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Flora of Singapore precursors, 30: Notes on Symplocaceae in Singapore

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ABSTRACT. The native Symplocaceae of Singapore (eight *Symplocos* species) are listed with synonymy and typification. A total of 30 lectotypifications are made, including six at the second step.

Keywords. *Cordyloblaste*, lectotype, *Symplocos*

Introduction

The Symplocaceae are a family of mostly small to medium-sized trees. There are about 400 species (WCVP, 2021), typically found in the mesic forests of tropical to warm-temperate regions in Asia-Pacific and the Americas, but the family is absent as extant species from Europe and Africa.

The Symplocaceae are placed in the Ericales. Their close relationship with the Styracaceae has long been recognised, and they are now considered to form a monophyletic group of three families along with the Diapensiaceae (Geuten et al., 2004). The Theaceae *sensu stricto* are probably the next closest family.

There are eight native species in Singapore. Characters that can help in identifying Symplocaceae species in Singapore are alternate, simple, stipule-less leaves, that often have serrate or crenulate margins, and dry yellow or green, small white flowers with inferior ovaries and blue fruits. The yellow dry leaves and blue fruits are states often associated with aluminium accumulation in the tissues (Chenery, 1948), and Symplocaceae are notable as aluminium hyperaccumulators (Jansen et al., 2002).

In preparing an account of the Symplocaceae for the Flora of Singapore, the revisions by Nooteboom (1975, 1977) covering much of the Asia-Pacific region have largely been followed. Nooteboom's broad species concepts, often with multiple infraspecific taxa for the wide-ranging species, have not always been accepted by later authors working within more limited geographic ranges (Nagamasu, 1993; Jessup, 2011; Liu & Qin, 2013), who have favoured more narrowly circumscribed species. Nooteboom also left open some typifications.

The purpose of this paper is to provide a nomenclatural synopsis of the family in Singapore and to justify the taxonomic decisions made in finalising the account.

Materials and methods

Nooteboom (1975) provided a very thorough account of the synonymy and typification of Asian *Symplocos* species. This was used as the basis for the citation of names and syntypes here. Citations were checked against the respective protologues and online sources such as IPNI and POWO. For types, in most cases it proved possible to confirm the existence of specimens either directly from material in BM, K or on loan from SING, or from online resources such as JSTOR Global Plants or the websites of various herbaria. These sources allowed for the citation of specimen barcode or accession numbers. Some herbaria cited by Nooteboom, which are not available online and therefore could not be checked by me, are still included here. When an effective typification has been made to such a specimen '[n.v.]' is added after the citation. In cases where no extant duplicate of the type gathering has been located or reported previously, '(not traced)' is inserted. For nearly all the lectotypifications presented here, the choice of lectotype was from among the set of two or more extant duplicates located. Rather than making repeated statements along the same lines throughout the paper, it is more efficient to state here that the specimen selected as lectotype was of relatively good quality. Additional information, such as original field notes or sketches, also influenced the choice, as did the availability of online images. Finally, if a specimen has already been labelled directly or online as the 'holotype' or 'lectotype', this was generally selected in order to maintain continuity and avoid confusion, particularly if no other syntype was treated in the same way.

Nomenclatural synopsis

Symplocos Jacq., Enum. Syst. Pl. 5, 24 (1760). – TYPE: *Symplocos martinicensis* Jacq.

Cofer Loefl., Iter Hispan. 309 (1758), nom. rejic. – *Eugeniodes* Kuntze, Revis. Gen. Pl. 2: 409, 975 (1891), nom. illeg. superfl. – TYPE: non designatus.

Hopea L., Mant. 105 (1767), nom. rejic. – *Symplocos* sect. *Hopea* (L.) A.DC., Prodr. 8: 246 (1844). – *Protohopea* Miers, J. Linn. Soc. Bot. 17: 289 (1879), nom. illeg. superfl. – *Symplocos* subgen. *Hopea* (L.) C.B.Clarke, Fl. Brit. India 3: 572 (1882). – TYPE: *Hopea tinctoria* L. (= *Symplocos tinctoria* (L.) L'Hér.).

Bobu Adans., Fam. Pl. 2: 88, 526 (1763). – *Bobua* DC., Prodr. 3: 23 (1828), nom. illeg. superfl. – *Symplocos* sect. *Bobua* Brand, Pflanzenr. IV, 242: 25, 32 (1901). –

TYPE: *Bobu laurina* (Retz.) DC. (= *Symplocos acuminata* (Blume) Miq.) (lectotype designated by Nooteboom, Leiden Bot. Ser. 1: 33 (1975)).

Ciponima Aubl., Hist. Pl. Guin. Fr. 567, t. 226 (1775). – TYPE: *Ciponima guianensis* Aubl. (= *Symplocos guianensis* (Aubl.) Gürke).

Alstonia Mutis ex L.f., Suppl. 39 (1781), nom. illeg. non *Alstonia* Scop. (1777), nom. rejic. – *Symplocos* sect. *Alstonia* G.Don, Gen. Syst. 4: 1 (1837). – *Praealstonia* Miers, J. Linn. Soc. Bot. 17: 291 (1879). – TYPE: *Alstonia theiformis* L.f. (= *Symplocos theiformis* (L.f.) Oken).

