

Heterostemma brownii (Apocynaceae), a new record for Laos and Thailand

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ABSTRACT

Heterostemma brownii is reported as a new record for the floras of Laos and Thailand. A lectotype is also designated for the name *Heterostemma brownii*. A description based on Thai and Lao collections, photographs and notes are provided.

KEYWORDS: Asclepiadoideae, Ceropogonieae.

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INTRODUCTION

The genus *Heterostemma* Wight (Apocynaceae) includes 30–40 species (Rodda, 2016) distributed in Nepal, China, India, Bangladesh, continental Southeast Asia, throughout Malesia to Australia, Solomon Islands and New Caledonia (Swarupanandan *et al.*, 1989; Forster, 1992). Six species were recognized in the most recent full treatment of the genus for Thailand (Thaithong *et al.*, 2018). In 2019, three new species were described from Thailand, namely *Heterostemma ficoides* A.Kidyoo (Kidyoo, 2019), *H. barikiana* P.Agnihotri *et al.* (Agnihotri *et al.*, 2019) and *Heterostemma trilobatum* A.Kidyoo & Thaithong (Kidyoo & Thaithong, 2019). *Heterostemma trilobatum* is a synonym of *H. barikiana*. Accordingly, eight species are now recognized in Thailand.

In Laos, only three species of *Heterostemma* are recorded, *Heterostemma grandiflorum* Costantin, *H. oblongifolium* Costantin and *H. succosum* Kerr (Newman *et al.*, 2007; Jin *et al.*, 2016; Thammarnong *et al.*, 2019).

During a botanical survey in Chiang Rai province, northern Thailand in 2019, an unknown *Heterostemma* species was found. Specimens were deposited in QBG and SING herbaria. The same species was also collected in Laos, Oudonxai and Houaphan provinces, in 2012 and 2013 respectively. Based on the literature (Costantin, 1912; Swarupanandan

et al., 1989; Ho, 1993; Li *et al.*, 1995; Thaithong *et al.*, 2018), it was identified as being very similar to *Heterostemma brownii* Hayata, but possibly distinct because of the glabrous stems (pubescent along two lines in *H. brownii*) and with corona lobes about $\frac{2}{3}$ as long as the corolla tube (vs as long as the corolla tube in *H. brownii*). However, upon examination of specimens of *Heterostemma brownii* across its distribution area at A, KUN, IBSC, TAI and online at numerous Chinese herbaria via the China Virtual Herbarium (<http://www.cvh.ac.cn/>) it became clear that *H. brownii* is a variable species and stem pubescence ranges from glabrous or sparsely pubescent to pubescent along two distinct lines. The corona lobes appear to be generally as long as the corolla tube in specimens from Taiwan but quite variable on specimens from elsewhere, ranging from as long as the corolla tube to $\frac{2}{3}$ as long as the corolla tube. Therefore, there is currently no evidence to justify the separation of a new taxon based on stem pubescence and the ratio of corona lobe and tube length.

Rodda (2016) was unable to locate any duplicate of the two syntypes of *Heterostemma brownii* (Kawakumi & Mori 1373, Hayata & Mori 41). Now, however, original material of *Heterostemma brownii* has been located and a lectotype can therefore be designated.

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TYPIFICATION & NEW RECORD

Heterostemma brownii Hayata, J. College Sci., Imperial Univ. Tokyo 30: 199. 1911. Type: Taiwan, Shintiku, Taitoga, 1 June 1906 [1905], *T. Kawakami & U. Mori 1378* [1373] (lectotype **IBSC** [0005666], designated here). Fig. 1.

