

**A NEW SPECIES OF *PTEROSPERMUM*  
(*DOMBEYOIDEAE*, *MALVACEAE* /  
*STERCULIACEAE*) FROM CAMBODIA AND  
VIETNAM**

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*Pterospermum mengii* P. Wilkie (*Dombeyoideae*, *Malvaceae*/*Sterculiaceae*) from Cambodia and Vietnam is described as new to science and illustrated. It is most similar to *Pterospermum pecteniforme* Kosterm., sharing a distinctive wavy ridge at the margin of each locule of the capsular fruit, but differing by its larger leaves, oblong to obovate leaf shape, deeply cordate leaf base, and stellate indumentum on the undersurface of the leaves and fruit.

*Keywords.* Cambodia, *Dombeyoideae*, fruit, *Pterospermum*, *Sterculiaceae*, Vietnam.

INTRODUCTION

*Pterospermum* Schreb. is composed of approximately 30 species and is distributed from the E Himalayas and S China, through SE Asia to the Moluccas. Regional treatments of the genus have been produced, such as the *Forest Flora of British Burma* (Kurz, 1877), *Flore générale de l'Indo-Chine* (Gagnepain, 1911), the *Supplément à la Flore générale de l'Indo-Chine* (Gagnepain, 1945), the *Illustrated Flora of Vietnam* (Pham-hoang, 1999), and the *Flora of Thailand* (Phengklai, 2001). No monograph of the genus throughout its distribution has been undertaken, and there is a desperate need for one.

Recent phylogenetic analysis in the order *Malvales* has led to the suggestion that the core *Malvales* (*Sterculiaceae*, *Tiliaceae*, *Bombacaceae* and *Malvaceae*) be considered a single large family, *Malvaceae* s.l., and that nine subfamilies be recognized based on molecular, morphological and biogeographical data (Alverson *et al.*, 1999; Bayer *et al.*, 1999). Genera traditionally placed in *Sterculiaceae* are now placed in subfamilies *Sterculioideae*, *Byttnerioideae*, *Dombeyoideae*, *Helicteroideae* and *Bombacoideae* (Bayer & Kubitzki, 2003; Wilkie *et al.*, 2006). *Pterospermum* is placed in the subfamily *Dombeyoideae*. Baum *et al.* (1998) have argued that these subfamilies might be recognized at the family level.

A collection from Thala Borevath District in Cambodia (*Monyrak*, Meng 163) was brought to my attention by David Middleton, then of the Harvard University Herbaria. When this specimen was compared with all other species of the genus held

in A, E, GH, K, L and P, and all major regional accounts of the genus had been consulted (Kurz, 1877; Gagnepain, 1911, 1945; Pham-hoang, 1999; Phengklai, 2001), it became clear that this was an undescribed species. The fruit size and the wavy ridge at the margin of each fruit lobe suggest this species is closely related to *Pterospermum pecteniforme* Kosterm. However, the leaves of the new species are much larger (15.5–21 cm long, 10.5–12.3 cm wide), oblong to obovate, the base is deeply cordate, the leaf lower surface has a dense covering of white woolly hairs and many scattered reddish orange stellate hairs, and the fruit is covered in dense orange-brown stellate hairs. In *Pterospermum pecteniforme* the leaves are 4.5–11 cm long and 3–5 cm wide (generally at the lower end of these ranges), ovate to elliptic, the base is acute to subcordate, the lower surfaces of the leaves have a dense layer of fimbriate scales (not stellate hairs), and the fruit are glabrous or with minute fimbriate scales. The size and shape of the leaves of the new species are similar to *Pterospermum diversifolium* Blume but the margins of the fruit of *P. diversifolium* are consistently angular and straight, unlike that of the new species, here named as *Pterospermum mengii*.

A conservation assessment is proposed following the criteria set out by the IUCN (2001).

***Pterospermum mengii* P. Wilkie, sp. nov. Fig. 1.**

Arbor mediocris, affinis *Pterospermum pecteniformi* Kosterm. sed foliis majoribus forma abhorrentibus, et indumento in pagina inferiore foliorum pilorum albotomentosorum dense oblecto et pilis multis rubescenti-aurantiacis stellatis dispersis differt. Fructus 5-ocularis capsularis loculicidus, ellipsoideus, pilis densis stellatis aurantiaco-brunneis oblectus, uniuscuiusque loculi margine cristam undulatam formanti. – Type: Cambodia, Stung Treng Province, Thala Barevath District, Preah Rum Kel village, Ramsar site, 13°54'59"N, 103°54'27"E, in temporary flooded forest around Chheu Teal Thom island, upper Cambodia Mekong River, *Monyrak, Meng* 163 (holo A; iso K, Department of the Environment, Phnom Penh).

