

Psilanthus mannii, the type species of *Psilanthus*, transferred to *Coffea*

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Evidence from several sources shows that *Psilanthus* is a synonym of *Coffea*. In order to finalize the taxonomic placement of *Psilanthus* within *Coffea* a new combination is necessary for the type species of *Psilanthus*, *P. mannii*. The combination *Coffea mannii* is made here. The implications of the transfer of *Psilanthus* to *Coffea* are discussed.

The exact generic delimitation of *Coffea* L. has troubled coffee researchers and taxonomists for more than 250 years (Davis et al. 2006). Molecular, cytological and morphological data now firmly demonstrate that *Coffea* comprises more than 100 species (Davis et al. 2005, 2006, Maurin et al. 2007, Davis and Rakotonasolo 2008) and should include the genus *Psilanthus* Hook. f. (Lashermes et al. 1997, Couturon et al. 1998, Cros et al. 1998, Lombello and Pinto-Maglio 2003, 2004, Maurin et al. 2007, Davis et al. unpubl.). Many species previously belonging to *Coffea* (Chevalier 1942, 1947) have now been excluded from the genus, as summarized in Davis et al. (2006), and these taxonomic decisions have been supported by broader studies of the Rubiaceae (Davis et al. 2007, Tosh et al. 2009). Thus, we now have a scientifically rigorous and robust delimitation for the genus *Coffea*.

Most of the combinations necessary for the transfer of *Psilanthus* species to *Coffea* have been made (Davis 2010), but one further combination is required for *Psilanthus mannii* Hook. f., the type of the genus *Psilanthus*. The combination *Coffea mannii* (Hook. f.) A. P. Davis is made here.

Coffea mannii (Hook. f.) A. P. Davis comb. nov.

Basionym: *Psilanthus mannii* Hook. f. (1873, p. 28, t. 1129). **Type:** Equatorial Guinea. Bioko (Fernando Pó), 1860, Mann 266 (holotype: K!, isotype: P!).

Taxonomic synonyms: *Coffea gilgiana* A. Froehner (1898, p. 267). **Type:** Cameroon. 400 m a.s.l., Staudt 682 (holotype: B, destroyed).

Psilanthus tetramerus Hiern (1877, p. 187). **Type:** Sierra Leone. Afzelius s.n. (holotype: B, destroyed).

Psilanthus comoensis Pierre ex De Wild. (1910, p. 298). **Syntypes:** Gabon. Oct 1899, Kaline 1703bis (BR, P!); and Dec 1899, Chalot 23 (P!).

[*Psilanthus ledermannii* A. Chev. nom. inval. (1942, p. 35) and (1947, p. 224), no Latin descr.]

Distribution

West and western–central Africa; upper and lower Guinea domains. TDWG regions (Brummitt et al. 2001): 22 BEN, GHA, GUI, IVO, LBR, NGA, SIE; 23 CAB, CAF, CMN, CON, GAB, GGI, ZAI. Distribution from Govaerts et al. (2011).

Ecology

Humid, evergreen forest, primary or slightly disturbed, sometimes recorded in secondary forest; an understorey component, usually in dense shade and often recorded near rivers or other water sources; 5–900 (1400–1600) m a.s.l.

Similar species

Coffea mannii is an understorey treelet (i.e. single-stemmed), 0.5–5.0 m high, with plagiotrophic branches. It is unlike all other *Coffea* species, except *C. sapinii* (De Wild.) A. P. Davis, in having distinctly long-acrescent calyx lobes, and a purple–black fruit with persistent, long green calyx lobes. *Coffea mannii* is closely related to *C. sapinii* (Stoffelen 1998, Maurin et al. 2007), but differs in the following fruit characters (adapted from Stoffelen 1998): fruit body 16–22 × 12–13 mm (vs ca 15 × 10–12 mm), prominently costate (vs slightly costate); calyx lobes more than 25 mm long (vs less than 20 mm long); the scars of the corolla, disc and style more than 5 mm in diameter (vs less than 4 mm in diameter).

Notes

Although sometimes recorded as rare, *C. mannii* is rather widespread and often occurs with some frequency in good quality forest. According to Burkill (1997) the seeds of *Psilanthus mannii* are roasted in Gabon for use as a coffee-substitute. Unlike other African and Asian species formerly included in *Psilanthus* (Davis 2010), *P. mannii* and *P. sapinii* were not generally associated with *Coffea* or the beverage coffee (Cheney 1925, Wellman 1961, Wrigley 1988).

Discussion

The transfer of the type species of *Psilanthus* (*P. mannii*), undertaken here, completes the formal transfer of *Psilanthus* species to *Coffea*, following previous work by Davis (2010). With *Psilanthus* subsumed, the number of species of *Coffea* increases from 104 (Davis et al. 2006, 2010) to 124. The natural geographical range of *Coffea* is extended to include tropical Asia and Australia; formerly *Coffea* was restricted to tropical Africa, Madagascar, the Comoros and the Mascarenes (Mauritius and Reunion). The morphological characterization of the genus (Davis et al. 2005, 2006) is also enlarged, and in particular to include species with accrescent calyx lobes and a very short, distinctly included style (stigma lobes distinctly below anthers, often positioned at the base of the corolla tube). A contribution with the full details of the taxonomic, ecological, geographical, and morphological implications of the transfer of *Psilanthus* species to *Coffea* is in preparation (Davis et al. unpubl.). With *Psilanthus* included in *Coffea*, and unrelated species placed in other Rubiaceae genera (Davis et al. 2007, Tosh et al. 2009), *Coffea* can be characterized by a single synapomorphy, i.e. the presence of coffee beans: seeds with a deep groove on the ventral (flat) surface, the groove invaginated within the seed and appearing rolled/curled-over in transverse section.

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