Decadia Lour., Fl. Cochinch. 1: 315 (1790). – TYPE: *Decadia aluminosa* Lour. (= *Symplocos cochinchinensis* (Lour.) S.Moore).

Dicalix Lour., Fl. Cochinch. 1: 663 (1790). – TYPE: *Dicalix cochinchinensis* Lour. (= *Symplocos cochinchinensis* (Lour.) S.Moore).

Drupatris Lour., Fl. Cochinch. 1: 314 (1790). – TYPE: *Drupatris cochinchinensis* Lour. (= *Symplocos cochinchinensis* (Lour.) S.Moore).

Barberina Vell., Fl. Flumin. 235 (1825). – *Symplocos* sect. *Barberina* (Vell.) A.DC., Prodr. 8: 253 (1844). – *Symplocos* subsect. *Barberina* (Vell.) Benth. & Hook., Gen. Pl. 2: 668 (1876). – TYPE: *Barberina hirsuta* Vell., nom. rejic. (= *Symplocos arbutifolia* Casar.).

Epigenia Vell., Fl. Flumin. 183 (1825). – *Symplocos* subgen. *Epigenia* (Vell.) Brand, Pflanzenr. IV, 242: 25, 26 (1901). – TYPE: *Epigenia crenata* Vell. (= *Symplocos crenata* (Vell.) Mattos) (lectotype designated by Fritsch et al., Taxon 57: 843 (2008)).

Mongezia Vell., Fl. Flumin. 229 (1825). – TYPE: *Mongezia pilosa* Vell. (= *Symplocos pubescens* Klotzsch ex Benth.).

Sariava Reinw., Syll. Ratisb. 2: 12 (1825). – TYPE: non designatus.

Stemmatosiphum Pohl, Pl. Bras. Ic. 2: 86, t. 157–159 (1831). – TYPE: *Stemmatosiphum platyphyllum* Pohl (= *Symplocos platyphylla* (Pohl) Benth.) (lectotype designated by Fritsch et al., Taxon 57: 846 (2008)).

Symplocos sect. *Lodhra* G.Don, Gen. Hist. 4: 2 (1837). – *Lodhra* (G.Don) Guill., Ann. Sci. Nat., sér. II, 15: 158 (1841). – *Symplocos* subsect. *Lodhra* (G.Don) Benth. & Hook.f., Gen. Pl. 2: 668 (1876). – TYPE: *Symplocos racemosa* Roxb. (lectotype designated by Nooteboom, Leiden Bot. Ser. 1: 34 (1975)).

Symplocos sect. *Palura* G.Don, Gen. Syst. 4: 3 (1837). – *Symplocos* subsect. *Palura* (G.Don) Benth. & Hook.f., Gen. Pl. 2: 668 (1876). – *Palura* (G.Don) Miers, J. Linn. Soc. Bot. 17: 297 (1879). – *Symplocos* subgen. *Palura* (G.Don) P.W.Fritsch, Taxon 57: 842 (2008). – TYPE: *Symplocos crataegoides* Buch.-Ham. ex D.Don (= *Symplocos paniculata* (Thunb.) Miq.) (lectotype designated by Pfeiffer, Nomencl. Bot. 2(1): 575 (1874)).

Cordyloblaste Hensch. ex Moritzi, Bot. Zeit. 6: 606 (1848). – *Symplocos* sect. *Cordyloblaste* (Hensch. ex Moritzi) Benth. & Hook.f., Gen. Pl. 2: 669 (1876). – *Symplocos* subgen. *Cordyloblaste* (Hensch. ex Moritzi) Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74: 248 (1906). – TYPE: *Cordyloblaste henschelii* Moritzi (= *Symplocos henschelii* (Moritzi) Benth. ex C.B.Clarke).

Carlea C.Presl, Epim. Bot. 216 (1851). – TYPE: *Carlea oblongifolia* C.Presl (= *Symplocos polyandra* (Blanco) Brand).

Baranda Llanos, Mem. Acad. Cienz. Madr. 3, 2: 502 (1857). – TYPE: *Baranda angatensis* Llanos (= *Symplocos polyandra* (Blanco) Brand).

Hypopogon Turcz., Bull. Soc. Imp. Nat. Mosc. 3, 1: 246 (1858). – TYPE: *Hypopogon brevipes* Turcz. (= *Symplocos coccinea* Humb. & Bonpl.) (lectotype designated by Nagamasu, Contr. Biol. Lab. Kyoto Univ. 28: 188 (1993)).

Chasseloupia Vieill., Bull. Soc. Linn. Norm. 10: 101 (1866). – TYPE: *Chasseloupia lucida* Vieill. (= *Symplocos flavescens* Brand) (lectotype designated by Nooteboom, Blumea 26: 411 (1980)).

Suringaria Pierre, Bull. Soc. Linn. Paris 1: 635 (1866). – TYPE: *Suringaria cambodiana* Pierre (= *Symplocos cambodiana* (Pierre) Hallier f.).