Tree to 17 m tall, 80 cm diameter, branching at base. *Bark* grey. *Leaves* alternate; petiole 20–30 mm long, 2–3 mm in diameter, pulvinae not distinct; blade oblong to obovate, 15.5–21 cm long (from base of petiole to apex), 10.5–12.3 cm wide, base deeply cordate, lobes 1–2 cm below petiole insertion, asymmetric, apex acute, margin entire to slightly toothed towards apex, upper surface glabrous, when fresh dark green, drying tan, leaf lower surface with dense covering of white woolly hairs and many scattered reddish orange stellate hairs, when fresh pale grey, drying tan-yellow, basal veins 3–4 pairs, basal-most pair often with distinct lateral veins, secondary veins (excluding basal ones) 7–8 pairs, slightly raised on upper surface, raised on lower surface, tertiary veins ladder-like, distinctive on upper and lower surface. *Stipules* presumed early caducous. *Pedicels* 0–5 mm long. *Bracts* triangular, to 4 mm long, 3–4 mm wide at base, with dense reddish orange stellate hairs on both surfaces. *Flowers* axillary, solitary. *Calyx* 5-lobed, spatulate, to 7.5 cm long, 6–7 mm wide,

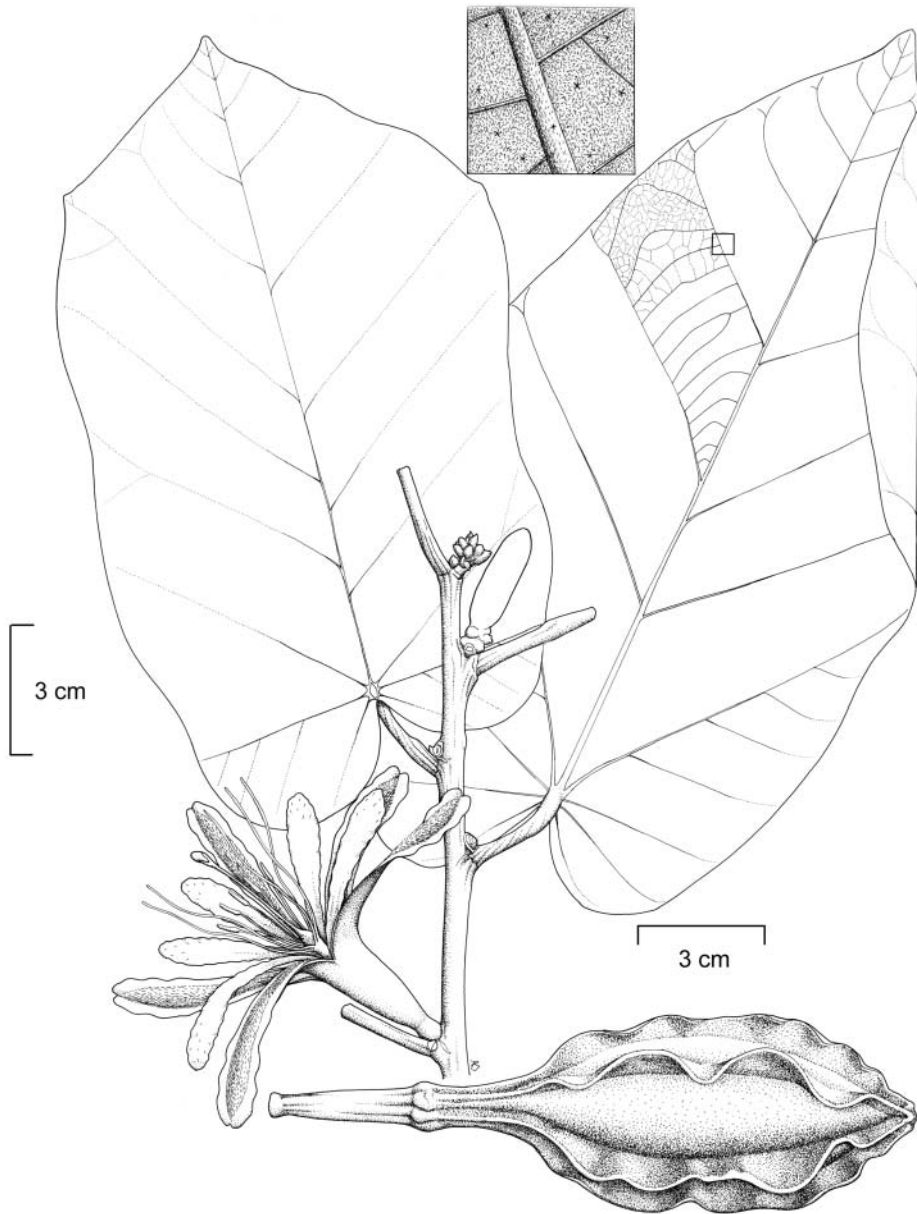


FIG. 1. *Pterospermum mengii* P.Wilkie (drawn from *Monyrak, Meng 163*, holo A).

