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Taxonomic Notes on the genus *Phyllanthus* L. (Euphorbiaceae) in Thailand

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ABSTRACT. The following 10 species are typified: *Cleistanthus minutiflorus*, *P. anamensis*, *P. angkorensis*, *P. collinsiae*, *P. glaucifolius*, *P. geoffrayi*, *P. harmandii*, *P. lingulatus*, *P. pulcheroides* and *P. taxodiifolius*. *P. microcarpus* is reinstated. *P. brunelii*, *P. polyphyllus* var. *siamensis* and *P. winitii* are placed in synonymy of *P. microcarpus*, *P. angkorensis* and *P. sootepensis*, respectively. Two species, *P. caroliniensis* and *P. harmandii*, are new to Thailand and *P. mirabilis* is new to Laos.

The genus *Phyllanthus* was first described by Linnaeus (1753). It comprises 750–800 species (Radcliffe-Smith, 2001), mainly in the tropics and subtropics. It dates back at least to the Tertiary. The genus is often superficially similar to *Breynia*, *Glochidion* and *Sauropus*. Some studies have upheld the genus as a separate entity (van Welzen, 2000), although there are new molecular data that suggest it is paraphyletic (Kathriarachchi et al., 2005b; Kathriarachchi et al., in press). I leave *Phyllanthus* in the Euphorbiaceae to maintain consistency with the Flora of Thailand (Chayamarit & van Welzen, 2005) although recent research firmly establishes it in a separate family Phyllanthaceae (Hoffmann et al., in press; Kathriarachchi et al., 2005a, b; Kathriarachchi et al., in press; Samuel et al. 2005; Wurdack et al. 2005).

Airy Shaw (1972) prepared a general guide to the family Euphorbiaceae of Siam (Thailand). He recognised 31 species in *Phyllanthus*. As the taxonomic account of Euphorbiaceae is now about to be published for Flora of Thailand, it is necessary to formalise several lectotypifications, note several new records and provide genus.

NEW LECTOTYPIFICATIONS

Phyllanthus angkorensis Beille in Lecomte, Fl. Indo-Chine 5: 583.1927. Type: Cambodia, Angkor, *Thorel* s.n. (lectotype P!, selected here).— *Phyllanthus polyphyllus* Willd. var. *siamensis* Airy Shaw, Kew Bull. 23: 33. 1969 & 26: 322. 1972, **synon. nov.** Type: Thailand, Udon Thani, Nong Han, 25 February 1924, *A.F.G. Kerr* 8581 (holotype K!; isotypes BK!, BM!, K!).

Note.— *Phyllanthus angkorensis* is characterised by having stiffly coriaceous and obovate leaves with rounded or retuse apices. The original description mentioned two unnumbered collections of Thorel. The collection from Anglor, Cambodia is chosen as the lectotype because it is the best preserved and it is from the type locality that corresponds to the specific epithet. I have examined the type of *Phyllanthus polyphyllus* var. *siamensis* and placed it in synonymy of *P. angkorensis*.

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Phyllanthus collinsiae [collinsae] Craib, Bull. Misc. Inform. Kew 1913: 72. 1913. Type: Thailand, Chon Buri, Sriracha, June 1912, *D.J. Collins* 12 (lectotype K!; isolectotypes E!, TCD, selected here).

Note.— The distinguishing features of *Phyllanthus collinsiae* are the small strongly rugulose capsules borne along the plagiotropic branchlets. Two collections, *D.J. Collins* 12 and *A.F.G. Kerr* 2036, are mentioned in the original description. *D.J. Collins* 12 at K is chosen as lectotype because it is well preserved.

Phyllanthus elegans Wall. ex Müll.Arg., Linnaea 32: 46. 1863. Type: Burma, Amshert, *Wallich* 7926 (holotype K!).— *Phyllanthus glaucifolius* Ridl., J. Straits Branch Roy. Asiat. Soc. 61: 59. 1912. Type: Malaysia, Perak, *King's Collectors* 5668 (lectotype K!, selected here).

Note.— *Phyllanthus elegans* has distinct long, slender pedicels and large, smooth and inflated capsules. Of the two different collections (*King's Collectors* 5668 and *Scortechini* 296) cited in the original description of *P. glaucifolius*, *King's Collectors* 5668 is the best preserved. Therefore, it is selected here as the lectotype.