Notes. The latest classification of the Symplocaceae (Fritsch et al., 2008) recognises two genera, *Symplocos* and *Cordyloblaste* Hensch. ex Moritzi. *Cordyloblaste* contains two quite distinctive Asian species, represented in Singapore by *Symplocos henschelii*. Phylogenetic analysis found that *Cordyloblaste* represented a clade sister to all the rest of the family. Ridley (1923) recognised *Cordyloblaste*, but all major works on Asian Symplocaceae since have maintained a broad *Symplocos*. Given that *Cordyloblaste* in Singapore is known from just one 19th Century collection, it seems simpler to maintain the broad view of *Symplocos* for this account.

Fritsch et al. (2008) proposed an infrageneric classification for *Symplocos* of two subgenera (subgen. *Symplocos* and subgen. *Palura* (G.Don) P.W.Fritsch) with *Symplocos* subgen. *Symplocos* divided into three sections (sect. *Symplocos*, sect. *Barberina* (Vell.) A.DC. and sect. *Lodhra* G.Don). As I am not recognising *Cordyloblaste* as a separate genus here, I would add *Symplocos* subgen. *Cordyloblaste* (Hensch. ex Moritzi) Gamble to this system. The Singapore taxa are therefore split

between *Symplocos* subgen. *Cordyloblaste* (*Symplocos henschelii* var. *maingayi*) and *Symplocos* sect. *Lodhra* (the other seven species) in *Symplocos* subgen. *Symplocos*.

1. *Symplocos adenophylla* Wall. ex G.Don, Gen. Hist. 4: 3 (1837). – *Eugeniodes adenophylla* (Wall. ex G.Don) Kuntze, Revis. Gen. Pl. 2: 410 (1891). – TYPE: [Peninsular Malaysia], Penang, August 1822, *Wallich s.n.* [EIC 4427A] (lectotype K-W [K001038975], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotypes BM [BM000997522], CGE, E [E00273820, E00273825], FI [FI015455], G [G00359000, G00359001], GH [GH00078186], K [K000740451], L [L0005431], LE [LE00016020], M [M0152581], MEL, NY, P [P00650545], S [S09-34237], W).

Symplocos bancana Miq., Fl. Ned. Ind., Eerste Bijv. 187 (1861). – TYPE: [Indonesia, Sumatra], Banka, *Horsfield 39* (lectotype U [n.v.], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotypes CGE, K [K000740533, K000740534]).

Symplocos iteophylla Miq., Fl. Ned. Ind., Eerste Bijv. 187 (1861). – TYPE: [Indonesia, Sumatra], Bangka, Muntok, *Teysmann s.n.* (lectotype L [L.2668349], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotypes BO, LE, ME).

Symplocos iteophylla Miq. var. *rostrata* Miq., Fl. Ned. Ind., Eerste Bijv. 187 (1861). – TYPE: [Indonesia], Sumatra, Sibolga, *Teijsmann s.n.* (lectotype LE [LE00016123], designated here; possible isolectotypes GH [GH00078247], K [K000740531], MEL [MEL46684]).

Symplocos iteophylla Miq. var. *elliptica* Miq., Fl. Ned. Ind., Eerste Bijv. 187 (1861). – TYPE: [Indonesia], Sumatra, Pajakumbuh, *Teijsmann s.n.* (lectotype BO [n.v.], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975)).

Symplocos fulvosa King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74: 233 (1905). – TYPE: [Peninsular Malaysia], Perak, *Scortechini 567b* (lectotype K [K000740445], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotype BO).

Symplocos adenophylla Wall. ex G.Don var. *virgata* Wall. ex Brand., Pflanzenr. IV, 242: 48 (1901). – TYPE: Singapore, October 1822, *Wallich s.n.* [EIC 4427B] (lectotype K-W [K001038976], designated here; isolectotypes BM [BM000997523], E [E00273827], G [G00359002], GZU [GZU000251729], K [K000740447, K000740449], MEL, NY [NY00297072], P [P00650546], W [W0074741]).

Symplocos beccarii Brand, Pflanzenr. IV, 242: 49 (1901). – TYPE: [Indonesia], Sumatra, Padang Uplands, June–July 1978, *Beccari P.S. 147* (lectotype K [K000740530], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotypes A [A00078181], BM [BM000997524], L [L0005432], MEL [MEL46722]).

Symplocos constricta Brand, Pflanzenr. IV, 242: 41 (1901). – TYPE: [Malaysia], North Borneo [Sabah], East Coast, *Creagh s.n.* (holotype K [K000740529]).

Symplocos adenophylla Wall. ex G.Don var. *atrata* Brand, Bull. Herb. Boiss., sér. II, 6: 748 (1906). – TYPE: Singapore, *King's Collector 1269* (holotype CAL [CAL0000033884]; isotype CGE).

Symplocos adenophylla Wall. ex G.Don var. *merrittii* Brand, Philipp. J. Sci., C 3: 7 (1908). – TYPE: Philippines, Mindoro, Mt Halcon, November 1908, *Merrill 5752* (lectotype US [US00112594], designated here; isolectotype NY [NY00297098]).

Symplocos palawanensis Brand, Philipp. J. Sci., C 3: 10 (1908). – TYPE: Philippines, Palawan, February 1906, *Curran F.B. 3870* (lectotype K [K000951739], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotype A [A00078466]).

