

***Helwingia himalaica* Hook. f. et Thoms. ex Clarke —
HELWINGIACEAE, a new record for Thailand**

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The genus *Helwingia* has been included, by different authors, in several different families: in the Umbelliferae by Hedge (1973), as a member of the Araliaceae by Bentham & Hooker 1867, Hutchinson 1959, 1969 & 1973 (Hara & Kurosawa, 1975), or most often as belonging to the Cornaceae (Harms 1898, Wangerin 1910, Li 1944, Fang 1951). Its characteristic epiphyllous inflorescence borne on the adaxial surface of the midrib and several special anatomical and palynological characters were judged sufficient by some authors to create a new monotypic family, Helwingiaceae (Decaisne, Morren & Decaisne 1836, de Candolle 1868, Chao 1954, and Takhtajan 1973, as cited in Hara & Kurosawa 1975). This is supported by Horward (as cited by Metcalfe & Chalk (1979) who argued that *Helwingia* had unilacunar nodes, which is exceptional in Cornaceae and most unusual in Araliaceae. Lindley (1845) also accepted the family Helwingiaceae, but saw it as closely related to Garryaceae, Euphorbiaceae and Santalaceae, because of the similarities in unisexual flowers, inferior fruits, small embryos, valvate aestivation and definite number of stamens. An important palynological study of Cornaceae by Ferguson (Thorne, 1983) excluded *Helwingia* not only from that family but also from the Cornales, and agreed with the establishment of a new monogeneric family, Helwingiaceae, which he placed in the Araliales.

Epiphyllous flowers are also found in *Begonia* (2 spp.)—Begoniaceae, *Polycardia* (2 spp.)—Celastraceae, *Dichapetalum* (2 spp.) and *Tapura* (1 sp.)—Dichapetalaceae, *Phyllonoma* (3 spp.)—Dulongiaceae (Saxifragaceae), *Phyllobotryon* (3 spp.) and *Phylloclinium* (2 spp.)—Flacourtiaceae, *Chirita* (1 sp.), *Didymocarpus* (1 sp.) and *Streptocarpus* (5 spp.)—Gesneriaceae, *Peptaulus* (1 sp.)—Icacinaceae, *Peperomia* (2 spp.)—Piperaceae, *Erythrochiton* (1 sp.)—Rutaceae and *Turnera* (10 spp.)—Turneraceae (Metcalfe & Chalk 1979). Hutchinson (1969) remarked that the peduncle, adnate to the midrib of the leaf, recalls a pararell development in some Flacourtiaceae. This type of epiphyllous inflorescence is so unusual that some authors have even suggested that "there exists an axillary peduncle which is so completely adnate to the leaf that its existence cannot be detected even on the basis of anatomical or developmental evidence" (Stebbins, 1974). C. de Candolle 1890, who studied the vascular supply of several epiphyllous inflorescences, concluded that they were of foliar origin (Metcalfe & Chalk 1979).

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Helwingia Willd.

Spec. Pl. 1805, 4: 716; Candolle. 1868 (in Helwingiaceae) Prodr. 16(2): 680; Benth. & Hk. f. 1867 (in Araliaceae.) Gen. Plt. 1: 931; Wangerin. 1910 (in Cornaceae) Pfl.-reich. Ht 41: 33; Hutchinson. 1968 (in Araliaceae) Gen. Flo. Pl. Dicot. 2:74; Hara & Kurosawa. 1975. Flo. E. Hil., Un. Mus. Tokyo. 8:393.

Dioecious, glabrous shrubs. *Leaves* simple, alternate, stipulate; *blades* serrate. *Inflorescences* in umbel, arising from the midrib on upper surface of blade. *Flowers* 3–5 merous, sometimes apetalous, valvate. *Stamens* as many as, and alternate with petals; *filaments* curved inward; *anthers* short, dorsifixed, 2-loculate, with longitudinal dehiscence. *Disc* flat. *Ovary* inferior, 3–5 celled. *Fruits* drupaceous with persistent stigmas; *pyrenes* 2–4. *Seeds* albuminous.