Phyllanthus geoffrayi Beille in Lecomte, Fl. Indo-Chine 5: 584. 1927. Type: Vietnam, Cochinchine, Chaudoc, *Pierre* s.n. (lectotype P!, selected here).

Note.— The distinguishing features of *Phyllanthus geoffrayi* are the broadly ovate to rhombic-ovate leaf and the flowers either in axillary fascicles or on special slender leafless branches. Three collections, *Geoffray* 306, *Pierre* s.n. and *Thorel* 2418, are mentioned in the original description. *Pierre* s.n. has a drawing of the plant and a dissected flower, and therefore it is designated as the lectotype.

Phyllanthus harmandii Beille in Lecomte, Fl. Indo-Chine 5: 586. 1927. Type: Cambodia, Phnom-penh, 29 May 1875, *Harmand & Godefroy* s.n. (lectotype P!, selected here).

Note.— Of the four different collections cited in the original description of *Phyllanthus harmandii*, *Harmand & Godefroy* s.n. which was collected from Phnom-penh is the best preserved.

Phyllanthus lingulatus Beille, Bull. Soc. Bot. France 72: 161. 1925. Type: Laos, Attopeu, *Harmand* 1347 (lectotype P!, selected here).

Note.— *Phyllanthus lingulatus* is easily recognised by its long acuminate or aristate sepals and the grey or leaden colour of dried leaves. Four different collections are cited in the original description. *Harmandii* 1347 is in good condition and has a drawing of a dissected flower, and therefore it is designated as the lectotype.

Phyllanthus pachyphyllus Müll.Arg. in DC., Prodr. 15(2): 353. 1866. Type: Not located.— *P. annamensis* Beille in Lecomte, Fl. Indo-Chine 5: 585. 1927. Type: Vietnam, Mekong-Hue, *Harmand* 3136 (lectotype P!; isolectotype K!).

Note.— *Phyllanthus pachyphyllus* differs from *P. oxyphyllus* in its larger, ovate-lanceolate leaves. Five collections, *Harmand* 3136, *Lecomte & Finet* 1197, *M.Poilane* 7846, *Eberhardt* 2798 and *Eberhardt* s.n., are mentioned in the original description of *P. annamensis*. *Harmand* 3136 has a drawing of the plant and a dissected flower, and therefore it is designated as the lectotype.

Phyllanthus pulcheroides Beille in Lecomte, Fl. Indo-Chine 5: 597. 1927. Type: Vietnam, Cochinchine, Bao-chiang, *Pierre* 1854 (lectotype P!, selected here).

Note.— *Phyllanthus pulcheroides* is allied to *P. pulcher*. It differs in having the glands opposite the staminate sepals. Three collections, *Lecomte & Finet* s.n., *Pierre* 1854 and *Thorel* 1109, are mentioned in the original description. *Pierre* 1854 is the best preserved and therefore, it is selected here as the lectotype.

Phyllanthus ridleyanus Airy Shaw, Kew Bull. 26 (2): 323. 1972.— *Cleistanthus minutiflorus* Ridl., J. Straits Branch Roy. Asiat. Soc. 59: 169. 1911, non *Phyllanthus minutiflorus* F.Muell. ex Müll.Arg., 1865. Type: Thailand, Prachuap Khiri Khan, Bangtaphan, 16 May 1890, *Keith* s.n. (lectotype K!, selected here).

Note.— *Phyllanthus ridleyanus* has many features in common with *P. lingulatus*, especially the long acuminate sepal shape. It differs most obviously in its clearly filiform sepal apices and stiff coriaceous leaves. Of the two collections of *Cleistanthus minutiflorus* mentioned in the description, *Keith* s.n. is selected as the lectotype because it is better preserved than that of *H.N. Ridley* 2356.

Phyllanthus taxodiifolius Beille in Lecomte, Fl. Indo-Chine 5: 605. 1927. Type: Vietnam, Cochinchine, Bien-hoa, Bao-chang, *Pierre* s.n. (lectotype P!, selected here).

Note.— *Phyllanthus taxodiifolius* is distinguishable from *P. chamaepeuce* by its three stamens (vs two stamens) and larger habit. Of the six collections, *d'Alleizette* s.n., *Harmand* 70, *Lecomte & Finet* 1759, *Magnein*, *Gourgand* & *Châtillion* s.n., *Pierre* s.n., and *Thorel* 1217, cited in the original description, *Pierre* s.n. is the best preserved, and has a drawing of the plant and the dissected flower.