Symplocos pruniflora Ridl., J. Fed. Malay States Mus. 4: 46 (1909). – TYPE: [Peninsular Malaysia], Pahang, Telom, November 1908, *Ridley 13685* (lectotype K [K000740444], designated here; isolectotypes BM [BM000997520], SING [SING0054406]).

Symplocos brandii Elmer, Leafl. Philipp. Bot. 4: 1477 (1912). – TYPE: Philippines, Sibuyan Island, Capiz Province, Mt Giting-Giting, April 1910, *Elmer 12304* (lectotype NY [NY00297107], designated here; isolectotypes BISH [BISH1005118], BM [BM000997521], BO, CAS [CAS0005547], E [E00273817], G [G00358932], GH [GH00078436], HBG [HBG510812], K [K000951738], L [L0005433], LE [LE00016032], MO [MO-391933], U [U.1746581], US [US00112610], W [1913-0005960], WRSL).

Symplocos pahangensis Brand, Repert. Spec. Nov. Regni Veg. 14: 326 (1916). – TYPE: [Peninsular Malaysia], Pahang, Telom, November 1908, *Ridley 13685* (lectotype SING [SING0054406], designated here; isolectotypes BM [BM000997520], K [K000740444]).

Symplocos maclurei Merr., Philipp. J. Sci. 23: 260 (1923). – TYPE: China, Hainan, Five Finger Mts, 6 May 1922, *McClure CCC 9461* (lectotype A [A00091814], designated here; isolectotypes A [A00091815, A00091816], BISH [BISH1005126], BM [BM000997470], CAS [CAS0005425, CAS0033679], HK, K [K000704949], MO [MO-391924], P [P00648250], W [1939-0011716]).

Symplocos adenophylla Wall. ex G.Don var. *montana* Ridl., Fl. Malay Penins. 2: 303 (1923). – TYPE: [Peninsular Malaysia], Pahang, Gunong Tahan, 29 May 1905, *Robinson 5320* (lectotype BM, designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975)).

Symplocos clemensiorum Guillaumin, Bull. Soc. Bot. France 79: 170 (1932). – TYPE: [Vietnam], Annam, Mt Bana, près de Tourane, June 1927, *Clemens & Clemens 3789* (lectotype P [P04519810], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotypes A [A00077936], K [K000740496], NY [NY00297078], UC, US [US00112617], W [1928-0006738]).

Symplocos punctomarginata A.Chev. ex Guillaumin, Bull. Soc. Bot. France 79: 174 (1932). – *Dicalix punctomarginatus* (A.Chev. ex Guillaumin) H.Migo, Bull. Shanghai Sci. Inst. 13: 204 (1943). – TYPE: [Vietnam], Annam, Prov. Quang Tri, massif de Dông Tri, 16 June 1924, *Poilane 10998* (lectotype P [P00648252], first step designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975), second step designated here; isolectotypes A [A00078114], P [P00648253], SING [SING0054407, SING0054408], US [US00113708]).

Symplocos stewardii Sleumer, Repert. Spec. Nov. Regni Veg. 42: 266 (1937). – TYPE: China, Kwangsi, Yung Hsien, Ta Tseh Tsuen, 25 August 1933, *Steward & Cheo 865* (lectotype A [A00077292], designated by Nooteboom, Leiden Bot. Ser. 1: 122 (1975); isolectotypes BM [BM000997471], BO, NY [NY00297070], P [P00648251], S [S09-34241], W [1940-0008399]).

2. *Symplocos barringtoniifolia* Brand, Ann. Cons. Jard. Bot. Genève 7–8: 283 (1904). – *Doxomma rigidum* Miers, Trans. Linn. Soc., ser. II, Bot. 1: 104 (1875). – *Barringtonia rigida* (Miers) C.B.Clarke, Fl. Brit. India 2: 510 (1879). – *Symplocos rigida* (Miers) C.B.Clarke, Fl. Brit. India 3: 581 (1882), nom. illeg. non *S. rigida* G.Don (1837). – *Eugeniodes rigida* (Miers) Kuntze, Revis. Gen. Pl. 2: 976 (1891). – *Symplocos malaccensis* Bennet, Indian J. Forest. 1: 22 (1978), nom. illeg. superfl. – TYPE: [Peninsular Malaysia], Malacca, 1867–1868, *Maingay 2495* [Kew distribution no. 767] (lectotype K [K000740440], designated by Nooteboom, Leiden Bot. Ser. 1: 131 (1975)).

3. *Symplocos celastrifolia* Griff. ex C.B.Clarke, Fl. Brit. India 3: 575 (1882). – *Eugeniodes celastrifolia* (Griff. ex C.B.Clarke) Kuntze, Revis. Gen. Pl. 2: 975 (1891). – TYPE: [Peninsular Malaysia], Malacca, *Griffith s.n.* [HEIC 3651] (lectotype K [K000740438], designated by Nooteboom, Leiden Bot. Ser. 1: 138 (1975)).

Symplocos nigricans Brand, Pflanzenr. IV, 242: 49 (1901). – TYPE: [Malaysia], Sarawak, Muka, April 1893, *Haviland & Hose 509* (holotype W [1897-0000402]; isotypes BM [BM000997517, BM000997518], BO, CGE, GH [GH00078242], K [K000740523], P [P00650547]).

