

Brachystelma telanganense (Apocynaceae: Asclepiadoideae-Ceropegieae) – a new species from Telangana, India

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Abstract: A new species *Brachystelma telanganense* (Apocynaceae: Asclepiadoideae-Ceropegieae) is described from the Amrabad Tiger Reserve of Telangana state, India. This species is similar to *B. gondwanense* Govekar, Kahalkar & Sardesai but differs in certain vegetative and floral characters.

Keywords: Amrabad Tiger Reserve, Eastern Ghats, Nagarjunasagar Srisailem Tiger Reserve.

Introduction

Recent phylogenetic/molecular studies on the tribe Ceropegieae Orb. ex Decne revealed that the genus *Brachystelma* R.Br. ex Sims and other genera of stapeliads are nested within *Ceropegia* L. making it paraphyletic (Meve & Liedt-Schumann, 2007; Surveswaran *et al.*, 2009; Bruyns *et al.*, 2015; Rodda & Meve, 2017). Hence, Bruyns *et al.* (2017) proposed over 400 new combinations by merging *Brachystelma* and members of other stapeliad genera in the greatly enlarged genus *Ceropegia* making it monophyletic. Considering that most of the Indian species were missing from the studies of Bruyns *et al.* (2017), Surveswaran *et al.* (2020) preferred to retain the names *Brachystelma* and *Ceropegia* as separate entities based on their gross morphological feature of open flowers and tubular flowers, respectively.

Brachystelma, the second largest genus of the tribe Ceropegieae, has over 160 species distributed South

of the equator in Southeast Asia (including India) and North Australia (Masinde, 2007; Rasingam *et al.*, 2013; Sardesai *et al.*, 2016; Prasad *et al.*, 2018). In India, the genus *Brachystelma* is known to have 33 species (Pullaiah *et al.*, 2019), most of which occur in peninsular India growing sporadically along dry hill slopes of the Eastern Ghats and the adjoining Deccan region as well as the Western Ghats.

While working on the flora of the Amrabad Tiger Reserve, which was part of the Nagarjunasagar Srisailem Tiger Reserve (NSTR) in the erstwhile state of Andhra Pradesh and renamed Amrabad Tiger Reserve after the bifurcation of the state (Andhra Pradesh and Telangana), the authors collected a number of *Brachystelma* specimens from the open grasslands of dry deciduous forests in the area of Mallayalodhi in the year 2016. The tubers were collected from the wild and cultivated at the Botanical Survey of India, Deccan Regional Centre garden for further study. On observation, all the plants in the office garden flowered in the summer of 2018. Critical examination of the specimens with a M205A stereo microscope (Leica, Switzerland), perusal of relevant literature and comparison with herbarium specimens deposited at BSID and CAL revealed that they belong to a species that is closely related to *B. gondwanense* but differs in the number of flowers in the axils, the length of flowers and flowering shoots, and corona characters. Hence, this species is described here as new to science.

Brachystelma telanganense Rasingam & J. Swamy, **sp. nov.** **Fig. 1**

Brachystelma telanganense is closely allied to *B. gondwanense* but differs in having 2–6 flowers in each axil, flowering shoots 12–35 cm long, interstaminal corona much taller than gynostegium, deeply 5-lobed, with each lobe deeply bifid at the apex, whereas *B. gondwanense* has 2-flowers in each axil, flowering shoots 8–12 cm long, interstaminal corona shallowly 5-lobed, slightly above the gynostegium and each lobe is shallowly bifid at the apex (Table 1).

Type: INDIA, **Telangana**, Botanical Survey of India, Deccan Regional Centre, Hyderabad (introduced from Mallayalodhi, Mahbubnagar district, Telangana state, India, N 16°18'19.411", E 78°43'23.72", 780 m, 20.04.2018), *L. Rasingam & J. Swamy* 8023, infl. (holo CAL!; iso BSID!).