Climber. *Stem* and branches glabrous; internodes 8–11 cm long. *Leaves*: blade ovate to elliptic, 6–16 × 4–7 cm, rather fleshy, papery when dry, base broadly cuneate, apex acute, glabrous, upper surface dark green, lower surface whitish green; venation palmate with 5 basal veins; petiole 1–4 cm long, above sparsely pubescent to glabrous, below glabrous. *Inflorescences* umbelliform, (5–)10–18-flowered; peduncles extra axillary, 1.5–3 cm long, glabrous; pedicels filiform, 1–1.5 cm long, puberulous. *Calyx* lobes triangular, ca 1.5 mm long, apex acute, glabrescent. *Corolla* rotate, 1–1.2 cm in diam. (to 1.8 cm in diam. when fresh), yellow with reddish brown specks inside, glabrous on both sides; tube shallowly campanulate, 5–6.5 mm long; lobes ovate-triangular, 3–4 × 3–4 mm, apex acute, recurved. *Corona* spreading, almost flat, 5–7 mm in diam., lobes red, oblong, 2.5–3.5 × ca 1 mm, thicker in the middle, with a short incurved projection above; inner process acuminate, outer process triangular with a round apex. *Staminal column* ca 1 mm in diam. *Follicles* and seeds not seen.

Distribution.— Laos, Thailand, China, Taiwan, Vietnam.

Ecology and Phenology.— Evergreen forest, roadsides and along streams at 500 to 1,100 m altitude. Flowering in June and July.

Notes.— The specimen here designated as lectotype of *Heterostemma brownii* is a duplicate of one of the two syntypes (*Kawakami & Mori 1373*; *Hayata & Mori 41*). The specimen is a fragment including two leaves and an inflorescence. Its label is typewritten and has two inaccuracies when compared with the protologue. The collection year is indicated as 1906 (vs. 1905 in the protologue) and the collection number is 1378 (vs. 1373 in the protologue). The same typewritten label indicates that the specimen is an isosyntype. Despite these differences, we presume that this is a fragment of a more complete specimen of *Kawakami & Mori 1373*, possibly originally in TAI (now lost) and the mistakes were introduced when duplicating the label. This is currently the only original material available for lectotypification. If

new evidence were to be found to indicate this specimen is not original material, and if no alternative original material is found, then the lectotypification designated here would count as an effective neotypification under Art. 9.10 of the ICN (Turland *et al.* 2018).

Selected specimens examined.— Laos, Houaphan, Prov., Xam Nua Distr., trail from Ban Houa Xieng to Tad Xam waterfall, 1096 m, 4 June 2013, *Leong-Škorničková et al. JLS2289* (**E** [E00715044], **P** [P01035642], Pha Tad Ke, **QBG** [sheet no. 75149], **SING** [SING0210351]); Oudonxai Prov. Ban Fen, 729 m, 16 Jun 2012, *Leong-Škorničková et al. JLS1730* (**E** [E00664225], NUoL, **P** [P01035641], **SING** [SING0199246, SING0205217]). Thailand, Chiang Rai, Mae Sai, Wiang Phang Kham, Pha Mi, N 20°24'02.298" E 99°51'10.456", 515 m, 11 July 2019 (fl.), *Thammarong et al. 895* (**QBG** [sheet no. 115360], **SING**). China, Yunnan, Pingpien Hsien, 1,100 m, 20 June 1934, *Tsai 60395* (**A**). Taiwan, Taipei, Wakau-Wulai, ca 100 m, 31 May 1989, *Liau 46* (**TAI**); Taipei, Hsintien, Kwanhsinli, 3 May 1990, *Ou & Kao 10857* (**TAI** [sheet no. 214658, 214659]); Hsinchu, Chutang, Shangpingkou, ca 200 m, 7 May 1991, *Huang 4596* (**TAI** [sheet no. 220063, 220064, 220065]); Chiayi, Chonglun, 600 m, 14 June 1988, *Yen & Kao 10694* (**TAI** [sheet no. 212002, 212003, 212004, 218383]).