Symplocos candicans Brand, Pflanzenr. IV, 242: 49 (1901). – TYPE: [Malaysia], Sarawak, Mattang, *Beccari P.B. 3632* (lectotype W [W0074740], designated here; isolectotypes FI [FI013011], G [G00358943], K [K000740524], P [P00650548]).

Symplocos hutchinsonii Brand, Philipp. J. Sci. 4: 109 (1909). – TYPE: Philippines, Mindanao, [Zamboanga], March 1907, *Hutchinson F.B. 6551* (lectotype NY [NY00297119], designated here; isolectotypes K [K000951737], US [US00112664]).

Symplocos peninsularis Brand, Philip. J. Sci. 4: 110 (1909). – TYPE: Philippines, Mindanao, Zamboanga, *Whitford & Hutchinson F.B. 9188* (not traced).

4. *Symplocos fasciculata* Zoll., Syst. Verz. Ind. Archip. 2: 136 (1854). – *Dicalix tinctorius* Blume, Bijdr. Fl. Ned. Ind. (17): 1116 (1827). – *Eugeniodes fasciculata* (Zoll.) Kuntze, Revis. Gen. Pl. 2: 409 (1891), nom. illeg. superfl. – TYPE: [Indonesia], Java, *Blume 2154/B* (lectotype L [L0005704], first step designated by Nooteboom, Leiden Bot. Ser. 1: 192 (1975), second step designated here; isolectotype L [L0005703]).

Symplocos fasciculata Zoll. var. *minor* Miq., Fl. Ned. Ind., Eerste Bijv. 3: 475 (1861). – TYPE: [Indonesia, Sumatra], Banka, *Horsfield 38* (lectotype BM [n.v.], designated by Nooteboom, Leiden Bot. Ser. 1: 192 (1975); isolectotypes K [K000951701, K000951704]).

Symplocos fasciculata Zoll. var. *blumeana* Koord. & Valeton, Meded. Lands Plantentuin 42: 151 (1900). – TYPE: [Indonesia], Java, Lembang, *Blume s.n.* (lectotype L [L0005709], designated by Nooteboom, Leiden Bot. Ser. 1: 192 (1975); isolectotype BO).

Symplocos phanerophlebia Merr., Philipp. J. Sci., C 9: 382 (1914). – TYPE: Philippines, Leyte, *Wenzel 552* (lectotype BM [BM000630035], designated here; isolectotypes G [G00358962], M, S).

5. *Symplocos henschelii* (Moritzi) Benth. ex C.B.Clarke in Hooker, Fl. Brit. India 3: 588 (1882). – *Cordyloblaste henschelii* Moritzi, Bot. Zeit. 6: 606 (1848). – *Eugeniodes henschelii* (Moritzi) Kuntze, Revis. Gen. Pl. 2: 975 (1891). – *Symplocos nagelii* Koord. & Valeton, Meded. Lands Plantentuin 42: 159 (1900), nom. illeg. superfl. – TYPE: [Indonesia], Java, Bandung, *Zollinger 3195* (lectotype P [P04490133], designated here; isolectotypes A [A00078249, A00078250], FI [FI009139], G [G00358966], L[L0005726], P [P00650530, P00650531]).

Notes. The selected lectotype in P came from Herbarium Drake which included Herbarium Franqueville which in turn incorporated Moritizi's personal herbarium.

5.1 *Symplocos henschelii* var. ***maingayi*** (Benth. ex C.B.Clarke) Noot., Leiden Bot Series 1: 39 (1975). – *Symplocos maingayi* Benth. ex C.B.Clarke, Fl. Brit. India 3: 588 (1882). – *Eugeniodes maingayi* (Benth. ex Hook.f.) Kuntze, Revis. Gen. Pl. 2: 975 (1891). – *Cordyloblaste maingayi* (Benth. ex C.B.Clarke) Ridl., Fl. Malay Penins. 2: 309 (1923). – TYPE: [Peninsular Malaysia], *Maingay 1325A* [Kew distribution no. 961] (lectotype K [K000740460], first step designated by Nooteboom, Leiden Bot. Ser. 1: 37 (1975), second step designated here).

Notes. There are two Maingay sheets labelled with the Kew distribution no. 961 in K, that Nooteboom did not distinguish when he referred to this collection as the type of *Symplocos maingayi* Benth ex C.B.Clarke. I therefore make a second-step lectotypification here. It is not certain that these sheets are part of the same gathering, so I do not cite an isolectotype.

6. *Symplocos lucida* Wall. ex G.Don, Gen. Hist. 4: 3 (1837). – TYPE: [Bangladesh], Silhet, *Bruce s.n.* [EIC 4414] (lectotype K-W [K001038944], designated by Nooteboom, Leiden Bot. Ser. 1: 218 (1975); isolectotypes BM [BM000834485], CGE, K [K000009169], LE [LE00016055], M [M0065206]).

Dicalix ciliatus Blume, Bijdr. Fl. Ned. Ind. (17): 1119 (1827). – *Symplocos ciliata* (Blume) Miq., Fl. Ned. Ind. 1(2): 466 (1859), nom. illeg. non *S. ciliata* C.Presl (1835), nec *S. ciliata* (Benth.) Benth. (1841). – TYPE: [Indonesia], Java, Tjeremai, *Blume 1598* (lectotype L [L0005738], designated by Nooteboom, Leiden Bot. Ser. 1: 218 (1975); isolectotype BO).

