



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 twinning, 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; bracts 2, linear, 1.2–2 mm long; pedicels 3–8.5 mm long (in fruiting 8–10 mm), slender, glabrous. Sepals subulate, 2–3.5 mm long (in fruiting *c.* 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

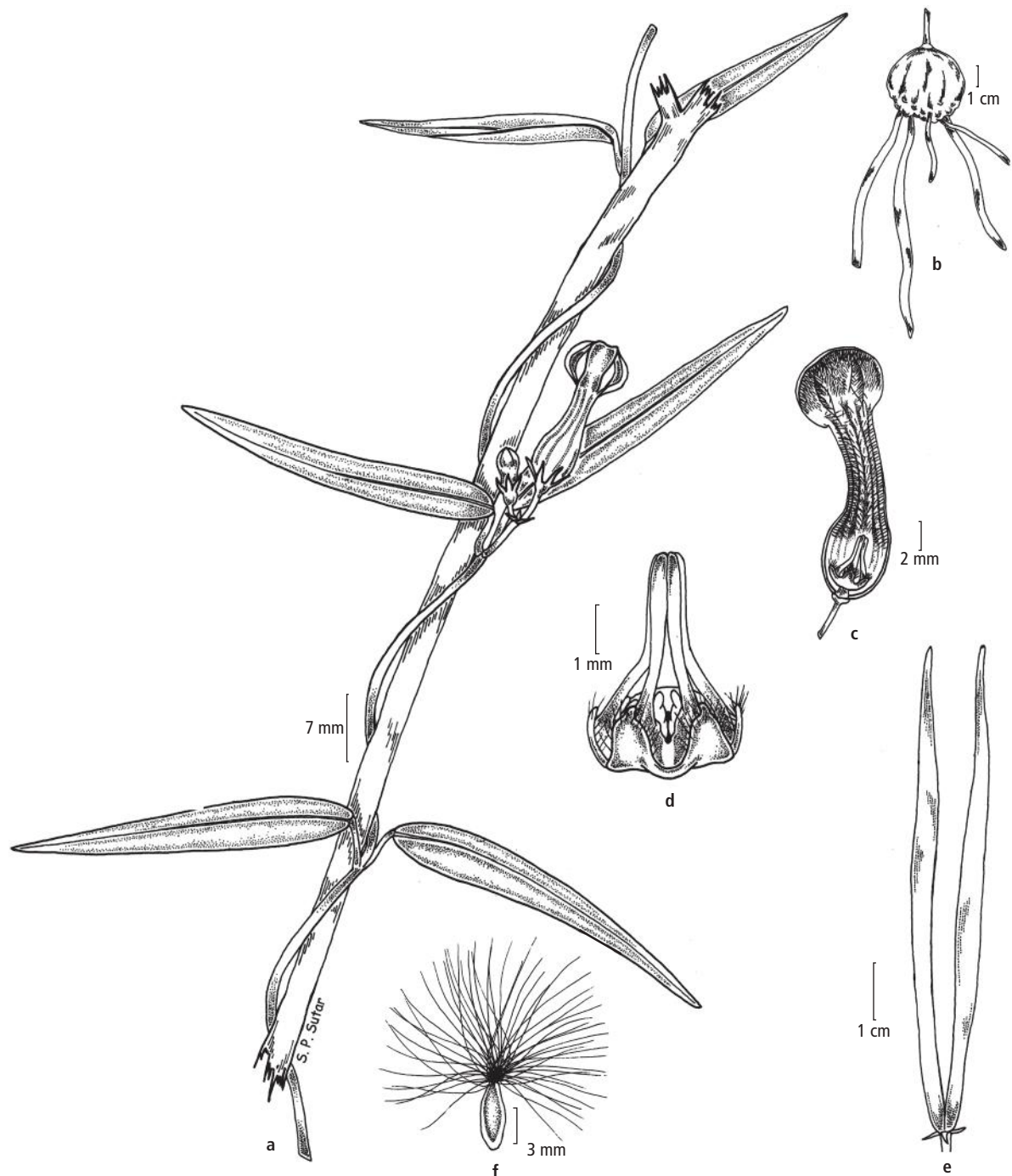


Fig. 1. *Ceropegia ravikumariana* Kambale & Gnanasek.: a. Habit; b. Tuber with fleshy roots; c. L.S. of flower; d. Corona lateral view; e. Follicle; f. Seed. (Drawn by S.P. Sutar from S.S. Kambale SSK-222).

bent, much dilated at base, retrorse-hirsute inside, glabrous at base, striate with purple lines inside; lobes ovate-lanceolate, 2.5–6 × 2.6–2.8 mm, apically connate to form a subglobose cage, slightly reflexed along the margins, glabrous exterior, hairy within with downwardly pointed hairs, yellowish green. Corona sessile, 4–4.5 mm long; outer (interstaminal)

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, erectoconnivent, yellow. Pollinarium *c.* 0.2 × 0.4 mm; pollinia broadly ovoid, *c.* 0.3 × 0.2 mm, yellow; corpusculum spathulate, red; caudicles stout, *c.*

