



***Canthium obscurum* W.J.de Wilde & Duyfjes, sp. nov., a new name for a widespread, wrongly interpreted species (*Vanguerieae-Rubiaceae*)**

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Key words

Canthium
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Abstract A widespread *Canthium* species of upland northern Thailand, Laos, and China, known erroneously as *C. parvifolium* (described from India) or *C. horridum* (described from Java) is formally described as a new species *Canthium obscurum*. A photograph of fruiting twigs and line drawings of the flower are added. *Canthium parvifolium* is lectotypified by a herbarium specimen in P.

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INTRODUCTION

Species of the genus *Canthium* Lam. in SE Asia, as defined in the now accepted narrow sense (Wong & Lua 2018) are spiny shrubs, twigs slender, inflorescence axillary, flowers few and usually on a short axillary brachyblast below the spine, pedicel with 2 bracteoles, corolla lobes valvate, the corolla throat only with one ring of downwards directed dense hairs inside the somewhat swollen tube, fruit with 2 pyrenes.

While revising the genus for Thailand one of the most commonly collected species, occurring in Thailand, Indochina and southern China, appeared not to possess a valid name, due to persistent misinterpretation of two resembling species. Thus, the herewith newly defined and named species *Canthium obscurum* was named *C. parvifolium* Roxb. by Craib (1932) and Sangrattanaprasert (2013) for Thailand and by Pitard (1924) for Indochina, while for China it was named *C. horridum* Blume by Chen et al. (2011). Both latter names concern species not present in the area of *Canthium obscurum*, and an alternative name for the present new species is not available, therefore, it is newly described here.

TAXONOMY

***Canthium obscurum* W.J.de Wilde & Duyfjes, sp. nov.** —
Fig. 1, 2

Canthium parvifolium auct. non Roxb.: Hook.f. (1882) 135, p.p.; Pit. (1924) 298; Craib (1932) 142; Sangratt. (2013) 17.

Canthium horridum auct. non Blume: T.Chen et al. (2011) 84.

This species differs from the somewhat resembling *Canthium horridum* Blume in its blackish drying colour (yellow-green in *C. horridum*), dry fruits 1.5–3 cm diam (1–1.5 cm diam in *C. horridum*), 2–5-flowered inflorescences (only 1

or 2 flowers in *C. horridum*). From *Canthium parvifolium* Roxb. it differs in its large fruit, ripening yellow-green (smaller and ripening red in *C. parvifolium*). — Type: *Gardner & Sidisunthorn* 2098 (holo BKF117727; iso CMU n.v.), Thailand, Northern, Chiang Rai, approximately 1 km north of Payapri Village, 20 May 1997.

Etymology. The specific epithet *obscurum* (Latin, obscurus = dark) refers to the blackish drying colour of the plant.

Shrub, 1.5–4 m tall, or treelet to 6(–8) m tall, older stem with or without straight spines to 7 cm long; twigs slender, appressed hairy when young, 1–2(–2.5) mm diam; spines usually present, straight, paired, 0.5–1 cm long. *Stipules* hairy, long-triangular, 2–3 mm long, acute-acuminate. *Leaves* in distinct pairs along the twigs; *petiole* slender, 0.3–0.7 cm long; *lamina* membranous, drying blackish, (variously) sparsely hairy on both surfaces, somewhat scabrous on upper surface, (obovate-) elliptic, 2–6 by 1.5–3 cm, base (more-or-less rounded or) cuculate, narrowed into the petiole, margin sparsely hairy, apex rounded, bluntish or acute or acute-acuminate; *midvein* flat, hairy on upper surface, secondary veins 2–4 on each side. *Inflorescence* composed of 2–5 flowers, close together on a short brachyblast. *Flowers* creamy-greenish, 5-merous; *bud* glabrous, 4–5 mm long; *pedicel* slender, 1–2(–3) mm long, with 2 ± saucer-shaped connate bracteoles towards the apex; *ovary* glabrous, broadly obconical, 1–1.5 mm long; *calyx*: limb c. 0.5 mm long, lobes short-triangular; *corolla*: tube urceolate, c. 1.5 by 1.5 mm, constricted at throat, inside with a ring of deflexed hairs, c. 1 mm long, lobes reflexed, acute-acuminate, about as long as the tube; *filaments* c. 0.5 mm long, anthers c. 1 mm long; *style* 2–3 mm long, lower thickened half densely hairy; *stigma* green, c. 0.7 by 0.5 mm. *Fruit* subglobose or short-ellipsoid, 1.5–3 cm diam, sparsely scattered, close to the twigs, ripening greenish yellow, blackish when dry.

Distribution — NE Myanmar, Thailand (Northern), Laos, Vietnam, southern China.

