

## *Cuscuta janarthanamii* (Convolvulaceae), a new species from lateritic plateaus of Western Ghats, India

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**Abstract:** *Cuscuta janarthanamii* (Convolvulaceae) is herein described and illustrated as a new species. This new species is morphologically similar to *C. capitata* Roxb. and grows parasitically on *Lepidagathis keralensis* Madhus. & N.P.Singh (Acanthaceae). A detailed description and the photographs of the new taxon are provided here.

**Keywords:** Goa, Lateritic rock outcrop, *Lepidagathis keralensis*, Parasitic.

### Introduction

The genus *Cuscuta* L. (Convolvulaceae) comprises c. 200 species (Mabberley, 2017), distributed worldwide. Yuncker (1932) had grouped all the species of *Cuscuta* in three subgenera: *Cuscuta*, *Grammica* (Lour.) Peter and *Monogynella* (Des Moul.) Peter. However, Costea *et al.* (2015) recognized four subgenera: *Cuscuta* L. subgen. *Cuscuta*, *Grammica* (Lour.) Peter, *Pachystigma* (Engelm.) Baker & C.H.Wright and *Monogynella* (Des Moul.) Peter. Thirteen species of the genus are found in India, among which six are present in the Western Ghats (Santapau & Henry, 1973; Nayar *et al.*, 2014; Udayan *et al.*, 2016). The recently described *C. krishnae* Udayan & Robi is endemic to Kerala and belongs to subgenus *Monogynella* (Udayan *et al.*, 2016). While exploring herbaceous vegetation of lateritic plateaus in Goa, the current *Cuscuta* species was collected. After examining the specimen and perusal of the literature (Yuncker, 1932; Costea *et al.*, 2015) authors came to the conclusion that it is a new species which is described and illustrated here. The very short or inexistent styles together with the indehiscent or late dehiscent fruits are characters that suggest

that it belongs to subgenus *Cuscuta* sect. *Epistigma* Engelm. Among the five species of this section, it shows close resemblance to *C. capitata* Roxb., which is distributed in the mountains of Central Asian countries and North India. They show similarities in characters such as, fruit dehiscence, persistent corolla in fruit, infrastaminal scales and papillate flowers.

***Cuscuta janarthanamii* Kolte, A.Deshp. & Kambale *sp. nov.***

The species is closely allied to *C. capitata* Roxb. but differs in pale yellow, tubular tetramerous flowers (*vs* red or rose coloured, campanulate, tetramerous or pentamerous flowers); pedicels well developed and up to double the length of flower (*vs* subsessile or equal the length of flower); calyx half the size of corolla tube (*vs* as long as or longer than corolla tube); infrastaminal scales less than half the length of corolla tube, always present (*vs* shorter than corolla tube, sometimes apparently absent); ovary globose with very minute style, stigma much longer than style (*vs* ovary with rostrum, pyriform, stigma equal to or shorter than rostrum).

**Type:** INDIA, Goa, North Goa district, Honda, 19.04.2017, Rutuja R. Kolte 801 (holo CAL; iso BSI, SUK, Goa University Herbarium). **Figs. 1 & 2**

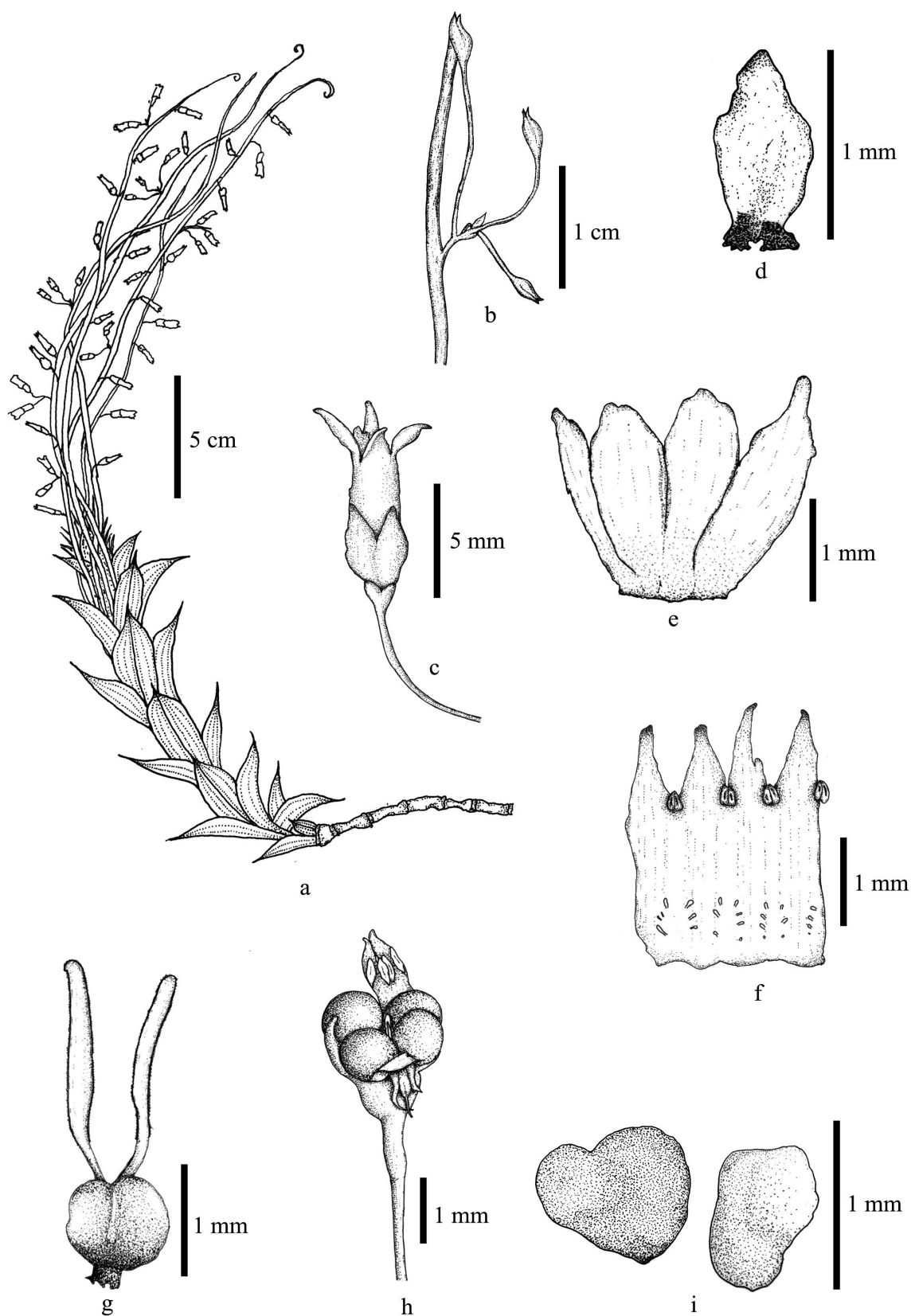
Parasitic herbs. Stems twining, glabrous, leafless, c. 1 mm across, pale yellow to purple (or purple tinged), scales c. 1 mm long. Flowers solitary or 2–4 flowers in a loose glomerule, pedicellate, tetramerous, cylindrical; bracts c. 1 mm long, at the base of inflorescence, ovate, glabrous, obtuse at apex, hyaline or pale yellow with purple tinge; pedicels c. 1 cm long, about double the length of the corolla, glabrous, pale yellow. Calyx 4-lobed, 2.5–2.8 × 0.8–1 mm, half or less than half the

