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Afrohybanthus indicus (Violaceae): a new species from Maharashtra, India

SUHAS KUNDLIK KAMBLE[1]*, PAUL I FORSTER[2] & BHIMRAO JANARDAN PATIL[1]
[1]*Department of Botany and Plant Protection, Sadguru Gadage Maharaj College, Karad, 415 124, Maharashtra, India.*
[2]*Queensland Herbarium, Department of Science, Information Technology & Innovation, Brisbane Botanic Gardens Mt Coot-tha, Toowong, Qld 4066, Australia.*
**Corresponding author E-mail: suhaskamble272@gmail.com*

A new species *Afrohybanthus indicus* is described and illustrated. It differs from *A. stellarioides* and *A. enneaspermus* in the characters of stipule, leaf margin and pedicel.

Key words: The new species, Taxonomy, Violaceae, India

The genus *Hybanthus* Jacquin (1760: 17) is the third largest in the family Violaceae Batsch. It comprises ca. 125 species (Ballard *et al.*, 2014). *H. enneaspermus* Mueller (1876: 81) and *H. travancoricus* Melchior (1925: 360) are recorded in the *Flora of India* (Banerjee & Pramanik, 1993). Reddy (2001) added a third species, *H. vatsavayii,* as a new species from Andhra Pradesh. Later, Sasi *et al.* (2011) added the fourth species, *H. puberulus* M. Gilbert. as a new record for India. *Hybanthus puberulus* was further recorded from Karnataka by Prathipan *et al.* (2012). Ramana *et al*. (2011) added a fifth species as an extended distributional record of *H. stellarioides* (Domin, 1921: 983; Forster, 1993: 18). *Hybanthus verticillatus* (Ortega, 1797: 50) Baillon (1873: 345) known only from U.S.A. was recorded for the first time from Tamil Nadu, by Francisca *et al*. (2013) making a total of six species of this genus from India.

The recent systematic work based on morphology and molecular studies on the genus *Hybanthus* shows that it is polyphyletic (Flicker and Ballard, 2015). Flicker and Ballard (2015), have shown that the *Hybanthus enneaspermus* group occupies a basal position along with other New world, Old world genera and hybanthoid group. However, *Hybanthus enneaspermus* clade is well isolated from *Hybanthus caledonicus* clade and *Hybanthus* sensu stricto (Flicker and Ballard, 2015). Ballard and Flicker (2015) gave a new generic name *Afrohybanthus* Flicker to the *Hybanthus enneaspermus* clade. According to the authors the new genus *Afrohybanthus* is similar to *Hybanthus caledonicus* group, a southern Australian taxon in the Old world and many New world taxa, but differs from *Hybanthus* sensu stricto in having solitary flowers, base of bottom petals spurred, filament with short collar, two staminal glands and 3–5 seeds per capsule valve. *Afrohybanthus* resemeble *Hybanthus caledonicus* clade in spurred base of bottom petals but differs in the position of glands on the stamens and seed characters.

During floristic work in Karad and surrounding, the authors (SKK and BJP) came across some specimens of a *Hybanthus*. After literature survey and observation, it was found that the specimen matches the description of material identified as *Hybanthus stellarioides* by Venkat Ramana *et al.* (2011) leading to reporting of an extended distribution for this species to Maharashtra state (Kamble *et al.,* 2014). After consulting the type specimen of *H. stellarioides* the author doubted the identity of species. Further investigation was made and novelty of the species was confirmed. Based on the present circumscription (Flicker and Ballard, 2015) of the taxa (*Hybanthus*) the species should belong to the genus *Afrohybanthus*. This change in circumscription may also necessitate name changes for other Indian species of *Hybanthus*. However, this is outside the scope of the present investigations. The present studies, hence, describe and illustrate the novelty.

Description of the new species

Afrohybanthus indicus S. K. Kamble & Patil sp. nov. (Fig. 1)

Type:—INDIA. Maharashtra: Satara district, Karad, Sadashivgad, On the hill slopes along rock margins and in rock crevices, ca. ± 700 m, 17°18’50.99” N, 74°13’32.47” E, July 2013, *Suhas Kamble s. n.* (holotype, BSI!, isotype, SUK!).

Annual herbs, 8–25 cm high. Stems erect, grooved, unbranched (rarely branched), pubescent throughout, cylindrical, reddish to purple. Leaves simple, alternate, clustered at apex, chartaceous, linear to lanceolate, 7–60× 1–6 mm, pubescent, margin entire in lower few leaves, sparsely serrulate in upper leaves, cuneate at base, acute at apex, stipules triangular, pubescent, ciliate at margin, 1.5–2.2 mm long. Flowers solitary, axillary, zygomorphic; peduncle 4–9 mm, articulated with

