



Ophiorrhiza meghalayensis (Rubiaceae: Ophiorrhizeae), a new species from Meghalaya, North-East India

VADAKKOOT SANKARAN HAREESH¹, WU LEI², ALFRED JOE³ & MAMIYIL SABU^{1*}

¹Department of Botany, University of Calicut, Thenhipalam, Malappuram-673 635, Kerala, India

²College of Forestry, Central South University of Forestry and Technology, Changsha-410 004, China

³Department of Botany, St. Thomas' College, Thrissur- 680 001, Kerala, India

*E-mail: msabu9@gmail.com

A new species of Rubiaceae, *Ophiorrhiza meghalayensis* Hareesh, A.Joe, M.Sabu & L.Wu is described from Meghalaya, North-East India. This species is allied to *Ophiorrhiza caudipetala* Deb & Mondal and *O. hirsutula* Wight ex Hooker but can be distinguished from the latter by its triangular calyx lobes, corolla without villous ring within and deeply keeled corolla lobes. Detailed description, distribution, ecology, phenology and relevant taxonomic notes are provided along with colour photographs.

Key words: Endemic species, Shillong, Ophiorrhizeae

The genus *Ophiorrhiza* Linnaeus (1753a: 150) belongs to the tribe Ophiorrhizeae in the subfamily Rubioideae (Bremer & Manen 2000). It is a notably species-rich taxonomically complicated genus consisting of 318 species, five varieties and one subspecies (WCSPF 2017) and found in wet tropical forests of South-East Asia extending to Australia, New Guinea and the Pacific islands (Darwin 1976, Chen & Taylor 2011). Deb & Mondal (1997) revised the genus *Ophiorrhiza* for Indian sub-continent and documented 47 species and 9 varieties, among them 21 species and one variety were reported from northeastern India. While conducting floristic explorations in North-East India, the authors came across an interesting *Ophiorrhiza* species in Meghalaya. Detailed taxonomic studies with the perusal of relevant literature (Darwin 1976, Lo 1990, Deb & Mondal 1997, Hareesh *et al.* 2015 a,b,c), the taxon shows similarities with *Ophiorrhiza caudipetala* Deb & Mondal (1982: 483) and *O. hirsutula* Wight ex Hooker (1880: 81) having pubescent ovate or ovate lanceolate leaves, stipules with acute apex, pubescent corymbose cymes with persistent linear bract and bracteoles, white corolla with pubescent outer surface and pubescent capsule. Comparing the unknown taxa with protologue and fresh and herbarium materials of allied species shows distinct differences (Table 1.), hence a new species is herein described and illustrated.

TABLE 1. Morphological comparisons of *Ophiorrhiza meghalayensis* with *O. caudipetala* and *O. hirsutula*.

Characters	<i>O. meghalayensis</i>	<i>O. caudipetala</i>	<i>O. hirsutula</i>
Stems	terete	quadrangular/ridged	Terete
Flowers	homostylous	heterostylous	Homostylous
Villous ring in the corolla	absent	present	Present
Calyx lobes	triangular	ovate-lanceolate	ovate-lanceolate
Corolla	narrowly infundibuliform	narrowly infundibuliform	broadly infundibuliform
Corolla lobe dorsal side	deeply keeled	with 0.5–1.5 mm long horn	non-keeled

Materials and methods

Plant materials were collected from on the way to Shillong peak, East Khasi district of Meghalaya, North-East India during 2015. The photographs of the plants (including dissected) were taken at the time of collection itself. The floral parts were preserved in FAA for subsequent studies and three flowering or fruiting twigs were taken for preparation of herbarium. Measurements of floral parts for description were made from both live and preserved specimens. Herbarium specimens were prepared by using standard herbarium methods. The dried plant material is pasted on a herbarium sheet and deposited at CAL and CALI.