Symplocos japonica A.DC. var. *crassifolia* Benth., Hooker's J. Bot., Kew Gard. Misc. 4: 303 (1852). – *Symplocos crassifolia* (Benth.) Benth., Fl. Hongk. 212 (1861). – *Lodhra crassifolia* (Benth.) Miers, J. Linn. Soc. Bot. 17: 302 (1879). – *Dicalix crassifolia* (Benth.) Migo, Bull. Shanghai Sci. Inst. 13: 200 (1943). – TYPE: Hong Kong, *Champion 136* (lectotype K [K000009174], first step designated by Nooteboom, Leiden Bot. Ser. 1: 218 (1975), second step designated here, to exclude the piece mounted above cut from a separate sheet; isolectotype K [K000442836]).

Symplocos ridleyi King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74: 239 (1905). – TYPE: Singapore, Kranji, 1893, *Ridley 5684* (lectotype K [K000009170], designated by Nooteboom, Leiden Bot. Ser. 1: 218 (1975); isolectotypes BM [BM000997582], SING [SING0054401]).

Symplocos laeviramulosa Elmer, Leafl. Philipp. Bot. 7: 2323 (1914). – TYPE: Philippines, Mindanao, Province of Agusan, Cabadbaran (Mt Urdaneta), October 1912, *Elmer 14123* (lectotype K [K000009168], designated here; isolectotypes A [A00078448], BISH [BISH1005125], BM [BM000997583], BO, CAS [CAS0005428], E [E00273816], G [G00358974], GH [GH00078447], HBG [HBG510820], L [L0005739], LE [LE00016053], MO, NY [NY00297125], P [P00650502], U [U0111468], W).

Notes. Nooteboom (1975) took a broad view of this species including material from Japan and northern China. He used *Symplocos lucida* (Thunb.) Siebold & Zucc. for this, but this combination is an illegitimate later homonym. Nagamasu (1993) separated out the Japanese *Symplocos* element from Thunberg's *Laurus lucida* Thunb. and renamed it *Symplocos kuroki* Nagam. Liu & Qin (2013) revised the whole complex and recognised 13 species. Their concept of *Symplocos lucida* Wall. ex G.Don is followed here.

7. *Symplocos odoratissima* (Blume) Choisy ex Zoll., Syst. Verz. 2: 136 (1854). – *Dicalix odoratissimus* Blume, Bijdr. Fl. Ned. Ind. (17): 1116 (1837). – *Eugeniodes odoratissima* (Blume) Kuntze, Revis. Gen. Pl. 2: 975 (1891). – TYPE: [Indonesia], Java, Gg Parang, *Blume 1947* (lectotype L [L0005779], designated by Nooteboom, Leiden Bot. Ser. 1: 245 (1975); isolectotypes BO, NY, S [S09-34509]).

Symplocos ciliata C.Presl, Rel. Haenk. 2: 61 (1831). – *Symplocos patens* C.Presl var. *ciliata* (C.Presl) Brand, Pflanzenr. IV, 242: 35 (1901). – *Symplocos patens* f. *ciliata* (C.Presl) Brand, Philipp. J. Sci. 3: 5 (1908). – TYPE: Philippines, Luzon, *Haenke s.n.* (lectotype PR [sheet no. 186005A], designated here; isolectotypes BM [BM000997579], HAL, MO, PR [sheet no. 186005B]).

Symplocos patens C.Presl, Reliq. Haenk. 2: 61 (1835). – TYPE: Philippines, Luzon, *Haenke s.n.* (lectotype MO [MO-391916], designated here; isolectotypes BM [BM000997578], HAL [HAL0117436], PR [sheet no. 186004A, 186004B]).

Symplocos repandula Miq., Fl. Ned. Ind., Eerste Bijv. 475 (1861). – TYPE: [Indonesia], Sumatra, Priaman, *Diepenhorst s.n.* (lectotype U [n.v.], designated by Nooteboom, Leiden Bot. Ser. 1: 245 (1975)).

Symplocos villarii S.Vidal, Revis. Pl. Vasc. Filip. 178 (1886). – TYPE: Philippines, Luzon, Bulacan Prov., Angat, *Vidal 446* (lectotype MA [MA729646], designated here; isolectotypes FI [FI013520], L [L0005791], MA [MA729646-2]).

Symplocos pseudospicata S.Vidal, Revis. Pl. Vasc. Filip. 179 (1886). – TYPE: Philippines, Luzon, Prov. Manila, San Mateo, *Vidal 448* (lectotype MA [MA729651-2], designated here; isolectotypes FI [FI013523], K [K000951746], L [L0005786], MA [MA729651]).

Pygeum grandiflorum King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 288 (1897). – TYPE: [Peninsular Malaysia], Perak, near G.B. [Gunung Bubu], March 1885, *King's Collector 7425* (lectotype K [K000740507], designated here; isolectotypes CAL [CAL0000010113], K [K000740508], P [P00650518], SING [SING0054393]).