Small tuberous, hysteroanthous herbs, up to 17 cm tall; tubers globose to sub-globose, 3.5–4.5 cm across, brownish with few scattered roots. Stem solitary, terete, 1–2 mm in diam., striate, glabrous; internodes 2.5–4.5 cm long, gradually decreasing in length near apex. Leaves simple, sessile, opposite in 1–3 pairs, elliptic-lanceolate, 4–6 × 1.5–2 cm, acute to acuminate at apex, attenuate at base, margins entire, scabrous, greenish, glabrous above,

glaucous beneath, chartaceous; midrib sunken above, prominently raised beneath; secondary nerves up to 5 pairs, obscure on both surfaces. Flowers on a long leafless, glabrous, pink shoot, 12–35 cm long, 2–3 mm wide, obtusely quadrangular at base, terete at apex, glabrous. Internodes up to 11 cm long, decreasing gradually towards the apex. Inflorescence axillary, 2–6 flowered at each axil; buds sharply angled, conical, c. 9 × 3 mm, twisted at the tip; pedicels stout, up to 8 mm long, scabrid to glabrous. Bracts linear, up to 8 × 1 mm, acuminate, slightly keeled at base with glandular hairs, apex smooth, margins scabrid. Bracteoles at the base of the pedicel, rarely below middle, linear, c. 2 mm long, acute at apex, recurved, minutely glandular hairy to scabrid. Calyx 5-lobed; lobes lanceolate, 2–4 mm long, c. 0.6 mm wide and united at base, acute at apex, brown, glabrous or rarely hairy. Corolla tube yellowish-white, without any coloured blotches. c. 2 mm long; lobes 5, dark brown at apex with yellowish-white patches at base, twisted at the tip, open gradually from base to tip and tips remain united, linear, 7–10 × 1–1.5 mm, involute at margins, acute at apex, sparsely white hairy only along the margins at base, glabrous above. Corona yellowish-white at base and dark brown at tips, biseriate, cupular-shaped, c. 2.3 × 1.9 mm. Interstaminal corona deeply 5-lobed, c. 1.0 × 0.8 mm,

Table 1. Comparison of diagnostic morphological characters of *Brachystelma gondwanense* and *B. telanganense*.

Characters	<i>B. gondwanense</i> Govekar, Kahalkar & Sardesai	<i>B. telanganense</i> Rasingam & J. Swamy
Leaves	3–7 pairs, lanceolate, up to 13 cm long, leathery	1–3 pairs, elliptic-lanceolate, up to 6 cm long, chartaceous
Flowering shoot	8–12 cm long	12–35 cm long
Flowers in each axil	2	2–6
Calyx	Glandular-hairy	Glabrous or rarely hairy
Corolla	14–18 × 1.5–2 mm, hairy along the margins and within	7–10 × 1–1.5 mm, hairy along the margins at base, glabrous within
Interstaminal corona	Shallowly 5-lobed, slightly above the gynostegium and each lobes shallowly bifid at apex, densely short hairy within.	Deeply 5-lobed, much taller than gynostegium, each lobes deeply bifid at apex, sparsely long hairy only at the tip or glabrous.