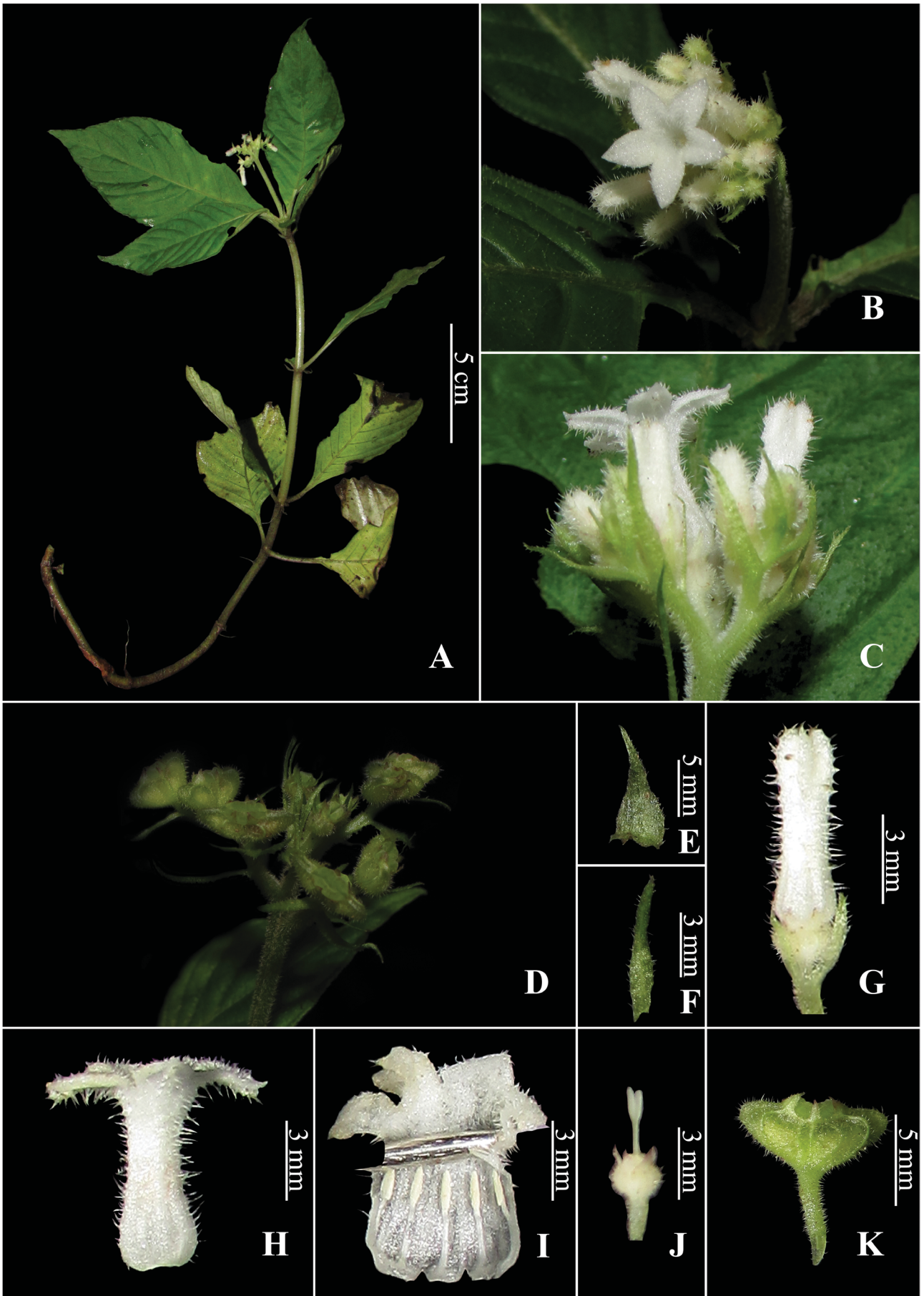


FIGURE 1. *Ophiorrhiza meghalayensis*. A. Habit. B. Inflorescence top view. C. Inflorescence side view. D. Infructescence. E. Stipule. F. Bract. G. Flower bud. H. Corolla. I. Corolla-split open. J. Hypanthium, calyx, and style. K. Capsule. Photos by V.S. Hareesh.