Habitat & Ecology — An understorey shrub or treelet of upland (degraded) mixed evergreen or deciduous forest, in pine forest

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and in dry dipterocarp-deciduous forest, also with bamboo; granite bedrock; 900–2100 m altitude. Flowering: April to June; fruiting: May to November.

Specimens studied (all Thailand). Chiang Rai, Doi Tung, *Chamchumroon et al.* VC 1537 (BKF); Chiang Mai, Doi Suthep National Park, *Chamchumroon et al.* VC 1651 (BKF); Chiang Rai, Doi Tung, *Chayamarit* 905 (BKF); Chiang Mai, Mae Pan Waterfalls, *Fukuoka* T 62307 (BKF); Chiang Rai, Payapri, *Gardner et al.* 2098 (BKF), type; Chiang Mai, Doi Angka, *Garrett* 372 (L, P); Chiang Mai, Doi Chiang Dao, *Garrett* 1179 (L); Chiang Mai, Mae Rim, *Glamwaewwong* 120-60 (QBG); Chiang Mai, Mae Rim, *Glamwaewwong* 261-58 (QBG); Chiang Mai, Mae Rim, *Glamwaewwong* 960 (QBG); Chiang Mai, Ban Mae Klang Luang, *Hara et al.* PJ 55 (BKF); Chiang Rai, Doi Tung, *Iwatsuki et al.* T-10969 (BKF, L); Chiang Mai, Samoeng, *Jatupol* K.08 283 (QBG); Chiang Mai, Huai Nam Dang National Park, *Karaket et al.* 153 (BKF); Chiang Mai, Doi Chiang Dao, *Kerr* 6646 (BK); Phayao, Doi Pha Mon Noi, *La-onsri et al.* 2852 (QBG); Nan, Doi Tiu, *Larsen et al.* 43510 (BKF); Chiang Rai, Doi Tung, *Maxwell* 05-309 (BKF); Chiang Rai, Doi Tung, *Maxwell* 05-332 (QBG);

Chiang Rai, *Maxwell* 06-291 (QBG); Chiang Mai, Doi Sutep, *Maxwell* 87-757 (BKF, L); Chiang Mai, Doi Sutep, *Maxwell* 88-635 (BKF, L); Chiang Mai, Doi Sutep, *Maxwell* 88-982 (BKF, L); Chiang Mai, Doi Mawn Angget, *Maxwell* 93-426 (BKF); Chiang Mai, Doi Meun, *Maxwell* 95-327 (BKF); Chiang Rai, Doi Luang National Park, *Maxwell* 97-485 (BKF, L); Chiang Rai, Doi Luang National Park, *Maxwell* 98-563 (BKF, L); Lampang, Jae Sawn National Park, *Maxwell* 96-1251 (BKF); Chiang Mai, Huay Yah Dtai, *Maxwell* 98-638 (BKF, L); Phayao, Doi Luang National Park, *Muangyen* 273 (QBG); Chiang Mai, Pha Mawn, *Murata et al.* T 15637 (BKF); Chiang Mai, Mae Rim, Botanic Garden, *Nanakorn et al.* 153 (QBG); Chiang Mai, Pong Yen, *Nanakorn et al.* 1379 (QBG); Chiang Mai, Chiang Dao, *Nanakorn et al.* 1864 (QBG); Chiang Mai, Baan Karen Huai Phachao, Mae Tang, *Nanakorn et al.* 5014 (QBG); Chiang Mai, Chiang Dao, *Nanakorn et al.* 9393 (QBG); Nguanchoo 254 (BK, QBG); Nan, Ban Kew Num, *Nguanchoo* 971 (QBG); Nam, Phu Ka, *Niyomdham et al.* 7686-1 (BKF); Phayao, Doi Luang National Park, *Norsaengsri* 12280 (QBG); Chiang Mai, Chiang Dao, *Norsaengsri et al.* 1470 (QBG); Chiang Mai, Mae Rim, *Norsaengsri et al.* 9176 (QBG); Chiang Rai, Doi Luang National Park, *Palee* 436 (BKF, L); Chiang Rai, Mae Fah Luang, *Phaosrichai et al.* 984

