

A New Distributional Record for Endemic *Brachystelma Shrirangii* (Apocynaceae)

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Abstract

Brachystelma R.Br. (Apocynaceae: Ceropegieae) is a speciose genus with ca. 116 species globally, of which 35 are reported from India, mostly restricted to the peninsular region. Owing to habitat heterogeneity, rainfall gradients, and diverse elevations, most Indian species are narrow endemics, often confined to localized pockets of the Western and Eastern Ghats. In July–August 2019, during floristic surveys around Yavateshwar hills of the Mahadev hill ranges, Satara district, Maharashtra, a tuberous herb was initially observed in vegetative form. Re-examination of the site in March 2020 revealed flowering specimens, which on comparison with protologues and consultation with experts were confirmed as *Brachystelma shrirangii* Kambale, Gholave & Sardesai. The species was originally described in 2016 from Appachiwadi (Kolhapur district, Maharashtra) and adjoining Belgaum district (Karnataka), and until now, remained known only from four localities in Kolhapur and one in Belgaum. The present record represents its extended distribution into Satara district from three new localities Yavateshwar hills, Pedhyacha Bhairoba near Satara city, and multiple sites in Khatav tehsil (Aundh, Jaygaon, Kokarale, Sitabai hills). In all surveyed habitats, 10–25 mature individuals were recorded, restricted to open rocky grasslands at 650–850 m altitude. The occurrence of *B. shrirangii* in the Mahadev hill ranges suggests the potential for further undiscovered populations in adjacent landscapes such as Khambatki, Chandan Vandan, Pateshwar, and Sagarshwar. This new distributional record significantly extends the known range of *B. shrirangii*, highlighting the ecological importance of Satara grasslands and the need for continued botanical exploration and conservation of narrow endemic taxa in the Western Ghats.

Keywords: Endemic, *Brachystelma shrirangii*, Apocynaceae, Western Ghats, Khatav.

Introduction

Brachystelma R. Br. is one of the ecologically important speciose genus that belongs to the tribe *Ceropegieae* of family Apocynaceae. It is represented by 116 species across the world (Gundappa *et al.*, 2021) of which 33 species occurs in India (Pullaiah *et al.*, 2019). After *Ceropegia*, *Brachystelma* is the second largest genus within *Ceropegieae*. *Brachystelma* is a closely allied genus of the *Ceropegia*, and both the genera have similar distributional range across world. It is believed that *Brachystelma* have been diverged from the African lineage and due to climatic and habitat diversification most species of *Brachystelma* occur in the Penninsular India (Surveswaran *et al.*, 2020).

India is believed to be one of the diversification centre of *Brachystelma*. Specifically in India, peninsular India is a most species rich region. Since last 10-12 years, 16 new species of *Brachystelma* have been described from peninsular India (Ravi Prasad Rao *et al.*, 2011; Rasingam *et al.*, 2013; K. Prasad and Ravi Prasad Rao, 2013; Kambale *et al.*, 2014; Britto and Bruyns, 2016; Sardesai *et al.*, 2016; K. Prasad and Prasanna, 2016; Raja Kullayiswamy, 2016; K. Prasad *et al.*, 2017; K. Prasad *et al.*, 2018, Reddy *et al.*, 2018, Gundappa *et al.*, 2021; Paramesh *et al.*, 2021) and with this total species number comes to be 35 species in India. Almost all of these species are narrow endemics, this is a consequence of the mountain ranges along West and East coast of India, rainfall gradient, diverse elevation and climatic conditions (Surveswaran *et al.*, 2020). During an exploratory survey in monsoon season of July–

August 2018-19 around Yavateshwar hills (part of Mahadev ranges) the locality was marked though GPS on map and was revised in the March 2020 and a leafless herb found flowering was *Brachystelma*. On consultation with the experts and literature the species was confirmed as *Brachystelma shrirangii* Kambale, Gholave & Sardesai. The species has described in 2016 from Kolhapur and Belgaum districts of Maharashtra and Karnataka respectively (Kambale *et al.*, 2016) is reported for its extended distribution from the Mahadev ranges of Maharashtra.