The genus is composed of 4 species, viz. *Helwingia japonica* (Thub.) Dietr. with 4 subspecies, *H. chinensis* Batalin, *H. omeiensis* (Fang) Hara et Kurosawa, and *H. himalaica* Hook. f. et Thoms. ex Clarke. All species have a high degree of variability. They are distributed from the Himalayas to Japan (fig.1). *Helwingia* was first collected in Thailand by the author in August 1995 (R. Pooma 1107 -fruits), again in January 1997 (R. Pooma 1399 -male flowers) at Doi Phukha National Park, Nan Province. (specimens in BKF)

Helwingia himalaica Hook. f. et Thoms. ex Clarke, Araliaceae in Fl. Brit. Ind. 2: 726. 1879; Kanjilal & Das, Cornaceae in Fl. Assam. 2: 373. 1938; Li in Journ. Arnold. Arb. 25: 310. 1944; Fang in Act. Phytotax. Sin. 1: 168. 1951; Wangerin. Pfl.-reich. Ht 41: 33. 1910; Hara & Kurosawa in Fl. E. Himal., Uni. Mus. Uni. Tokyo, Bull. 8: 393. 1975; Brandis, Ind. Tr. 357. 1978; Clement, Cornaceae. Fl. Bhut. 2(1): 326. 1991.

Glabrous shrub with clustered stems, up to 2 m tall; *stems* greenish 0.5–1 cm in diameter, woody part 2–3 mm thick; *pith* spongy, white. *Leaves*: *blades* lanceolate, (5–)9 (–11) by 2(–3) cm, glabrous; *apex* long acuminate; *base* cuneate; *margin* spiny denticulate; *lateral veins* 6–10 pairs, arching near margin; *scale-like leaves* present at tip of branches, 1 by 3–5 mm; *petioles* (1–)1.5–2 cm long. *Stipules* filiform 1–2 mm long, some divided into 2 or 3 branches. *Male Inflorescences* fascicle of 7–8(–10) flowers, arising slightly lower than the middle of the blade; *bracts* at the base of pedicels, similar to stipules, ca 1 mm long. *Flowers* 3(–4)–merous; *pedicels* ca 1–2 mm; *sepals* 3, broadly ovate, ca 1.5 by 1 mm, tip acute, glabrous, purplish in bud, turning greenish when mature; *petals* none; *filaments* free, glabrous, ca 1 mm long; *anthers* greyish, 0.2–0.3 mm; *disc* cushion-shaped, glabrous, light purplish, 1–2 mm in diameter, 0.5 mm thick. *Female inflorescences* not seen, described after Wangerin (1965): 1–3 flowered; *ovary* ovate, 2 mm long; *stigma* 3–5 lobes, lobes recurved. *Drupe*s 1–3, subsessile, ellipsoid, wrinkled when dry, dull pale green turning red when ripe, 7–8 by 4–5 mm; *pyrenes* 2–3, crustaceous. $2n = 38$. (figs. 2–3)

Distributed from Nepal to Bhutan, Assam, Manipur, N. Myanmar, Yunnan and N. Tonkin. In Thailand it has been found at only one locality at 1100 m altitude on a steep slope, by stream, in a dense shaded lower montane forest, in Doi Phukha National Park in Nan Province. Flowering (male) from late January to early March when new leaves