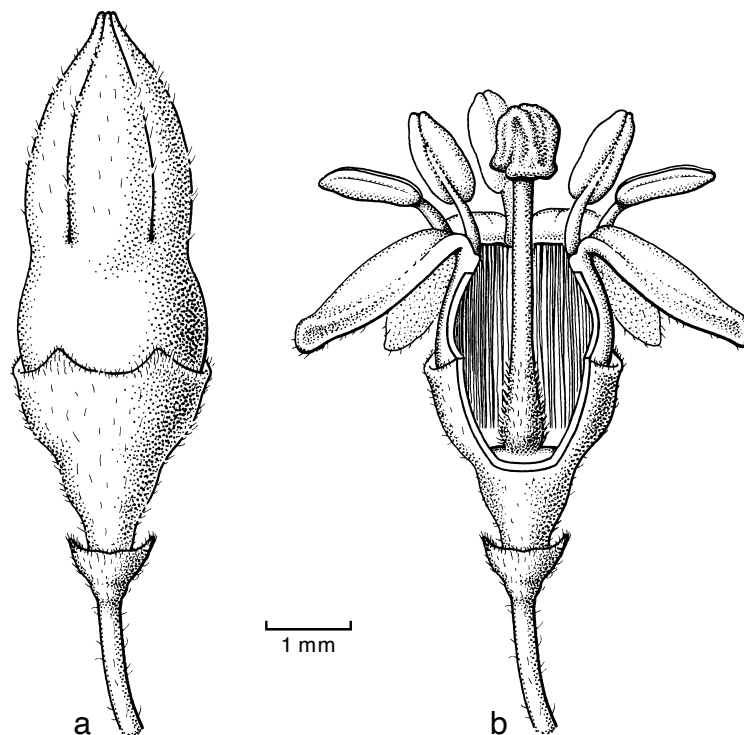


Fig. 1 *Canthium obscurum* W.J.de Wilde & Duyffjes. a. Flower bud; b. opened flower showing deflexed hairs inside and style thickened and hairy in lower half (a, b: *Maxwell* 97-485, L). — Drawn by Esmée Winkel.

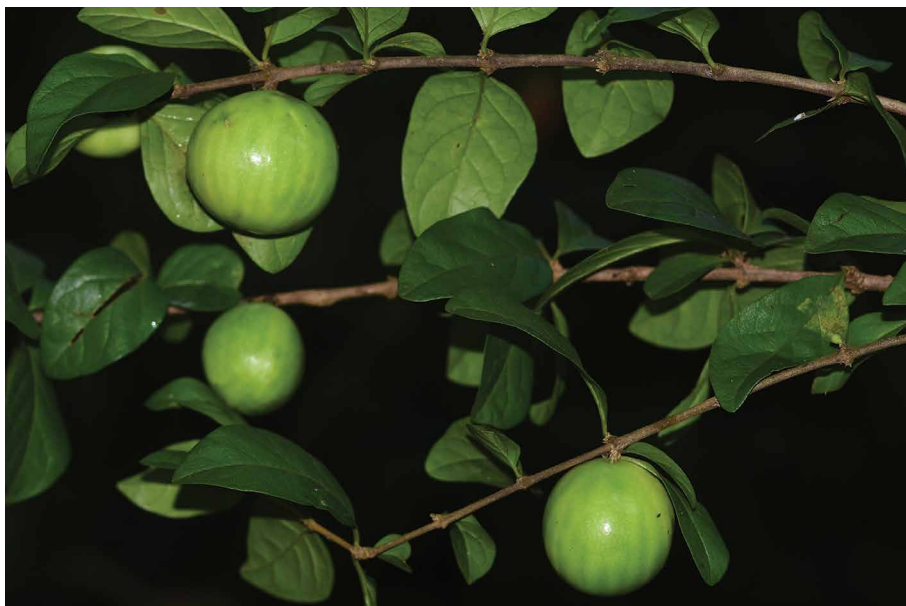


Fig. 2 *Canthium obscurum* W.J.de Wilde & Duyffjes. Fruiting twigs, the fruits measure 3–4 cm diam (*Phonsena* 7486, L). — Photo: P. Phonsena.

(QBG); Chiang Mai, Doi Intanon National Park, *Phengkai et al.* 6205 (BKF); Chiang Mai, Doi Intanon National Park, *Phengkai et al.* 6793 (BKF); Nan, Doi Phu Ka National Park, *Phonsena et al.* 7486 (BKF, L); Chiang Mai, Fang, *Pongamornkul* 2632 (QBG); Phayao, Doi Pha Tang, *Pongamornkul* 6164 (QBG); Chiang Mai, Mae On, *Pongamornkul et al.* WP 406 (QBG); Chiang Mai, Mom Lhong, *Pongamornkul* WP 95 (QBG); Chiang Mai, Doi Suthep, *Pongamornkul* WP 331 (QBG); Chiang Mai, Doi Suthep-Pui National Park, *Pooma* 344 (BKF); Chiang Mai, Mae Sruai, *Prayad* 930 (BK); Mae Hong Son, Pang Tawn, *Put* 3847 (BK, L); Chiang Mai, Huai Nam Dang, *Santisuk* 1055 (BKF); Chiang Mai, Mae Rim, *Seepacha YJ* 1 (QBG); Chiang Mai, Doi Chang, *Shimizu et al.* T-20818 (L); Chiang Mai, Mae Rim, *Serm* 48 (QBG); Nan, Bo Klua, *Sirimongkol et al.* 645 (BKF); Chiang Mai, Mawn Kia, *Smitinand et al.* 6733 (BKF); Chiang Mai, Doi Suthep, *Sørensen et al.* 3068 (BKF); Nan, Joon Village, *Srithi* 298 (QBG); Nan, Ban Pong Kham, *Trisonthi et al.* PK 182 (QBG); Chiang Rai, Doi Tung, *Van de Bult* 1254 (BKF); Chiang Mai, Doi Suthep, *Vanpruk s.n.*, May 1941 (BKF); Chiang Mai, Ban Mae Klang Luang, *Vidal et al.* 6173 (BKF); Chiang Mai, Ban Ang Ka Noy, *Vidal et al.* 6289 (BKF, L); Chiang Rai, Doi Tung, *Wattana* 315 (QBG).