fused at base, becoming free 10–20 mm from base, outer surface light brown when fresh, drying reddish orange, covered in dense reddish orange stellate hairs, inner surface drying yellow-white, marginal 2 mm with dense minute white stellate hairs, inner part of lobes with dense yellow-orange adpressed simple hairs. *Corolla* 5-lobed, whitish when fresh, drying brown, papery, spatulate, 6–7 cm long, 5–8 mm wide,

glabrous to sparsely stellate hairy on inner surface, sparsely stellate hairy, densest towards apex on outer surface. *Androgynophore* 3.5 cm long (7 cm long if including ovary, style and stigma). *Staminodes* 5, forming tube (with stamens) around androgynophore, becoming free at base of ovary, linear, 3–4 cm long, 0.5 mm wide, with sparse stellate and simple hairs. *Stamens* 15, becoming free at base of ovary, 2–3 cm long, glabrous, anthers hardly wider than the filaments, 1–1.5 cm long. *Ovary* at midpoint of androgynophore where stamens and staminodes become free, oblong, 8 mm long, 3 mm wide, with dense stellate and simple hairs, 5-locular, each locule with 2 cavities containing 2–3 ovules, style 3.5 cm long, densely stellate hairy at base, becoming glabrous towards apex, stigma 4 mm long, 1 mm wide, glabrous. *Fruit* an ovoid woody 5-locular capsule, loculicidal, 13 cm long, covered in dense orange-brown stellate hairs, the margin of each locule forming a distinctive wavy ridge, base tapering to 2 cm long, densely orange-brown tomentose, apex acute, 5-locular, each locule with 2–3 (possibly more) papery winged seeds. *Seeds* (including wing) 2.7–4 cm long, 0.5–1 cm wide, the embryo ellipsoid, rather flat, 0.7–1 cm long, 0.5–0.6 cm wide.

*Distribution.* Cambodia, southern Vietnam.

*Etymology.* The epithet ‘mengii’ refers to the collector Meng Monyrak, a botanist formerly of the Department of Nature Protection and Conservation in the Cambodian Ministry of the Environment.

*Proposed IUCN conservation status.* Although this species is potentially widespread given the disjunct distribution between the two known collections, the fact that at present it is represented in fewer than five localities has led me to assign it a conservation status of Vulnerable (VU D2).

*Additional specimen examined.* VIETNAM. Southern Vietnam, Jia-ray, Đông Nai province, *M. Poilane* P.183 (P).

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#### REFERENCES

- ALVERSON, W. S., WHITLOCK, B. A., NYFFELER, R., BAYER, C. & BAUM, D. A. (1999). Phylogeny of the core Malvales: Evidence from *ndhF* sequence data. *Amer. J. Bot.* 86: 1474–1486.
- BAUM, D. A., ALVERSON, W. S. & NYFFELER, R. (1998). A durian by any other name: Taxonomy and nomenclature of the core Malvales. *Harvard Pap. Bot.* 3(2): 315–330.

- BAYER, C., FAY, M. F., DE BRUIJN, P. Y., SAVOLAINEN, V., MORTON, C. M., KUBITZKI, K., ALVERSON, W. S. & CHASE, M. W. (1999). Support for an expanded family concept of Malvaceae within a recircumscribed order Malvales: a combined analysis of plastid *atpB* and *rbcL* DNA sequences. *Bot. J. Linn. Soc.* 129(4): 267–303.
- BAYER, C. & KUBITZKI, K. (2003). Malvaceae. In: KUBITZKI, K. & BAYER, C. (eds) *The Families and Genera of Vascular Plants 5*: 225–311. Berlin, Heidelberg: Springer Press.
- GAGNEPAIN, F. (1911). Sterculiacées. In: LECOMTE, H. & GAGNEPAIN, F. (eds) *Flore générale de l'Indo-Chine 1*: 454–522. Paris: Masson et Cie.
- GAGNEPAIN, F. (1945). Sterculiacées. In: HUMBERT, H. & GAGNEPAIN, F. (eds) *Supplément à la Flore générale de l'Indo-Chine 1(4)*: 391–440. Paris: Museum National d'Histoire Naturelle.
- IUCN (2001). *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission. Gland, Switzerland and Cambridge, UK: IUCN.
- KURZ, S. (1877). *Forest Flora of British Burma*, vol 1. Calcutta: Office of the Superintendent of Government Printing.
- PHAM-HOANG, H. (1999). *Cay Co Viet Nam: An Illustrated Flora of Vietnam*, vol 1. Ho Chi Minh: Nha Xuat Ban Tre.
- PHENGKLAI, C. (2001). Sterculiaceae. In: SANTISUK, T. & LARSEN, K. (eds) *Flora of Thailand 7*: 539–654. Bangkok: Prachachon Co. Ltd.
- WILKIE, P., CLARK, A., PENNINGTON, R. T., CHEEK, M., BAYER, C. & WILCOCK, C. C. (2006). Phylogenetic relationships within the subfamily Sterculioideae (Malvaceae/ Sterculiaceae-Sterculieae) using the chloroplast gene *ndhF*. *Syst. Bot.* 31: 160–170.

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