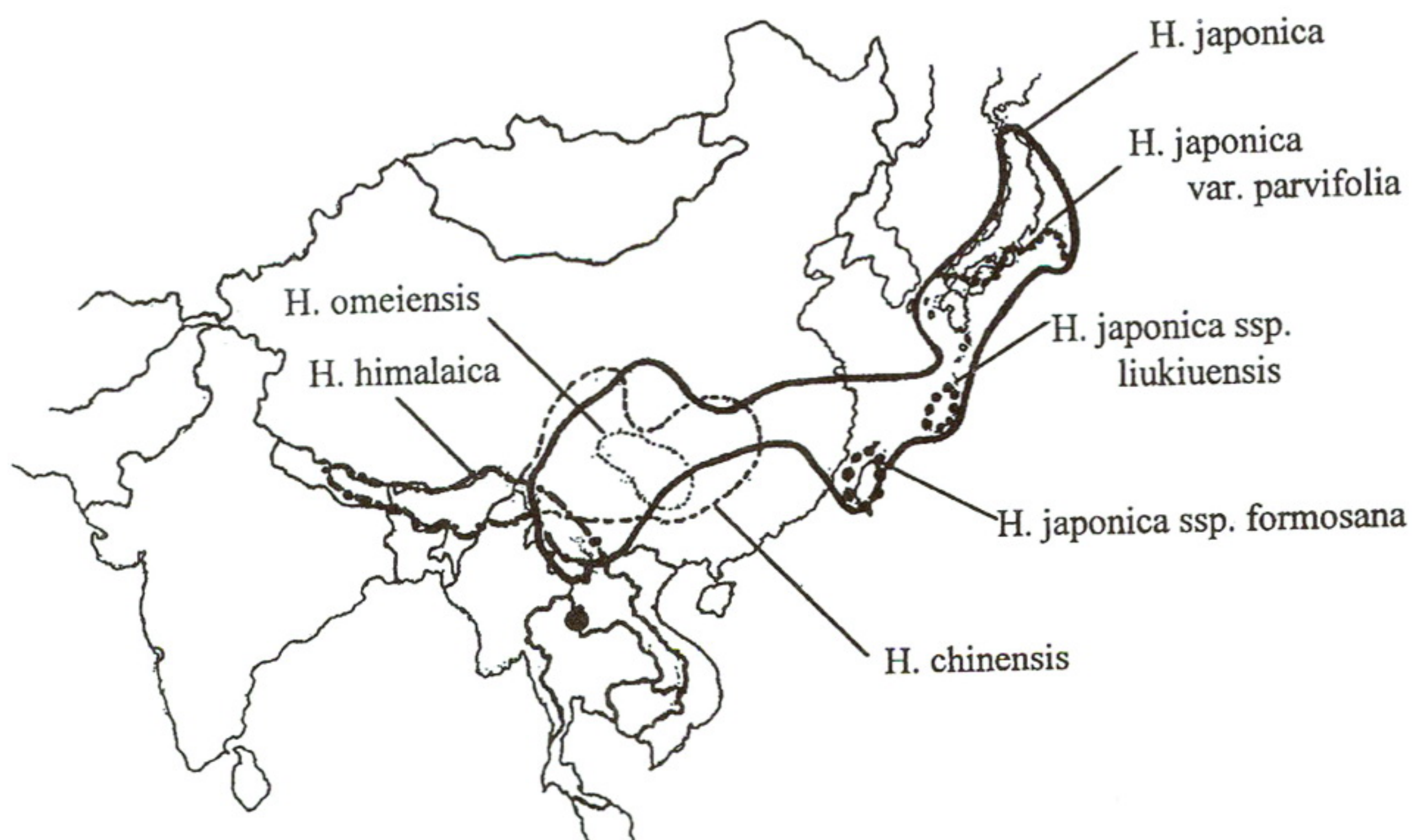


Figure 1. Map showing the distribution of the genus *Helwingia* (from Hara & Kurosawa 1975) and the locality of the only known collection of *H. himalaica* in Thailand (●).

are flushing; fruits approaching maturity in August. I propose the Thai name "Dton bai hoot" (ต้นใบหูด), meaning "wart leaf-like", due to the appearance of the small fruits on the leaf.

ACKNOWLEDGEMENTS

I am much indebted to Alain Mauric, VSO volunteer and J. F. Maxwell, Chiangmai University for reading and correcting the manuscript. I am also thankful to Mrs. Orathai Kerdkaew for her drawings.