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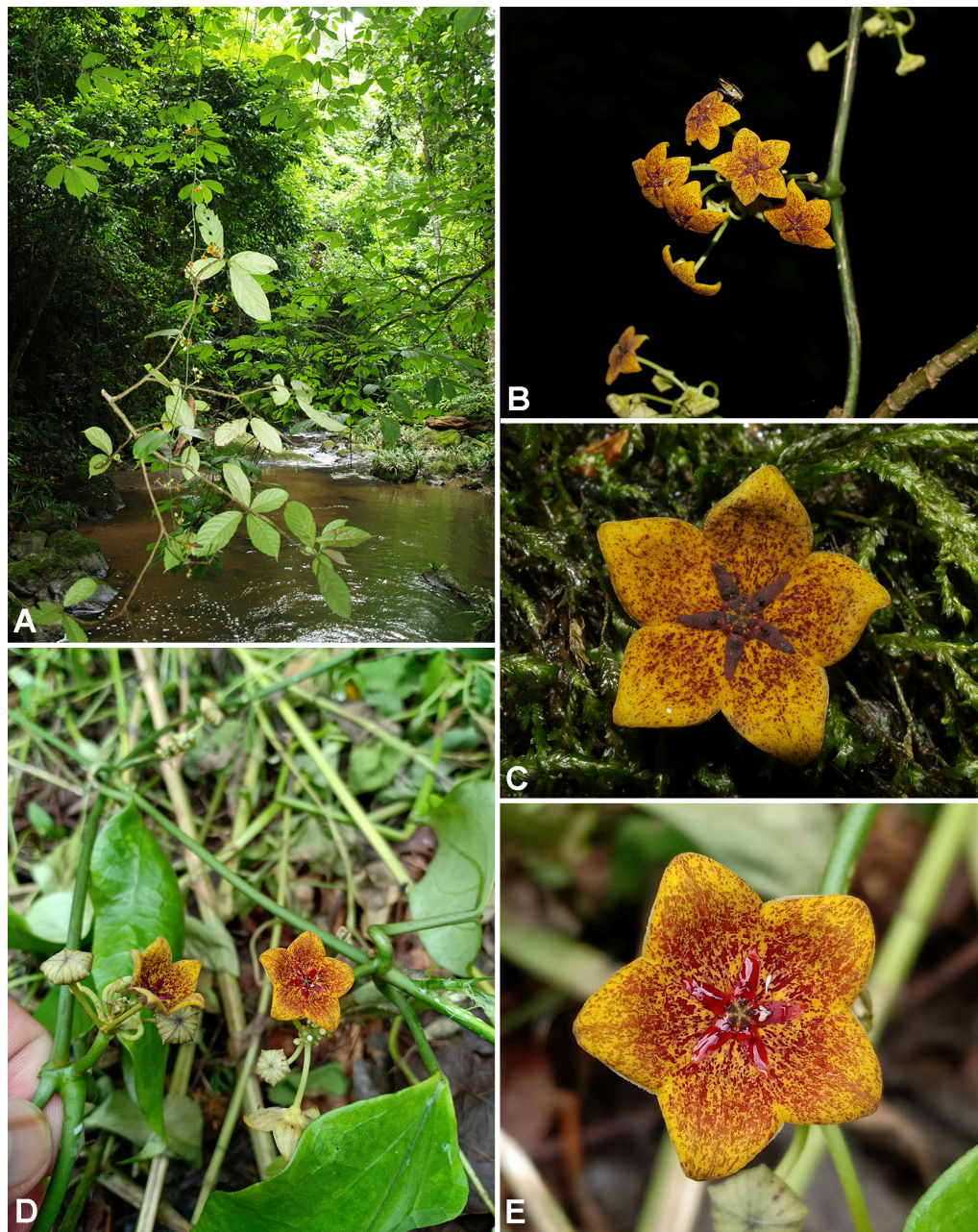


Figure 1. *Heterostemma brownii* Hayata in Laos: A. habit, dangling over a stream; B. inflorescences; C. flower. *Heterostemma brownii* Hayata in Thailand: D. inflorescences; E. flower. A, B, C by Michele Rodda based on Leong-Škorničková, et al. JLS2289; D, E by Woranart Thammarong based on Thammarong et al. 895.

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