Ceropegia ravikumariana (Apocynaceae: Ceropegieae), a new species from the Western Ghats of Tamil Nadu, India

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Abstract

Ceropegia ravikumariana Kambale & Gnanasek., is described here as a new species from the Western Ghats of Tamil Nadu along with illustrations and colour photographs. Besides the taxonomic affinity and conservation status of the species are discussed.

Keywords: Apocynaceae, Ceropegia, Grasslands, New Species, Western Ghats

Introduction

Ceropegia L. (Apocynaceae: Ceropegieae) is an Old World genus, represented by more than 200 taxa, and distributed mainly from the Spanish Canary Islands in the west, through central, southern and northern Africa, Madagascar, Arabia, India, Southeast Asia to northern Australia in the east (Meve, 2002). In India, the genus is represented by 56 species, 2 varieties and 1 forma (Kambale, 2015). During the taxonomic revision of the genus Ceropegia in India, intensive explorations were undertaken to different parts of the country for collection of fresh materials, and extensive consultations of representative voucher specimens of Ceropegias housed in many national and international herbaria were also made. On examination of specimens deposited at FRLH, the senior author found an interesting material of Ceropegia (K. Ravikumar & R. Murugan 110037) collected from the Kalakkad Mundanthurai Tiger Reserve (KMTR) in Tirunelveli district of Tamil Nadu. Subsequently fresh tubers, flowering and fruiting specimens of that Ceropegia were collected from the same locality and introduced in the Botanical Garden of Shivaji University, Kolhapur. Thorough examination of these specimens, scrutiny of literature (Huber, 1957; Ansari, 1984; Jagtap & Singh, 1999), and consultation of specimens at different herbaria (ARUN, ASSAM, BSI, CAL, CALI, FRLH, K [image], MH, SKU and TBGT) revealed that these materials were not matching with any of the earlier described taxon. Therefore it is described here as a new species with illustrations and photographs.

Taxonomy

Ceropegia ravikumariana Kambale & Gnanasek., sp. nov.

Figs. 1,2

It is similar to C. candelabrum L. but differing by leaves being linear, cymes with 1 or 2 flowers, corolla lobes not beaked and glabrous throughout outside and corolla tube abruptly to gradually dilated towards base.

Typus: INDIA, Tamil Nadu, Tirunelveli district, KMTR, Thirukurungudi Range, Naraikkadu, Visthaara Mottai, 08°28'11.7″ N, 77°29'01.5″ E, 1368 m, 10.9.2010, K. Ravikumar & R. Murugan 110037 (Holotypus, FRLH!; Isotypus, MH!).

Herb, perennial; latex watery; rootstocks tuberous, globose, 1.8–3.5 cm; roots fascicled, 2.5–9 cm long, fleshy. Stems prostrate, often twining, usually branched, terete, 1–2 mm across, glabrous, purple to greenish; internodes 1–6 cm long. Leaves simple, opposite-decussate; petioles 2–7 mm long, grooved, puberulous when young; lamina linear–lanceolate, 2–3.7 × 0.3–0.6 cm, narrowed at base, ciliolate along margins and on mid-vein beneath, acute at apex, deep green above, pale green beneath. Inflorescence an extra-axillary cyme, 1 or 2-flowered; peduncles 2–5 mm long (in fruiting 1.2–2 cm), slender, glabrous. Flowers erect, bracteate; pedicels 3–8.5 mm long (in fruiting 8–10 mm), slender, glabrous. Sepals subulate, 2–3.7 × 0.3–0.6 cm, narrowed at base, ciliolate along margins and on mid-vein beneath, acute at apex, deep green above, pale green beneath. Inflorescence an extra-axillary cyme, 1 or 2-flowered; peduncles 2–5 mm long (in fruiting 1.2–2 cm), slender, glabrous. Flowers erect, bracteate; pedicels 3–8.5 mm long (in fruiting 8–10 mm), slender, glabrous. Sepals subulate, 2–3.5 mm long (in fruiting 0.5 mm), glabrous. Corolla 1.15–1.6 cm long, straight, glabrous and whitish yellow outside; tube 9–10 × c. 2.5 mm, straight to slightly
**Ceropegia ravikumariana** (Apocynaceae: Ceropegieae), a new species from India

Corona saucer-shaped; lobes triangular-undulate, yellow-margined purple, slightly reflexed and pilose along margins and inside; inner (staminal) corona lobes spathulate, 1.4–3 mm long, erecto-connivent, yellow. Pollinarium c. 0.2 × 0.4 mm; pollinia broadly ovoid, c. 0.3 × 0.2 mm, yellow; corpusculum spathulate, red; caudicles stout, c.