NEW RECORDS

Phyllanthus caroliniensis Walter, Fl. Carol.: 228. 1788; G.L. Webster, J. Arnold. Arbor. 37: 347. 1956. Type: *T. Walter* 83 (BM).

Note.— The Leiden specimen of *J.F. Maxwell* 89-1394 was determined as *P. amarus*. I have examined it and found that it belongs to *P. caroliniensis*. This species is native to south-eastern U.S.A., having elliptic or obovate leaves and six sepals whereas *P. amarus* has oblong leaves and five sepals.

Phyllanthus mirabilis Müll.Arg., Flora 47: 513. 1864.— *Phyllanthodendron mirabile* (Müll.Arg.) Hemsl. in Hook, Icon. Pl. 26: tt. 2563-2564. 1898. Type: Thailand, Krung Thep Maha Nakhon, February 1863, *Schomburgk* s.n. (holotype K!).

Note.— *Phyllanthus mirabilis* is a limestone mountain species and is easily recognised by its succulent stem. *K. Iwatsuki et al.* T-95-1550 at L which was collected from Nam Ngum Dam, Muang Phon Hong, Laos, is the first record of this species from Laos. This species was hitherto known only in Thailand, but is now seen to have a much wider range.

Phyllanthus myrtifolius (Wight) Müll.Arg., Linnaea 32: 35. 1863 & in DC., Prodr. 15(2): 396. 1866; Hook.f., Fl. Brit. Ind. 5: 295. 1887; G.L. Webster in Dassanayake & Clayton, Rev. Handb. Fl. Ceyl. 11: 211. 1997.— *Macraea myrtifolia* Wight, Ic. Pl. Ind. Or. 5: 27, t. 1902-2. 1852. Type: Sri Lanka, Kandy district, "Mawelly ganga", November 1846, *Gardner* s.n. in C.P. 650 (lectotype K!; isotypes G, P!, PDA).

Note.— *Phyllanthus myrtifolius* is a shrubby plant that is isocladous, with a distinctive scabridulous stem and rigid and revolute leaves with auriculate bases. The species is widespread as an ornamental plant in Thailand.

NOTES ON *PHYLLANTHUS MICROCARPUS* AND *PHYLLANTHUS SOOTEPENSIS*

Phyllanthus microcarpus (Benth.) Müll.Arg., Linnaea 32: 51. 1863.— *Cicca microcarpa* Benth., Fl. Hongk.: 312. 1861. Type: Hong Kong, *Seeman Wilford* s.n. (holotype K!).— *Phyllanthus brunelii* J. Roux, Nord. J. Bot. 4: 47. 1984, **synon. nov.** Type: Thailand, Chiang Mai, Mae Klang Falls, August 1980, *J.P.Roux* 80-20 (holotype STR; isotypes AAU!, B, BKF!, C, K!, P!).

Note.— Examination of *P. reticulatus s.l.* shows that *P. microcarpus* and *P. brunelii*, a new species by Roux (1984) are conspecific and different from *P. reticulatus s.s. P. microcarpus* differs from *P. reticulatus* by its larger leaves and being completely glabrous plants whereas *P. reticulatus* is pubescent throughout except for the gynoecium, androecium and glandular disk.

Phyllanthus sootepensis Craib, Bull. Misc. Inform., Kew 1911: 459. 1911. Type: Thailand, Chiang Mai, Doi Suthep, 30 March 1909, *A.F.G. Kerr* 657 (holotype K!, isotypes BM!, K!, TCD).— *Phyllanthus winitii* Airy Shaw in Kew Bull. 23: 36. 1969, **synon. nov.** Type: Thailand, Lamphun, Mae Li, 17 July 1917, *Winit* 430 (holotype K!; isotype BK!).

Note.— *Phyllanthus sootepensis* differs from *P. pulcher* in its glabrous stems and branchlets, smaller leaves, erose-denticulate staminate sepals and subentire pistillate sepals. *Phyllanthus winitii* is supposed to be distinct from *P. sootepensis* in having shorter branchlets, longer pistillate pedicels (up to 20 mm vs 7 mm), larger pistillate flowers and much broader sepals. However, some specimens show marked characters overlap, such as *R. Gessink* 5769 (BKF, L, P) which has pistillate pedicels varying from 6-17 mm long. Therefore I do not consider the two taxa to be distinct.

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