



A taxonomic note on *Impatiens disotis* Hooker, 1906 (Family: Balsaminaceae)

The genus *Impatiens* consists of over 1000 species distributed in the Old World tropics and subtropics (Janssens *et al.*, 2009, Yuan *et al.*, 2004). In India, the genus is represented by more than 200 species that occur mainly in three major centers of diversity, Western Himalayas, North East India, and the Western Ghats (Vivekananthan *et al.*, 1997), of which the state of Kerala harbours 72 species (Nayar *et al.*, 2006), most of which are rare, endangered or threatened.

As part of the survey of rare and threatened plants of Western Ghats, the authors collected *Impatiens disotis* in Kallar Valley, Idukki District, Kerala, India. *Impatiens disotis* was described by Joseph Dalton Hooker in 1906, and while he failed to cite specimens, the species was indicated to be restricted to the Travancore and Tinnevely hills. This suggests that he had access to at least two specimens. However, our enquiry of herbaria at Edinburgh, Kew and Manchester proved futile. At this point in time we refrain from designating a neotype pending further investigation. Alfred Meebold, a New Zealand botanical collector, writer and anthroposophist, visited India three times and on his third visit in 1910 he collected *I. disotis* from Deviculam (Deviculam, Idukki District in what is now the state of Kerala; see <http://apps.kew.org>; Barcode: K000683314, K). Gamble (1915) accepted Hooker's species but it is evident from his description that Gamble never saw the Meebold collection. Bhaskar & Razi (1978) provided a vague description of flower colour, but as they failed to cite any herbarium specimens to support their findings it is difficult to know how they arrived at their conclusion. In fact, Vivekananthan *et al.* (1997) went so far as to state that the species had not been collected after 1906, and so seemingly they were unaware of the Meebold collection.

In his monograph on *Impatiens* of Western Ghats, Bhaskar (2012) treated *I. disotis* as vulnerable. He pointed out that neither Hooker nor Gamble, or any later worker, provided a detailed description of the species. He presented a more detailed description based mainly on a B.V. Shetty collection (Shetty 33049, MH!) from the Myhendragiri Hills in the Kanyakumari District region of Tamil Nadu. Here a description, illustration (plate 2) and an array of photographs (plate 3) are provided to facilitate identification of the species.

Impatiens disotis Hooker, 1906

Hooker, J. D. 1906. An epitome of the British Indian species of *Impatiens*. *Records of the Botical Survey of India*, 4: 43, 48, figs. 1 & 2.

Specimen examined: TBGT 70438; Kallar Valley, Idukki District, Kerala, India; E. S. Santhosh Kumar & P. E. Roy; 22 Mar 2012.

Herbs 50-100 cm high; stem herbaceous, simple or rarely branched, subterete to shallowly sulcate. **Leaves** alternate, 7-13 x 4-6 cm; petiole to 3-5 cm with 1-2 cilia; leaf blade elliptic, elliptic-lanceolate or broadly elliptic with 4-6 pairs of lateral veins, dark green above, pale green beneath, glabrous on both surfaces, attenuate at base, acuminate-caudate acuminate at apex, broadly crenate along margins with minute ciliate. **Flowers** in axillary racemes, 6-8-flowered, creamy-white with saffron-red patches; peduncle solitary, to 5 cm long; pedicels 2-3 cm long; bracts subulate, 0.6-0.7 cm long, glabrous; lateral sepals 2, ovate-lanceolate, acuminate at apex, 3-5 nerved, slightly concave, 10-12 x 5-6 mm, pale green; lip cymbiform, slightly compressed laterally, to 14 mm long, anterior part of mouth with a slightly curved beak to 3 mm long and a tubular spur to 5 mm long; standard broadly ovate to suborbicular, keeled along the dorsal side, beaked at apex, 9-10 x 8-9 mm; wing

petals 3-lobed, 12-16 mm long with basal lobe acuminate at apex and upper lobe ovate-oblong, slightly undulating marginally. **Androecium** 4.5-5 mm long; filaments to 3.5 mm long, glabrous; anthers to 1 mm long. **Ovary** ellipsoid-ovoid, 1.2-1.6 x 0.5-0.6 cm; style short; stigma obtuse apically. **Capsule** 2 cm long, tapering at both ends. **Seeds** 5-9 per capsule, brownish.

Flowering: December – March

Ecology: Terrestrial, growing in evergreen forests in association with *Impatiens goughii* (Balsaminaceae), *Sarcandra chloranthoides* (Chloranthaceae) and *Strobilanthes rubicundus* (Acanthaceae) at an altitude of 1400 m.

Distribution: India (Kerala and Tamil Nadu), endemic.

Remarks: *Impatiens disotis* is allied to *I. campanulata* Wight by its herbaceous habit, alternate leaves, and a spur that is distinctly shorter than the lip. From that species, *I. disotis* may be distinguished by its oblong sepals with acute apices (not ovate with narrowly acuminate apices) and by its longer spur (5 cm vs 2-2.5 mm long).