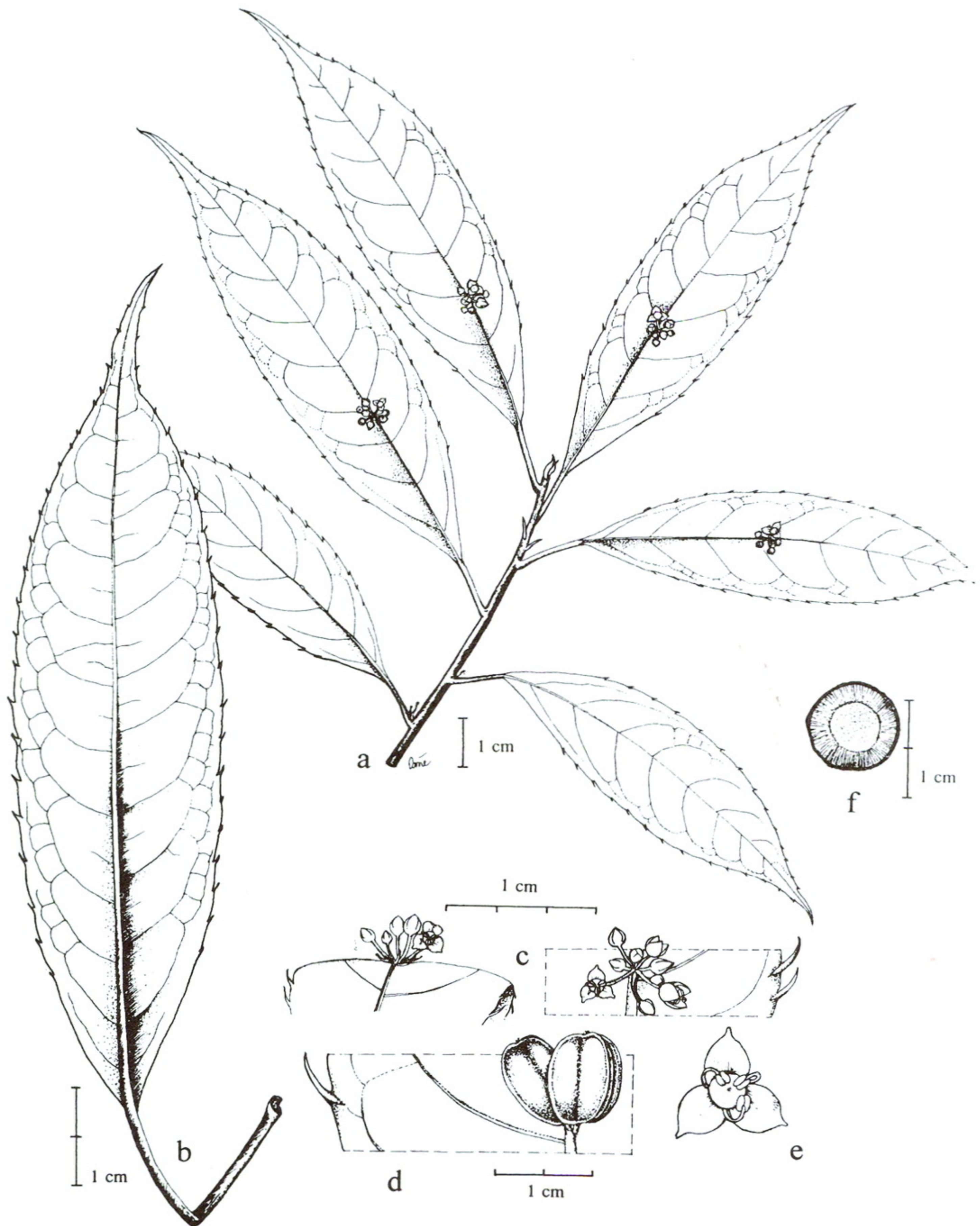


Figure 2. a.-f. *Helwingia himalaica*: a. male flowering plant; b. lower side of leaf; c. male inflorescences; d. fruits; e. a male flower (x 9) and f. cross section of stem showing pith and woody growth.

