylogenetic relationship. Firstly all the species could be included in an enlarged *Sageraea*, secondly the status quo could be maintained (i.e. the two genera *Sageraea* and *Stelechocarpus*),

¹ A corrigendum published later (Syst. Biodivers. 11(4): 537 (2013)) added L.W. Chatrou to the list of authors of the paper, but to avoid confusion the paper is referred to as first published.

or finally the three main clades could be given generic rank. Chaowasku & Van der Ham favoured the last option and described the genus *Winitia* Chaowasku to include *Winitia cauliflora* (Scheff.) Chaowasku transferred from *Stelechocarpus* and the new species from Peninsular Thailand, *Winitia expansa*. This leaves *Stelechocarpus burahol* on its own in *Stelechocarpus*.

I do not have any criticisms to make of the phylogenetic analysis but I do think the recognition of *Winitia* is a backward step for taxonomy. As a family, the Annonaceae can be characterised by its large number of genera. Some 109 are currently recognised, with 42 in the Asia-Pacific region alone (Couvreur et al., 2012). This is problematic for non-specialists. Increasing the number of recognised genera is not helpful and single-species genera (such as *Stelechocarpus sensu* Chaowasku & Van der Ham) have low information content. It seems to me that maintaining the status quo in terms of genera is a better option than splitting *Stelechocarpus*. The phylogenetic relationship could be recognised by infrageneric taxa. The added advantage of this arrangement is that *Stelechocarpus* is easy to recognise – for instance, the raised midrib on the upper surface of the leaves is a reliable vegetative character (Sinclair, 1955; Van Heusden, 1995) with few confusable taxa. *Stelechocarpus s.s.* and *Winitia* can be separated on various characters, including flower colour, relative size and spatial distribution of male and female flowers, stamen number, stigma form and pollen morphology (Chaowasku & Van der Ham, 2013), but this ignores the similarities including the raised midrib, monoecy, convex male torus and general gestalt. The recognition of *Winitia*, therefore, represents the splitting of a well-defined and distinctive genus into two less easily distinguished entities. The two *Stelechocarpus* clades could readily be considered as infrageneric taxa, perhaps subgenera, but I refrain from doing so here.

In order to allow the maintenance of *Stelechocarpus* in its broader sense, I make a new combination for *Winitia expansa* in *Stelechocarpus*.

Stelechocarpus expansus (Chaowasku) I.M. Turner, **comb. nov.** – *Winitia expansa* Chaowasku in Chaowasku & Van der Ham, Syst. Biodivers. 11: 203 (2013).

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References

- Chaowasku, T. & Van der Ham, R.W.J.M. (2013). Integrative systematics supports the establishment of *Winitia*, a new genus of Annonaceae (Malmeoideae, Miliuseae) allied to *Stelechocarpus* and *Sageraea*. Syst. Biodivers. 11(2): 195–207.
- Couvreur, T.L.P., Maas, P.J.M., Meinke, S., Johnson, D.M. & Kessler, P.J.A. (2012). Keys to the genera of Annonaceae. Bot. J. Linn. Soc. 169: 74–83.
- Kessler, P.J.A. (1995). Studies on the tribe Saccopetaleae (Annonaceae), IV. Revision of the genus *Alphonsea* Hook.f. & Thomson. Bot. Jahrb. Syst. 118: 81–112.

- King, G. (1892). Materials for a flora of the Malayan Peninsula, no. 4. *J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist.* 61: 1–130.
- King, G. (1893). The Annonaceae of British India. *Ann. Roy. Bot. Gard. Calcutta* 4: 1–169.
- Sinclair, J. (1955). A revision of the Malayan Annonaceae. *Gard. Bull. Singapore* 14: 149–516.
- Van Heusden, E.C.H. (1995). Revision of the Southeast Asian genus *Stelechocarpus* (Annonaceae). *Blumea* 40: 429–438.