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Literature Cited

Bhaskar, V. and B. A. Razi, 1978. Studies on south Indian *Impatiens* L. II. General. *Indian Journal of Forestry*, 1: 191-198.

Bhaskar, V., 2012. *Taxonomic monograph on Impatiens L. (Balsaminaceae) of Western Ghats, South India. The key genus of endemism*. Centre for Plant Taxonomic Studies, Bangalore: 239.

Gamble, J. S., 1915. *Flora of the Presidency of Madras*. Volume 1, part 1. Adlard & Son, London: 144.

Hooker, J. D. 1906. An epitome of the British Indian species of *Impatiens*. *Records of the Botical Survey of India*, 4: 37-58.

Janssens, S., E. Knox, S. Huysmans, E. Smets and V. Merckx, 2009. Rapid radiation of *Impatiens* (Balsaminaceae) during Pliocene and Pleistocene: Result of global climate change. *Molecular Phylogenetics and Evolution*, 52: 806-824.

Nayar, T. S., B. Rasiya, N. Mohanan, and G. Raj Kumar, 2006. *Flowering plants of Kerala – A handbook*. Tropical Botanic Garden and Research Institute, Thiruvananthapuram: 133.

Vivekananthan, K., N. C. Nair, M. S. Swaminathan and L. K. Ghara, 1997. Balsaminaceae. *Flora of India*, 4: 93-102.

Yuan, Y. -M., Y. Song, K. Geuten, E. Rahelivololona, S. Wohlhauser, E. Fischer, E. Smets and P. Küpfer, 2004. Phylogeny and biogeography of Balsaminaceae inferred from ITS sequences. *Taxon*, 53: 391-403.