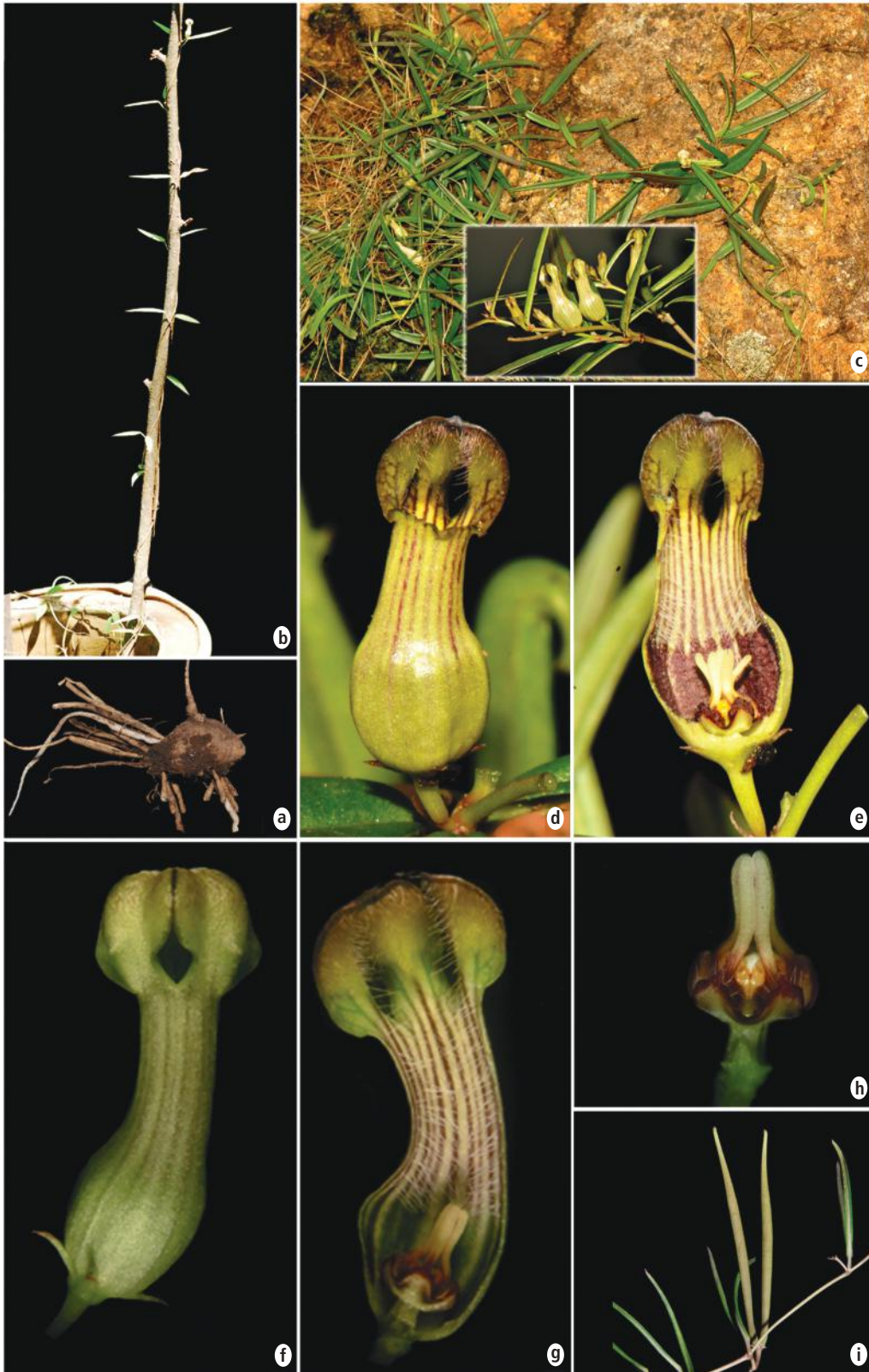


Fig. 2. *Ceropegia ravikumariana* Kambale & Gnanasek.: a. Tuber; b. Habit (under cultivation); c. Habit (natural) – inset: flowering-twig; d & f. Flowers; e & g. L.S. of flowers; h. Corona; i. Follicles (Photographs by K. Ravikumar (a & i), S.R. Yadav (b), G. Gnanasekaran (c–e) & S.S. Kambale (f–h); 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.

Notes: *Ceropegia ravikumariana* shows the typical adaptations recorded from the other grassland Ceropegias 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).

Additional specimens examined (Paratypes): INDIA, **Tamil Nadu**, Tirunelveli district, KMTR, Kuthiraivetti, 1160 m, 19.12.2013, G. Gnanasekaran 126912 (MH); KMTR, Naraiikkadu, Visthaara Mottai, 08°28'13.9" N, 77°28'58.5" E, 1420 m, 21.2.2014, S.S. Kambale SSK-222 (SUK); 30.7.2014, S.S. Kambale SSK-254 (SUK); 8.8.2014, S.S. Kambale SSK-255 (SUK); 24.8.2014, S.S. Kambale SSK-293 (SUK).

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

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

text, for permission to consult and Authorities of Dhonavur Fellowship, Naraikkadu and Thirukurugudi, for rendering accommodation during field visit. Authors are also thankful to Prof. S.R. Yadav, Department of Botany, Shivaji University, Kolhapur, for guidance and encouragements. The senior author is thankful to the University Grants Commission (F1-17.1/2010/MANF-BUD-MAH-6838), for the financial assistance and the Head, Department of Botany, Shivaji University, Kolhapur, for laboratory facilities.

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