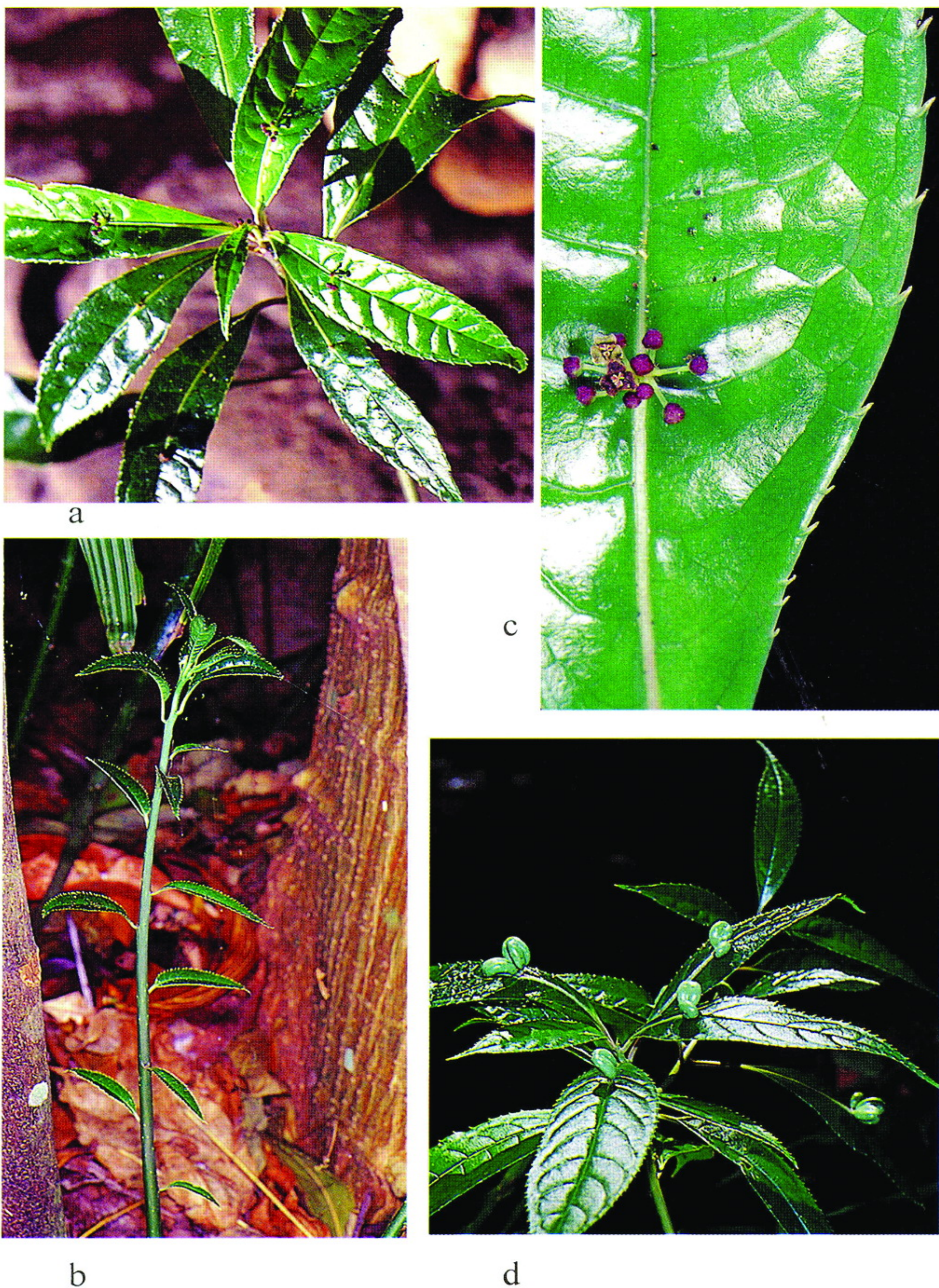


Figure 3. a.-d. *Helwingia himalaica*: a. male flowering plant; b. young plant; c. male inflorescence and d. fruiting plant. (b and c by Alain Mauric)

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