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PLATE 02

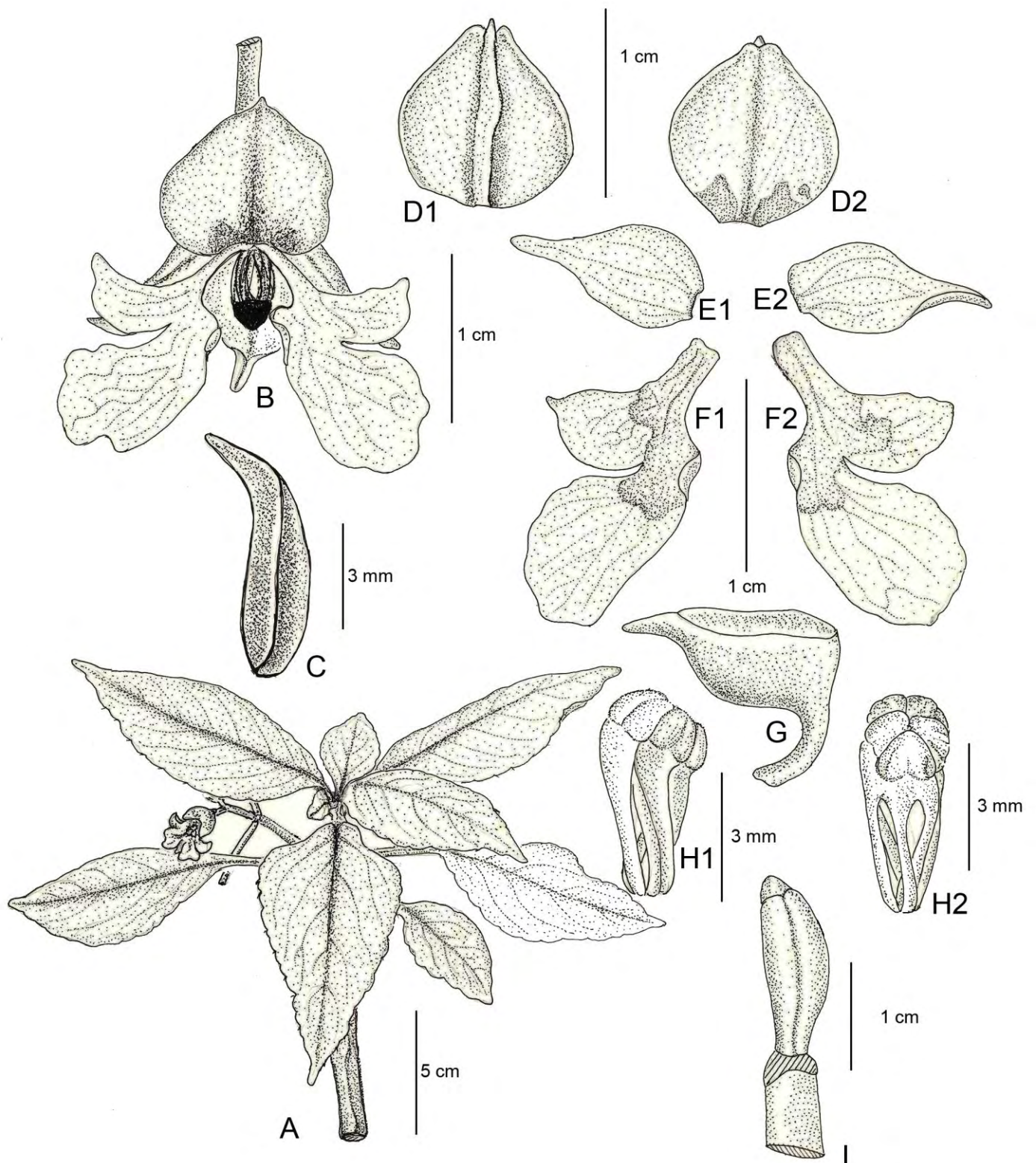


Figure 1: *Impatiens disotis*, A, Twig; B, Flower; C, Bract; D1, Standard petal (dorsal view); D2, Standard petals (ventral view); E1 & E2, Lateral sepals; F1 & F2, Wing petals; G, Lip; H1 & H2, Stamens; I, Capsule (immature).

PLATE 03

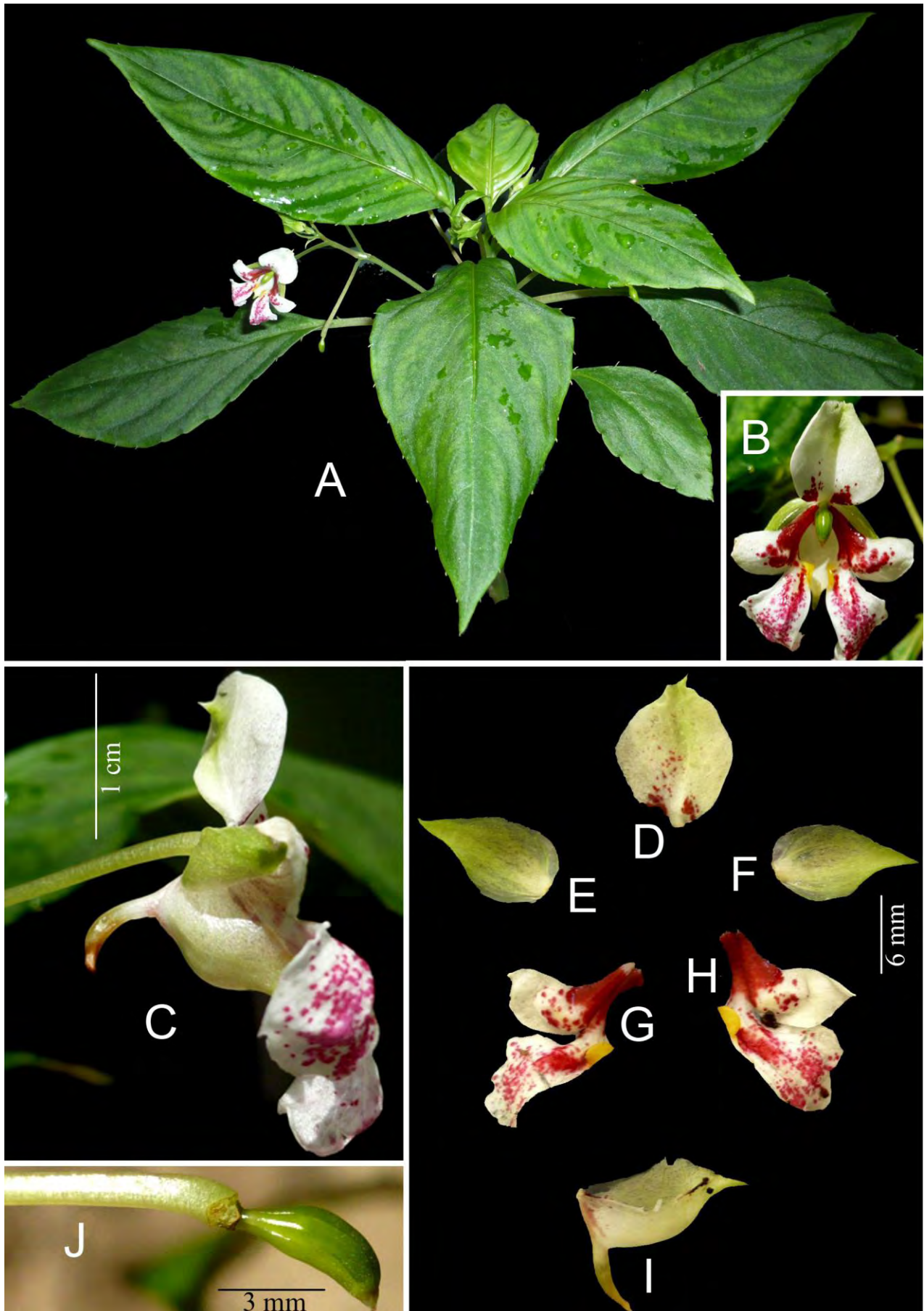


Figure 2: *Impatiens disotis*, A, Twig; B, Flower (front view); C, Flower (lateral view); D, Dorsal petal; E & F, Lateral sepals; G & H, Wing petals; I, Lip; J, Capsule (immature).