Symplocos odoratissima (Blume) Choisy ex Zoll. var. *aluminosa* Koord. & Valeton, Meded. Lands Plantentuin 42: 150 (1900). – TYPE: [Indonesia], Java, Nusa Kambangan, *Blume 1826* (lectotype L [n.v.], designated by Nooteboom, Leiden Bot. Ser. 1: 245 (1975); isolectotype BO).

Symplocos aluminosa Brand, Pflanzenr. IV, 242: 35 (1901). – TYPE: [Indonesia], Java, Nusa Kambangan, *Blume 1726* (holotype L [n.v.]; isotype BO).

Symplocos floridissima Brand, Pflanzenr. IV, 242: 35 (1901). – TYPE: Philippines, Luzon, Prov. Albay, 1841, *Cuming 1305* (lectotype K [K000951751], designated here; isolectotypes A [A00078443], BM [BM000997577], CGE, FI [FI009158], G [G00358977 Brand det, G00358978, G00358979], K [K000951752], L [L0005783, L0005784], MEL [MEL46728], MO [MO-694296], P [P00650521], W).

Symplocos odoratissima (Blume) Choisy ex Zoll. var. *divaricata* Brand, Pflanzenr. IV, 242: 35 (1901). – TYPE: Borneo [Malaysia], Sarawak, *Beccari P.B. 4014* (lectotype K [K000951705], designated by Nooteboom, Leiden Bot. Ser. 1: 245 (1975); isolectotype FI [FI008050]).

Symplocos elmeri Brand in Perkins, Fragm. Fl. Philipp. 36 (1904). – *Symplocos patens* f. *elmeri* Brand, Philipp. J. Sci. 3: 4 (1908). – TYPE: Philippines, Luzon, Prov. of Rizal, Tanay, Morong, May 1903, *Merrill 2356* (lectotype US [US00112638], first step designated by Nooteboom, Leiden Bot. Ser. 1: 245 (1975), second step designated here; isolectotypes K [K000951750], US [US00931127]).

Symplocos pulverulenta King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74: 234 (1905). – TYPE: Singapore, Chan Chu Kang, *Ridley 4786* (lectotype K [K000740506], designated by Nooteboom, Leiden Bot. Ser. 1: 245 (1975); isolectotype BM [BM000997571]).

Symplocos floridissima Brand var. *serrata* Brand, Philipp. J. Sci. 4: 108 (1909). – TYPE: Philippines, Luzon, *Aquilar, For. Bur. 11147* (not traced).

Symplocos pulgarensis Elmer, Leafl. Philipp. Bot. 5 (1913) 1841. – TYPE: Philippines, Palawan, Puerto Princessa, Mt Pulgar, April 1911, *Elmer 12979* (lectotype NY [NY0029132], designated here; isolectotypes BISH [BISH1005130], BM [BM000997576], BO, CAS [CAS0005419], E [E00273814], F [F0073771F], G [G00358982], GH [GH00078468], HBG [HBG510836], K [K000951747], L [L0005787], LE [LE00016069], U [U0111020], US [US00112706], W, WRSL).

Symplocos apoensis Elmer, Leafl. Philipp. Bot. 7: 2319 (1914). – TYPE: Philippines, Mindanao, Davao, Mt Apo, *Elmer 11961* (lectotype NY [NY0029104], designated here; isolectotypes A [A00078433], BISH [BISH1005116], BM [BM000997570], BO, CAS [CAS0005549], E [E00273815], FI [FI015459], G, HBG [HBG510810], K, L [L0005788], LE [LE00016025, LE00016026], MO [MO-391935], P [P00650520], US [US00112600], W, WRSL).

Symplocos megabotrys Merr., Philipp. J. Sci., C 9: 383 (1914). – TYPE: Philippines, Leyte, Dagami, *Wenzel 298* (lectotype GH [GH00078450], designated by Nooteboom, Leiden Bot. Ser. 1: 246 (1975); isolectotypes A [A00078449], BM [BM000997569], G [G00358981], US [US00112682]).

Symplocos wenzelii Merr., Philipp. J. Sci., C 10: 282 (1915). – TYPE: Philippines, Leyte, 24 July 1914, *Wenzel 1022* (lectotype GH [GH00078476], designated by Nooteboom, Leiden Bot. Ser. 1: 246 (1975); isolectotypes BM [BM000997574], G [G00358984]).

Symplocos acuminatissima Merr., Philipp. J. Sci., C 11: 31 (1915). – TYPE: Philippines, Luzon, Sorsogon Prov., Bulusan volcano, September 1915, *Ramos BS 23690* (lectotype BM [BM000630049], designated here; isolectotypes A [A00078428, A00078429], CAS [CAS0005548], K [K000951749], P [P04488383], US [US00112593]).

Symplocos dagamensis Brand, Fedde Repert. 14: 325 (1916). – TYPE: Philippines, Leyte, Dagami, August 1912, *Ramos BS 15356* (lectotype K [K000951741], designated by Nooteboom, Leiden Bot. Ser. 1: 246 (1975); isolectotypes A [A00078440 (fragm)], US [US00112629]).