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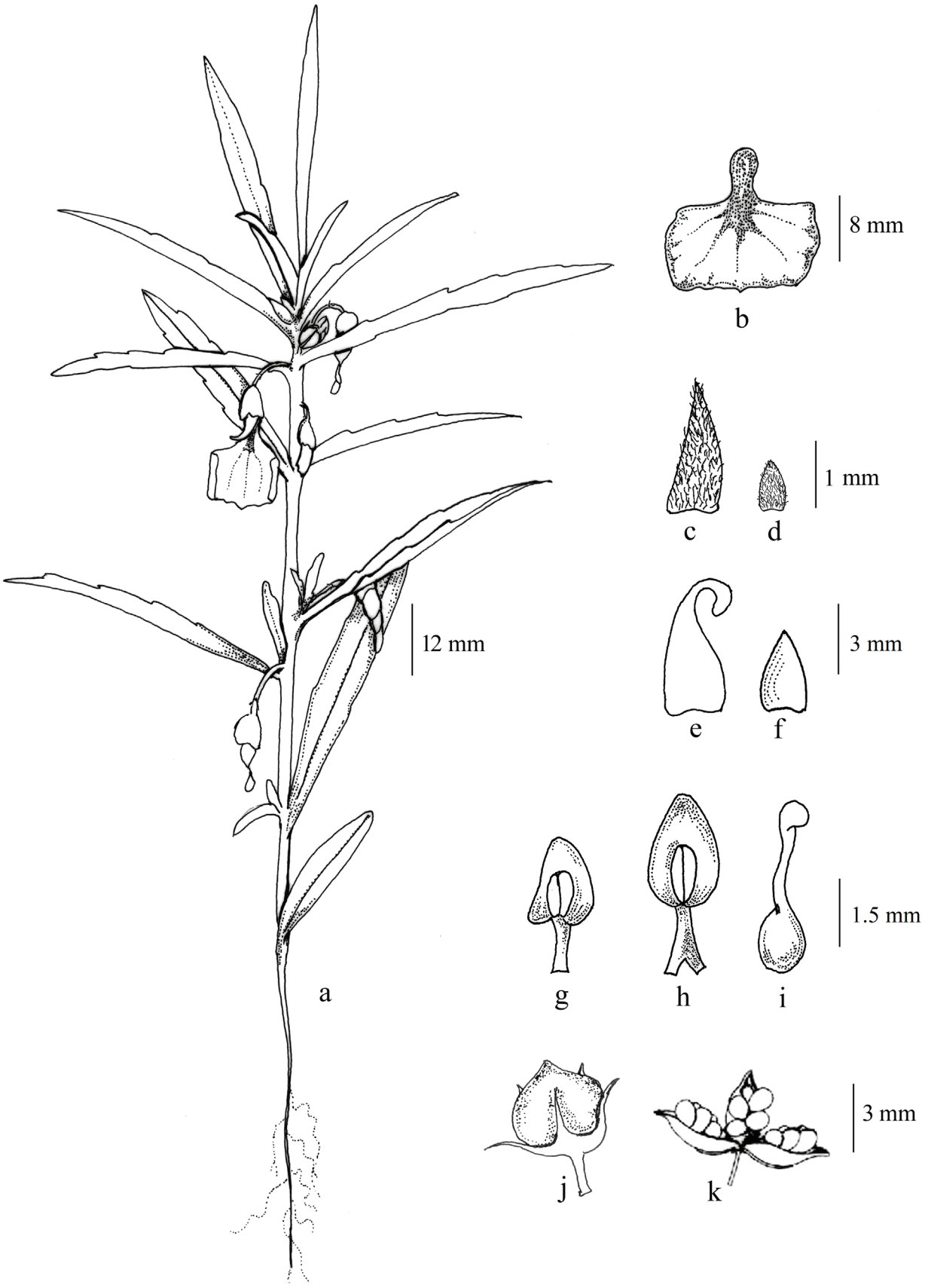

FIGURE 1. *Afrohybanthus indicus* S.K. Kamble & Patil. **a.** Habit, **b.** Flower, **c.** Stipule, **d.** Bract, **e.** Lateral petal, **f.** Upper petal, **g.** Stamen (upper), **h.** Stamen (lower), **i.** Carpel, **j.** Capsule and **k.** Dehisced capsule.

pedicel; bracts in pair, triangular, ciliate along margins, 0.5–1 mm long; pedicel pubescent, 1.5–2 mm long. Sepals 5, linear-lanceolate, hyaline, 2–5 mm long, ca. 1 mm wide, acuminate, bent backwards at apex, ciliate at margin. Petals 5, unequal; upper ones 2 oblong, 3–6 mm long, pale yellow, lateral ones 2 falcate, 4–9 mm long, pale yellow, lower petals enlarged into a spathulate limb with a claw, 11–20 mm long, bright orange. Stamens 5, ca. 4 mm long; filaments free; lower 2 filaments with hairy appendages ca. 1 mm long, anthers 5, connate, lower 2 of them villous, basifixed, covered with orange colored spathe like structure, others glabrous. Pistil ca. 5 mm long; stigma spathulate, stigma sub erect, ovary ovoid, glabrous; ovules 6–12. Capsules 3-angled, 4–6 mm long, 3-valved. Seeds 2–10, ovoid, 1.2–3 mm long, ca. 1.5 mm in diameter, longitudinally ribbed, glabrous, pale yellow.

Phenology:—Flowering and fruiting from July to September.

Habitats:—On the hill slopes along rock margins and in rock crevices. Vegetation is dry and deciduous, scrub forest.

Distribution:—India, so far recorded from the states of Maharashtra and Andhra Pradesh.

Notes:—*Afrohybanthus indicus* and *A. Stellarioides* are considerably disjunct [Indian subcontinent to Australia and southern Papua New Guinea (Forster 1993)], though remarkably similar in general morphology. They differ in relatively minor size and shape differences of the stipules, leaves and pedicels (Table 1). *Afrohybanthus indicus* also shows resemblance to *A. Enneaspermus* in its stipule. But it differs in leaf margin and pedicel as shown in Table 1.

TABLE 1. Morphological differences between *Afroybanthus indicus, A. stellarioides* and *A. enneaspermus*.

Sr. No.	Characters	*A. indicus*	*A. stellarioides*	*A. enneasprmus*
1	Leaf margin	entire in lower leaves; serrulate in upper leaves	toothed in all leaves	entire to crenate
2	Stipules	1.5–2.2 mm long	0.8–1 mm long	Ca. 4 mm long
3	Pedicel	1.5–2 mm long, articulated, ciliate	2–4.5 mm long, not articulated with sparse indumentum	5–12 mm long, articulated, glabrous or pubescent

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