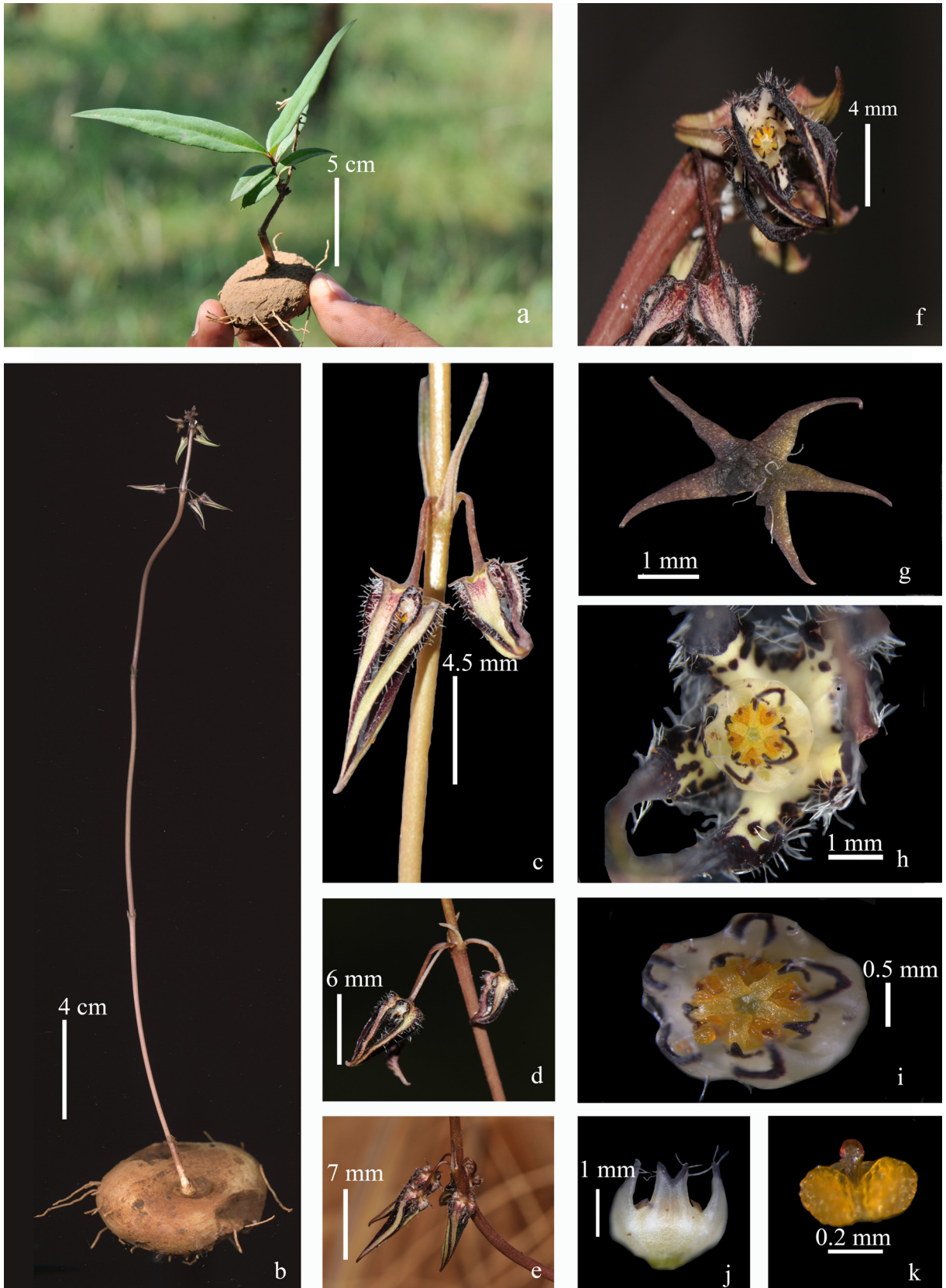


Fig. 1. *Brachystelma telanganense* Rasingam & J. Swamy, *sp. nov.*: **a & b.** Habit; **c–e.** Inflorescence; **f.** Flower; **g.** Calyx–adaxial view; **h.** Corolla–inner view; **i.** Corona–top view; **j.** Corona–lateral view; **k.** Pollinia (from *L. Rasingam & J. Swamy* 8023).

each lobes deeply bifid at apex, *c.* 0.4 × 0.3 mm, much taller than gynostegium, sparsely hairy to glabrous. Staminal corona incumbent on anther sacs, lanceolate, 0.5 × 0.1–0.3 mm, dark brown, acute at apex. Pollinarium *c.* 0.3 × 0.4 µm; pollinium ovoid, *c.* 0.2 × 0.2 mm, attached to *c.* 0.2 mm long pinkish red corpusculum by *c.* 0.07 mm long yellow caudicles. Carpels 2, 0.8 × 0.3 mm long. Follicles not seen.

Flowering & fruiting: Flowering from March to May; fruiting not seen.

Habitat: It grows in open grasslands in dry deciduous forests at an elevation of 780 m in association with *Euphorbia cristata* B. Heyne ex Roth (Euphorbiaceae), *Habenaria marginata* Colebr. (Orchidaceae), *Pentanema indicum* (L.) Ling (Asteraceae) and *Evolvulus alsinoides* (L.) L. (Convolvulaceae).

Etymology: The species is named after the 29th state of India, Telangana, from where it is collected and described.

Distribution: *Brachystelma telanganense* is presently known only from the Mallayalodhi area of Mahbubnagar district, Telangana.

Specimen examined: INDIA, **Telangana**, Amrabad Tiger Reserve, Mallayalodhi, Mahbubnagar district, 21.10.2016 (leaves), L. Rasingam & J. Swamy 7387 (BSID).

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