



## ***Crepidium mackinnonii* (Duthie) Szlach: An Addition to The Orchid Flora of Maharashtra State, India**

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### **Abstract**

Present paper reports the addition of *Crepidium mackinnonii* (Duthie) Szlach, a rare terrestrial orchid species, to the orchid flora of Maharashtra state. This species was recorded from the Satpuda Hills of Jalgaon district and is reported here for the first time from the state. The present paper provides a detailed morphological description, precise location, photographs and relevant information of the species based on recent field observations of the species in its natural habitat. This research article underlines the urgent need to implement enhanced conservation strategies to protect the highly sensitive habitats of rare ground orchids in the Satpuda Hills, which are currently under intense anthropogenic pressure

**Keywords:** *Crepidium*, *Crepidium mackinnonii*, Orchid flora, Satpuda Hills.

### **Introduction**

The Orchidaceae is the most diverse of all angiosperm families comprising more than 28000 species in the world related to 736 genera (Chase *et al* 2015; Christenhusz & Byng 2016). In India, over 1300 orchid species are found with many endemic to specific bio-geographic zones (Singh *et al.*, 2019). While the north-eastern Himalayas and the Western Ghats are recognized as orchid hotspots (Jalal & Jayanthi, 2013; Barbhuiya & Salunkhe, 2016), recent explorations have revealed underreported orchid diversity in parts of Central India (Khanna *et al.*, 1999; Kumar & Khanna, 2001; Wagh & Jain, 2015; Patel & Mohabe, 2024). The Satpuda Hills in Jalgaon district are an integral part of Central Indian Landscape, a biogeographically significant region characterized by tropical dry deciduous forests with high floristic diversity.

The genus *Crepidium* Blume, placed under subfamily Epidendroideae, includes about 220 species distributed throughout the Asian tropics and subtropics, Australasia, and Indian Ocean islands. It is represented by 18 species in India, but only one occurs in Maharashtra (Jalal, 2018). These are small, terrestrial orchids commonly found in moist and shady habitats in evergreen, semi-evergreen and moist deciduous forests (Kothareddy *et al.*, 2019; Rao *et al.*, 2016). Some species under the genus *Crepidium* are characterized by non-resupinate flowers and a fleshy, superior and often lobed labellum (World Flora Online 2025).

During a recent floristic survey of the Satpuda Hills in Jalgaon district, northern Maharashtra, two individuals of *Crepidium mackinnonii* (Duthie) Szlach. were recorded growing on moist-shady forest floor amongst bamboo clumps. Critical morphological examination and perusal of relevant taxonomic literature (Santapau & Kapadia, 1966; Singh *et al.*, 2019; Choudhary *et al.*, 2023) confirmed the identity of the species. This species is previously reported from Uttarakhand, Bihar, Jharkhand, Rajasthan, Madhya Pradesh, Odisha, West Bengal, Gujarat, Kerala states of India (Jalal & Jayanthi, 2015; Singh *et al.*, 2019; Choudhary, 2023). The present paper documents *Crepidium mackinnonii* (Duthie) Szlach. for the first time from Maharashtra state. The current finding of *Crepidium mackinnonii* (Duthie) Szlach. from the Satpuda Hills adds a second species of *Crepidium* to the flora of Maharashtra. Detailed morphological description, photographs, and ecological observations of this rare terrestrial orchid species are provided in this article.

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## Materials and Methods

During our botanical explorations in Satpuda hill ranges of Jalgaon district, we encountered a terrestrial orchid species. Detailed morphological examination of the specimen observed, with the help of literature confirmed it as *Crepidium mackinnonii* (Duthie) Szlach. The precise geographical co-ordinates of the location were recorded using GPS enabled digital camera. All morphological characters, such as vegetative and floral characters were recorded in the field. As only two individuals of this rare orchid species were observed at the present location, no collection was made to avoid any impact on its local population and ensure its conservation. Instead, we opted for photographic documentation of the species, as all observed morphological characters were consistent with those described in the literature for this taxon. The specimens examined were identified with the following relevant literature (Santapau & Kapadia, 1966; Kothareddy et al., 2019; Singh et al., 2019; Choudhary, 2023).