**Fig. 1. Ceropegia ravikumariana** Kambale & Gnanasek.: a. Habit; b. Tuber with fleshy roots; c. L.S. of flower; d. Corona lateral view; e. Follicle; f. Seed. (Drawn by S.P. Sutar from S.S. Kambale SSK-222).
Fig. 2. *Ceropegia ravikumariana* Kambale & Gnanasek.: a. Tuber; b. Habit (under cultivation); c. Habit (natural) – inset: flowering-twig; d & f. Flowers; e & g. L.S. of flowers; h. Corona; i. Follicles (Photographs by K. Ravikumar (a & i), S.R. Yadav (b), G. Gnanasekaran (c–e) & S.S. Kambale (f–h); a, b, f–h [S.S. Kambale SSK-222], c–e [G. Gnanasekaran 126912], and i [K. Ravikumar & R. Murugan 110037]).
0.07 × 0.05 mm, hyaline. Mericarps in pairs, usually unequal, rarely equal or one carpel aborted, 8–11 × 0.2–0.3 cm, straight, erect, tapering at ends, subacute, glabrous. Seeds narrowly elliptic, winged; wings 6.5–7 × 1.5–2 mm, brownish; coma 1.8–2.8 cm long, silky white.

Flowering & fruiting: July–March.

Habitat: Growing in grasslands on steep, rocky slopes, near shola forests at an elevation between 1160 and 1420 m.

Etymology: This species is named in honour of Prof. K. Ravikumar, Head, Centre of Repository of Medicinal Resources, Foundation for Revitalization of Local Health Traditions (FRLHT), Bengaluru, for his contribution to the Indian plant taxonomy and conservation of medicinal plants.

Distribution: INDIA, Tamil Nadu (Tirunelveli district). Endemic.

Taxonomic Affinity: *Ceropegia ravikumariana* shows close morphological similarity with *C. candelabrum* var. *candelabrum* and *C. candelabrum* var. *biflora* (L.) Ansari by having tubers with fleshy roots, and corolla tube retrorse-hirsute inside, however, it differs from them in many other characters as given in Table 1.

Conservation Status: *Ceropegia ravikumariana* has provisionally been evaluated here as a Data Deficient (DD) following IUCN Red List Categories and Criteria Version 3.1 (IUCN, 2012). This species is hitherto known from only two localities in KMTR where we could locate about 80 individuals. Extensive explorations to similar habitats in the adjacent localities are required to determine its exact IUCN threat status.

Table 1. Comparative diagnostic characters between *Ceropegia candelabrum* var. *candelabrum*, *C. candelabrum* var. *biflora* and *C. ravikumariana*

<table>
<thead>
<tr>
<th>Characters</th>
<th><em>C. candelabrum</em> var. <em>candelabrum</em></th>
<th><em>C. candelabrum</em> var. <em>biflora</em></th>
<th><em>C. ravikumariana</em>, sp. nov.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat</td>
<td>Wet evergreen forest</td>
<td>Dry deciduous forest</td>
<td>Grasslands on steep, rocky slopes</td>
</tr>
<tr>
<td>Leaf shape</td>
<td>Broadly ovate</td>
<td>Broadly ovate-lanceolate</td>
<td>Linear-lanceolate</td>
</tr>
<tr>
<td>Number of flowers in a cyme</td>
<td>c. 10</td>
<td>c. 12</td>
<td>1 or 2</td>
</tr>
<tr>
<td>Corolla tube</td>
<td>Abruptly dilated towards base</td>
<td>Gradually dilated towards base</td>
<td>Abruptly to gradually dilated towards base</td>
</tr>
<tr>
<td>Corolla lobes</td>
<td>Not beaked; retrorse-hirsute only at tips</td>
<td>Beaked; retrorse-hirsute throughout</td>
<td>Not beaked; glabrous outside, retrorse-hirsute inside</td>
</tr>
</tbody>
</table>

Notes: *Ceropegia ravikumariana* shows the typical adaptations recorded from the other grassland Ceropegas such as being a tuberous plant with small (grass-like) leaves and reduced number of flowers (Meve, pers. comm.). These adaptive features are found to be consistent even under cultivation when it was grown along with both the varieties of *C. candelabrum*. The new species shares its habitat with few other endemic species such as *Andrographis viscosula* Nees (Acanthaceae), and *Decalepis arayalpathra* (J. Joseph & V. Chandras.) Venter (Apocynaceae).


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