Taxonomy

Ophiorrhiza meghalayensis Hareesh, A. Joe, M. Sabu & L. Wu, **sp. nov.** (Fig. 1)

Ophiorrhiza meghalayensis is similar to *O. caudipetala*, but differs from the latter in its terete stem (vs. quadrangular or ridged), flowers homostylous (vs. heterostylous), corolla throat without villous ring within (vs. with villous ring) and deeply keeled corolla lobes on the back (vs. with 0.5–1.5 mm long horn). It also resembles *O. hirsutula*, but can be distinguished from the latter by the triangular calyx lobes (vs. ovate-lanceolate), narrowly infundibuliform corolla (vs. broadly infundibuliform), without villous ring within (vs. with villous ring) and deeply keeled corolla lobes on the back (vs. non-keeled).

Type:—INDIA. Meghalaya: East Khasi district, Shillong, on the way to Shillong Peak, 27 June 2016, *V.S. Hareesh & A. Joe 143722* (holotype CALI!; isotypes CALI!, CALI!).

Decumbent herb, 15–50 cm tall; stem branched, terete, pubescent, pale green; internodes 2–3.5 cm long. Stipules ovate-acuminate, entire, 8–13 mm long, acute, pubescent, persistent. Petioles 1.5–3 cm long, slender, pubescent; leaf blades ovate, elliptic to elliptic-lanceolate, 5–12 × 2–4.5 cm, attenuate at base, caudate acuminate at apex, sparsely pubescent above; secondary veins 8–10 each side, puberulous below. Inflorescence terminal; rachis pubescent; peduncle 2–2.5 cm long in flowering stage and elongated up to 5 cm long in fruiting stage, pubescent, pale green; bract and bracteoles similar, linear-lanceolate to filiform, 5–8 mm long, puberulous, persistent. Pedicels 1–1.5 mm long in flowering stage and elongated up to 2.5 mm long in fruiting stage, pubescent. Flowers 8–11 mm long, densely hirsute. Hypanthium obovoid, 1.4–1.8 × 2–2.3 mm. Calyx lobes triangular, 0.6–0.8 × 0.4–0.5 mm, pale rose or pale green, acute, pubescent, glabrous on adaxial side. Corolla cylindrical, 7–8 mm long, white, densely hirsute outside and pubescent above the attachment of stamen and glabrous at base within; lobes ovate, 2.5–3 × 1.5–1.75 mm, acute, prominently keeled on back, spreading, densely hirsute. Stamens inserted near the base of the corolla tube; filaments 1.5–1.75 mm long, glabrous, white; anthers oblong-linear, 1.3–1.5 mm long, pale yellow; style filiform, 1–1.25 mm long, glabrous; style branches 2, linear-oblong, ca. 1.25 mm long, pubescent. Capsule obcordate in outline, 3.5–4 × 6.5–8 mm, densely pubescent, green. Seeds small, angular, numerous, pale yellow to brown.

Flowering and fruiting:—From April to October.

Etymology:—The specific epithet refers to Meghalaya, the state in which the new species was collected.

Distribution:—*Ophiorrhiza meghalayensis* is known only from Shillong Peak, Meghalaya, North-East India.

Ecology:—Until now, a total of 50 individuals were observed though search expended, which reveals that the species is probably endemic in this area. The new species growing along the roadside on the way to Shillong peak in association with *Amomum* Roxburgh (1820: 75) sp., *Artemisia* Linnaeus (1753b: 845) sp., *Melastoma malabathricum* Linnaeus (1753c: 390), *Premna* Linnaeus (1771: 587) sp., etc.

Conservation status:—Our personal observation reveals that the new species is confined to Shillong Peak. However, more explorations are essential to understand its distribution and assessment of conservation status as per the guidelines and criteria of IUCN (2012). According to the available data, the species should be treated as ‘Data Deficient’ (DD).

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