***Brachystelma Shrirangii*:** Kambale, Gholave & Sardesai, Rheede. 26(2):142-149.

Tuberous herb, perennial, erect. Tubers flattened, pale yellow in colour, 5-7 cm in diameter. Stems arises solitary from each tuber, terete, pale purple, erect, 7-12 cm high. Leaves sessile, opposite decussate, 40-60 × 0.4-0.6 mm, linear, sparsely white scabrous, ciliolate along margins, apex acute, base round, fleshy, green adaxially, pale abaxial surface, mid vein prominent, margins inclined above. Inflorescence raceme, flowers bracteate, pedicillate, complete. Bracts pink, purple, subulate, ca 2-3 mm long, persistent. Flowers 2 per node, pedicel 1-2 mm long, sparsely white scabrous hairy. Calyx with 5 lanceolate-subulate sepals, 1-2 mm long, white hairy, pink-purple, persistent in fruiting, not elongating. Corolla 5 linear petals, 1-1.5 cm long, black purple inside, blotched dotted purple at base, distinct purple midvein in upper half, green outer, corolla lobes linear, united at apex, forming conical

lantern like shape, sometimes twisted. Corona 2-seriate, *ca* 1-1.5 mm across, outer forms cup like structure, five lobes, lobes round or very shallowly bilobed, margins dark purple, five purple stripes inside, hirsute hairy inside and along margins; inner staminal corona, 5 lobes, lobes bilobed, cream to pale yellow. Styler head 5-lobed, white. Follicles, paired, 7-10 cm long, spreading, glabrous, pale pink to whitish, apex acute. Seeds 15-18 per follicle, *ca* 1 cm long, ovate, white commose.

Flowering and Fruiting

March-May. Species flowers during the summer season and plant bears no leaves or reduced leaves. The species accomplishes vegetative growth during the monsoon season.

Habitat: The species grows in hilly grasslands, among small basalt rocks, along slopes in rocks. Accompanying species includes grasses, *Linum mysorens* B. Heyne ex Benth., *Lepidagathis*

Discussion

The species was described from Western Ghats of India in 2016

and reported as an endemic element. Till date, the species is known from 1 locality (Appachiwadi near Kolhapur) from Belgaum district of Karnataka and *ca* 4 localities from Kolhapur district of Maharashtra. This is the first report of its occurrence other than type locality i.e. from 3 localities from Satara district. Author has collected the species from Yavateshwar hill range, Pedhyacha Bhairoba near Satara city, while second author has collected the species from several localities from Khatav tehsil (hills near Aundh, Jaygaon, Kokarale and Sitabai hills). In all the localities 10-25 mature reproducing individuals of species have been found, added to this, species choose to flourish in open habitats in high altitude open slope grasslands at an altitude of 650-850 m. All of the collection localities of current extended distribution are fall within Mahadev hill ranges Satara district. After surveying the habitat and geography of Mahadev ranges, we propose that occurrence of *B. shrirangii* might be possible in possible localities from Mahadev hill ranges as Khambatki, Chandan Vandan, Pateshwar, Chowranginath, Sagareshwar, Tathawada hills.

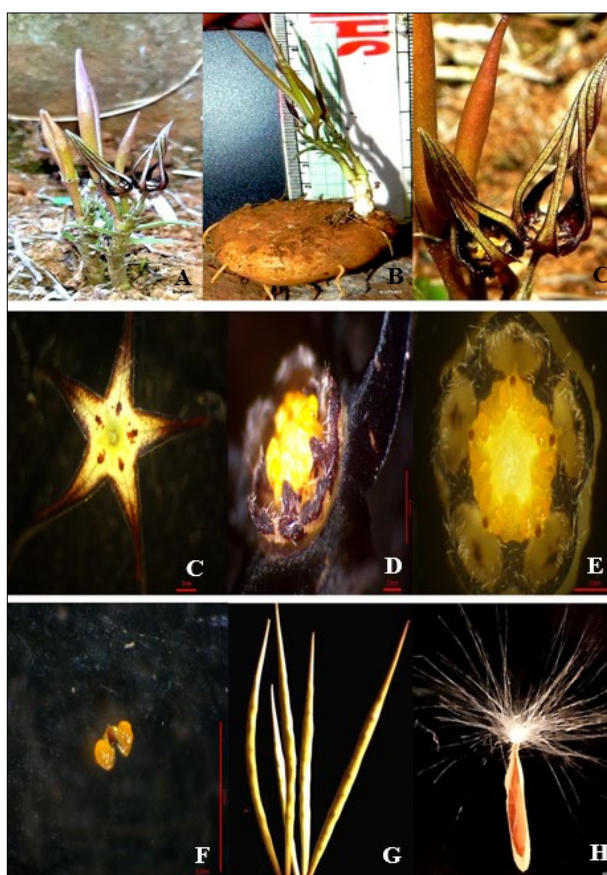


Fig 1: *Brachystelma Shrirangii*: Kambale, Gholave & Sardesai A. Habitat B. Whole PLANT C. Inflorescence & Dorsal View of Flower D. Corona Lateral View E. Corona Top View F. Pollinarium G. Pair of Follicles H. Seed

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