## Result

*Crepidium mackinnonii* (Duthie) Szlach., Fragm. Florist. Geobot., Suppl.3: 128.1995; Singh et al. Orch. India Pict. Guide. 172. 2019; Choudhary et al. New Rec. Raj. Ind. In J. Ind. Fore.149 (8). 889. 2023. *Microstylis mackinnonii* Duthie, J. Asiat. Soc. Bengal, Pt.2, Nat. Hist. 71: 37. 1902. *Microstylis cardonii* Prain, Bengal Plants 1004. 1903. *Malaxis mackinnonii* (Duthie) Ames, Orchidaceae 6: 289. 1920; Santapau and Kapadia. Orch. Bom. 140. 1966; Deva and Naithani, Orch. Fl. N.W. Himal. 317. F. 180. 1986. *Seidenforchis mackinnonii* (Duthie) Marg., Acta Soc. Bot. Poloniae 75: 303. 2006.

Habit Small, annual, erect terrestrial herb, height ca. 20 cm. Tuber small, ovoid, corm-like, 7-10 mm, whitish, covered with sheaths. Leaves 2-3, flat on the ground, opposite to subopposite, sessile, cordate-amplexicaule at base, lamina 4-9 × 2-6 cm, entire, variable in shape, oblong-lanceolate, elliptic, ovate-lanceolate, broadly ovate-suborbicular, acute or obtuse, prominently nerved, nerves 5-9. Scape along with inflorescence, ca. 20 cm long, erect, angled. Inflorescence a many-flowered lax-raceme. Flowers non-resupinate, 4-5 mm across, yellowish green, pedicellate. Bracts 5 × 1-1.5 mm, deflexed, sub-acuminate or acute, 1-nerved, almost invisible. Sepals 2.5 × 1.5 mm, reflexed, elliptic-ovate or oblong, 3-nerved, yellowish green. Petals 2-3 mm long, reflexed, linear or linear-lanceolate to filiform, normally not visible in the flower. Labellum 5-6 mm, superior, yellowish-green, ovate-oblong, somewhat constricted just beyond the middle, obscurely 3-lobed, with basal auricles; auricles falcate, narrowly ovate-oblong or lanceolate, obtuse or acute, concave in the middle about the attachment of the column, again convex on the sides outwards; the apical part broadly ovate-oblong, slightly curved forward, somewhat hooded, bilobed at the apex with a narrow sinus in between. Column about 1 mm, stout, pale yellow, with two fleshy arms. Capsules not observed.



Figure 1. *Crepidium mackinnonii* (Duthie) Szlach. Habit (Plant 1)



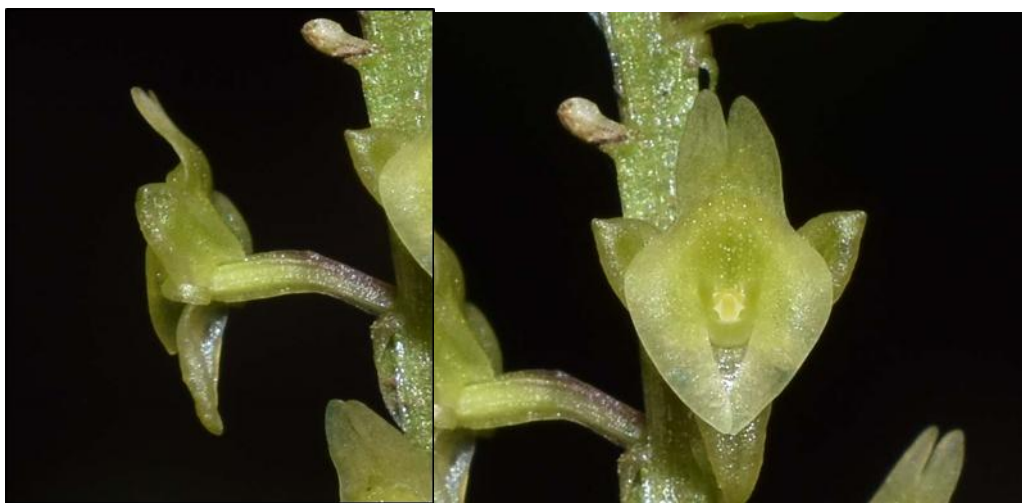
**Figure 2.** *C. mackinnonii* (Duthie) Szlach. Habit (Plant 2)