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**Fig. 1.** *Cuscuta janarthanamii* Kolte, A.Deshp. & Kambale: **a.** Habitat; **b.** Habit; **c.** Inflorescence; **d.** Bract attached to inflorescence; **e.** Bract; **f.** Flower along with pedicel; **g.** Calyx-outer surface; **h.** Calyx-inner surface; **i.** Corolla-split open; **j.** Infrastaminal scales; **k.** Stamens attached to corolla; **l.** Gynoecium; **m.** Stigma & style—close up view; **n.** Ovary T.S.; **o-r.** Diversity in capsules; **s.** Seeds. (Scales: **e-i** & **l-s** 1mm; **k** 0.2 mm)



**Fig. 2.** *Cuscuta janarthanamii* Kolte, A.Deshp. & Kambale. **a.** Habit; **b.** Inflorescence; **c.** Flower; **d.** Bract; **e.** Calyx; **f.** Stamens attached to corolla; **g.** Gynoecium; **h.** Capsule; **i.** Seeds.



length of corolla, campanulate, glabrous, with translucent papillae, persistent; tubes 1.5–1.8 mm long; lobes *c.* 1 mm long, ovate, sub-equal, obtuse at apex, margins irregular. Corolla 4-lobed, 4–4.5 × *c.* 1 mm, rotate, papillate, pale yellow; corolla tube 3.5–4 mm long, fimbriate infrastaminal scales at lower half of tube, alternipetalous; lobes *c.* 1 mm long, acute at apex. Stamens 4, epipetalous, alternipetalous; filaments rudimentary or absent; anthers 0.2–0.3 mm long, brown; pollen grains yellow. Ovary *c.* 0.75 mm diam., globose, notched at apex, glabrous; locules 2, with distinct septum, two ovules in each locule; styles 2 (rarely 3 or 4), *c.* 0.5 mm long, distinct, white; stigma *c.* 1.5 mm long, elongated, papillose, white. Capsules *c.* 5 mm across, non-circumscissile, when young covered by corolla, deshisced at maturity through intrastylar openings. Seeds 1 to 4, *c.* 1.5 × 1.0 mm, irregularly obovate, glabrous, dark purple, yellow when young, detached at maturity.

*Habitat:* *Cuscuta janarthanamii* is found growing on *Lepidagathis keralensis*, which is found on lateritic plateaus of Maharashtra, Goa and Karnataka. However, this new species of *Cuscuta* is found only at two localities in Goa.

*Distribution:* So far known only from two localities in Goa.

*Flowering:* February – April.

*Fruiting:* April – June.

*Etymology:* The specific epithet is admirably given in the honour of Prof. Malapati Kuppaswamy Janarthanam, Department of Botany, Goa University for his contribution in the field of angiosperm taxonomy and conservation of the rare and endemic species of Western Ghats.

*Note:* The last species described in the subgen. *Cuscuta* sect. *Epistigma* was *C. haussknechtii* Yuncker. (Yuncker, 1932). After a long gap this new species has been published from same section. *Cuscuta janarthanamii* is the only species of subgen. *Cuscuta* known to be endemic to India. This species grows on the lateritic plateaus from February to June. The host, *Lepidagathis keralensis* grows profusely on lateritic plateaus and observed to be the dominant taxon in this season. This species was found growing on a single host, which seems to be monocarpic (pers. observation). Hence, the

distribution and occurrence of this new species mostly depend upon the extent of the host species.

*Additional specimen examined:* INDIA, Goa, North Goa district, Honda-Usgao Road, 13.03.2017, Rutuja R. Kolte & Anup S. Deshpande 1820 (Goa University Herbarium).

## Acknowledgements

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