Symplocos salix Brand, Fedde Repert. 14: 325 (1916). – TYPE: Philippines, Luzon, Laguna Prov., San Antonio, Sept–Oct 1912, *Ramos BS 16540* (lectotype US [US00112712], designated here; isolectotypes A [A00078470 (fragm.), A00078471], BM [BM000997575], CAS [CAS0005420], K [K000951740], L [L0005789], P [P00650519], SING [SING0054402, SING0054403]).

Pygeum viride Baker f., J. Bot. 62(Suppl.): 34 (1924). – TYPE: [Indonesia], Sumatra, 1881–1882, *Forbes 2876* (lectotype BM [BM000997572], designated here; isolectotypes BRI [BRI-AQ0317690], CANB [CANB259094], FI [FI008052], GH [GH00078288], L [L0005776, L0005777, L0005778]), SING [SING0068734]).

Symplocos odoratissima (Blume) Choisy ex Zoll. var. *leptocarpa* S.Moore, J. Bot. 63(Suppl.): 65 (1925). – TYPE: [Indonesia], Sumatra, [Penanggoengan, 500 ft], 1881–1882, *Forbes 1740A* (lectotype BM [BM000630043], designated by Nooteboom, Leiden Bot. Ser. 1: 246 (1975); isolectotypes A [A00078241], FI, GH [GH00078240], L, LE, SING [SING0054377]).

Symplocos trichophlebia Merr., Univ. Calif. Publ. Bot. 15: 248 (1929). – TYPE: [Malaysia], British North Borneo [Sabah], Elphinstone Province, Tawao, October 1922–March 1923, *Elmer 21124* (lectotype UC [UC312086], designated here; isolectotypes A [A00078289], BISH [BISH1005131], BM [BM000997573], BO, BR [BR0000005623303], CAL [CAL0000017713], CAS [CAS0005415], CM [CM1684], G [G00358985], GH [GH00078290], HBG [HBG510838], K [K000951725], L [L0005793, L0005794], M [M0152522], MICH [MICH1192788], MO [MO-694287], NY [NY00297136], P [P00650523], PH [PH00029786], S [S-G-5936], SING [SING0054404], U [U0114164]).

Symplocos chengapae Raizada & Sahni, Indian Forest. 85: 190 (1959). – TYPE: India, Great Nicobar Island, *Sahni 22990* (holotype DD).

8. *Symplocos rubiginosa* Wall. ex A.DC., Prodr. 8: 257 (1844). – *Eugeniodes rubiginosa* (Wall. ex A.DC.) Kuntze, Revis. Gen. Pl. 2: 976 (1891). – TYPE: [Malaysia, Penang], *Wallich s.n.* [EIC 4432] (lectotype G-DC [IDC 1477/10], first step designated by Nooteboom, Leiden Bot. Ser. 1: 279 (1975), second step designated here; isolectotypes BM [BM000997552], BR [BR0000005421015], C, CGE, E [E00273821, E00273822, E00273823], FI [FI015462], G [G00359093, G00359094], G-DC [IDC 1477/9, IDC 1477/11], GH [GH00078208], GZU [GZU000251713, GZU000251714], K [K000740499, K000740500], K-W [K001038985], L [L0005840, L0005841], LE [LE00016081, LE00016082, LE00016083], M [M0152497, M0152498], MEL, NY [NY00297095], PH [PH00029778], W).

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References

Chenery, E.M. (1948). Aluminium in plants and its relation to plant pigments. *Ann. Bot.* 12: 121–136.

Fritsch, P.W., Kelly, L.M., Wang, Y., Almeda, F. & Kriebel, R. (2008). Revised infrafamilial classification of Symplocaceae based on phylogenetic data from DNA sequences and morphology. *Taxon* 57: 823–852.

Geuten, K., Smets, E., Schols, P., Yuan, Y.-M. Janssens, S., Küpfer, P. & Pyck, N. (2004). Conflicting phylogenies of balsaminoid families and the polytomy in Ericales: combining data in a Bayesian framework. *Molec. Phylogenet. Evol.* 31: 711–729.

Jansen, S., Broadley, M.R., Robbrecht, E. & Smets, E. (2002). Aluminum hyperaccumulation in angiosperms: a review of its phylogenetic significance. *Bot. Rev.* 68: 235–269.

Jessup, L.W. (2011). A taxonomic revision of *Symplocos* Jacq. (Symplocaceae) in Australia. *Austrobaileya* 8: 225–251.

Liu, B. & Qin, H.-N. (2013). Taxonomic revision of the *Symplocos nakaharae* complex (Symplocaceae) with special reference to fruit morphology. *J. Syst. Evol.* 51: 94–114.
Nagamasu, H. (1993). The Symplocaceae of Japan. *Contr. Biol. Lab. Kyoto Univ.* 28: 173–260.
Nooteboom, H.P. (1975). Revision of the Symplocaceae of the Old World: New Caledonia excepted. *Leiden Bot. Ser.* 1: 1–335.
Nooteboom, H.P. (1977). Symplocaceae. *Fl. Males., Ser. I,* 8(1): 205–274.
Ridley, H.N. (1923). *The Flora of the Malay Peninsula*, vol. 2. London: L. Reeve & Co.
WCVP (2021). *The World Checklist of Vascular Plants*, version 2.0. Facilitated by the Royal Botanic Gardens, Kew. http://wcvp.science.kew.org. Accessed Sep. 2021.