**Figure 3.** Variably shaped leaves.



**Figure.4 & 5.** *C. mackinnonii* (Duthie) Szlach. Inflorescence.



**Figure 6.** Flower side view showing linear-filiform, reflexed lateral petal. **Figure 7.** Flower close-up.

**Flowering and fruiting:** July-September. **Elevation** - 800m.

**Specimens examined:** Devziri (21.356<sup>0</sup>N, 75.522<sup>0</sup>E), 20 July 2025, Tal. Chopda, Dist. Jalgaon, Maharashtra.

**Distribution:** Uttarakhand, Odisha, Rajasthan, Jharkhand, Madhya Pradesh and West Bengal, Maharashtra (Present record).

### **Habitat and Ecology**

Found in shady and moist hilly areas, among bamboo clumps in evergreen, semi-evergreen and moist-deciduous forests at high elevation. The present location, situated in the Satpuda Hills; forms part of a deciduous forest with high altitude, substantial rainfall, and dense vegetation. A total of two individuals of this species were recorded after extensive surveys across the area. Other terrestrial orchids observed at the same location include *Peristylus constrictus* (Lindl.) Lindl., *Habenaria gibsonii* Hook.f., *Nervilia plicata* (Andrews) Schltr. and *Nervilia concolor* (Blume) Schltr.

**Note:**

- The present location, being in close proximity to the Madhya Pradesh border, suggests that the occurrence of this species represents a phyto-geographical overlap between the floral elements of Madhya Pradesh and Satpuda Hills in Jalgaon district.
- In both the plants observed of this species, the flowers did not develop into fruits, possibly due to absence of suitable pollinating agent. All the flowers withered and fell off after some time, leaving the floral scape with remnants of the fallen flowers.

**Conclusion**

On perusal of pertinent literature published till today on orchid flora of Maharashtra state, it was observed that *Crepidium mackinnonii* (Duthie) Szlach. is not reported from Maharashtra state (Hook, 1885; Cooke, 1908; Lakshminarasimhan, 1996; Almeida, 2009; Barbhuiya & Salunkhe, 2016; Jalal, 2018; Jalal & Jayanthi, 2018; Singh *et al.*, 2019). The present paper documents the first confirmed record of *Crepidium mackinnonii* (Duthie) Szlach. from the state of Maharashtra, based on field observations in the Satpuda Hills of Jalgaon district. This record significantly extends the known distributional range of the species, previously restricted to Western Himalayas, Eastern Ghats, Gujarat, Madhya Pradesh, Rajasthan, and Kerala (Santapau & Kapadia, 1966; Jain & Mehrotra, 1984; Jalal & Jayanthi, 2015; Rao *et al.*, 2019; Singh *et al.*, 2019; Choudhary, 2023). The species was observed growing in shaded, moist forest understorey, on rich humus-covered hill slopes, amongst bamboo clumps at high elevation, along with some other orchid species, showcasing its habitat specificity. This discovery highlights the floristic affinity of the Satpuda Hills with both Central Indian and Western Ghat phytogeographic regions, suggesting that this area may serve as a transitional ecological corridor for several rare and endemic taxa. The addition of *Crepidium mackinnonii* (Duthie) Szlach. to the orchid flora of Maharashtra underlines the importance of focussed botanical explorations in lesser-studied regions like Satpuda Hills. Given the species' habitat specificity and potential vulnerability to anthropogenic pressures, further studies on its population status, reproductive biology are necessary. Cattle grazing, clearance of forest cover for agriculture, habitat loss due to fragmentation of forests, unsustainable extraction of bamboo, constitute the serious threats to this rare ground orchid in Satpuda Hills. Implementation of species-centric mitigation measures is essential to conserve and protect unique habitat of this rare terrestrial orchid.

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