Notes — 1. *Canthium obscurum* is a common species of (sub-)montane northern Thailand, known from about 70 collections.

2. The ripe fruit when fresh is recorded as not juicy but with a spongy white endocarp, yellowish green or yellow, globose or obovate, 2–4 cm diam. The majority of the specimens dry conspicuously blackish.

NOTES ON THE MISINTERPRETED SPECIES

Canthium horridum Blume (1825) 966. — Lectotype (designated by Wong & Lua 2018): *Blume s.n.* (lecto L 0000179), Java.

Distribution — This species described from Java occurs also in Peninsular Malaysia, Sumatra, Borneo (Brunei, Sabah, Sarawak), and possibly the Lesser Sunda Islands.

Notes — 1. When describing the species *Canthium malayense* K.M.Wong (Wong & Lua 2018), a species which was in Malaysia previously confused with *C. horridum*, Wong & Lua (2018) gave ample details on morphology and distribution of the latter species.

2. The differences between *Canthium horridum* and *C. obscurum* are quite clear and obvious, e.g., in *C. horridum* the yellow-green drying colour of the plant, fewer-flowered inflorescences (1 or 2 flowers only), and smaller, yellow fruits (1–1.5 cm diam).

Canthium parvifolium Roxb. [(1814) 15, nom. nud.] (1824) 170; (1832) 534. — Lectotype (designated here): *Roxburgh s.n.* (lecto P 03936329), India.

This species from India was poorly described, and no type specimen was indicated by Roxburgh. Roxburgh's drawing No. 2195 (K) shows a plant clearly different from our present *Canthium obscurum* and is distinct, e.g., by its smaller leaves with rounded apex and much smaller red fruits. The Roxburgh specimen from India in Paris (ex herb. Musei Britannici), named as '*Canthium parvifolium*' in Roxburgh's hand, is here chosen as the lectotype, and it clearly agrees with Roxburgh's drawing No. 2195 in K.

DISCUSSION

Hooker (1882) caused some confusion in the *Canthium* species concerned. He enumerated 16 species in *Canthium* s.lat. (i.e., including the genus *Psydrax* Gaertn.) for British India, none of which appear to be extant in the area of *C. obscurum*. The only two species approaching our present new species, and indicated by him as occurring further to the east, are *C. parvifolium* and *C. horridum*, but as explained above this is erroneous. Another source of confusion is that Hooker described *C. horridum* as having short hooked spines, instead of straight ones. Hooker cited the collection *Wallich 8288* under both species named above. However, in Wallich's Numerical List (1847), under *Rubiaceae*, number 8288, there are four entry numbers indicated as 8288A, 8288A?, 8288B and 8288C. We studied the following digital images:

- 1 *Wallich 8288A* – K-W (K001125154). The specimen originates from Singapore, and is named in Wallich's hand *Canthium zizyphium* Wall. This specimen appeared to be *Canthium malayense* K.M.Wong, a species described in 2018 (Wong & Lua 2018), and regarded by the present authors a synonym of *Canthium horridulum* Craib.
- 2 *Wallich 8288A?* – K-W (K001125155). Of unknown origin. This most likely concerns our present *Canthium obscurum*.
- 3 *Wallich 8288B* – K-W (K001125156). From Chittagong. This specimen comes close to the Roxburgh drawing of *C. parvifolium*, Plate no 2195 (in K, type; see above).
- 4 *Wallich 8288C* – Specimen not found. According to IPNI this is the same as *Wallich 8288A*.

Hooker (1882) cited under *Canthium parvifolium* also the two sheets *Wallich 8257* (K-W: K001125060 & K001125061), *in part*. We think that both sheets represent *Gardenia rigida* Wall., as also was indicated by Wallich on the sheet K001125061.

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