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NOTE

CREPIDIUM APHYLLUM (ORCHIDACEAE), A NEW RECORD FROM BHUTAN

Kinley Rabgay & Pankaj Kumar

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The generic name *Crepidium* Bl. is derived from the Greek ‘*krepidion*’, which means “little boot” referring to the saccate base of labellum (Blume 1825; Pridgeon et al. 2006). It is a large genus containing 280–292 species distributed from tropical and subtropical Asia to the Pacific region (Pridgeon et al. 2006; Govaerts et

al. 2019). Of these, four *Crepidium* species are known to occur in Bhutan: *C. acuminatum* (D.Don) Szlach.—listed as *Malaxis acuminata* (Pearce & Cribb 2002); *C. khasianum* (Hook.f.) Szlach. and *C. purpureum* (Lindl.) Szlach.—listed as *Malaxis khasiana* and *M. purpurea* (Gurung 2006), and *C. josephianum* (Rchb.f.) Marg. (National Biodiversity Centre 2017).

During a recent field exploration in 2019, the first author discovered a few scattered plants of an unidentified leafless orchid growing along with another orchid, *Anthogonium gracile* Wall. ex Lindl. on moss and soil covered rock outcrops. The observation was made at moist oak forest (1,565m elevation) in Galing, Shongphu Gewog, Trashigang District, eastern Bhutan. After a careful investigation of the collected materials (i.e., plants and flowers), it was identified as *C. aphyllum* (King & Pantl.) A.N.Rao by the second author. *Crepidium aphyllum* is a new record for the Bhutanese orchid flora, and with this record the number of species under this genus goes up to five in Bhutan. A brief description of the plant and its biology is presented with photographs. A voucher specimen has been deposited at National Herbarium Center, Thimphu, Bhutan for future reference.

***CREPIDIUM APHYLLUM* (ORCHIDACEAE), A NEW RECORD FROM BHUTAN**

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Enumeration of the species

***Crepidium aphyllum* (King & Pantl.) A.N. Rao**

J. Orchid Soc. India. 14: 65 (2000)

Malaxis aphylla (King & Pantl.) T.Tang & F.T.Wang in Acta Phytotax. Sin. 1: 71 (1951).

Microstylis aphylla King & Pantl. in Ann. Roy. Bot. Gard. (Calcutta) 8: 18, t.22 (1898).

Type: India, Sikkim, Teesta Valley, 305m, 11 July 1896, *Pantling No. 455 (K000387669)* (K!).

Small leafless, probably partly-mycoheterotrophic, terrestrial or lithophytic herb, 7–15 cm tall, bearing flowers on the upper 1/3rd of the inflorescence. Roots very short and very few, vermiform. Pseudobulbs or corms, cylindric-ovate with irregular surface, erect or slightly inclined, white, rough surfaced, 1.0–2.5 cm long, 0.5–0.8 cm wide. Scape arising from apex of subterranean pseudobulbs or corms, sheathed towards the lower end with 3–5 scarious scales. Inflorescence racemose, open flowers laxly placed, buds (unopened) densely placed. Pedicel and ovary 1.6–2.0 mm long, 0.3mm wide, ribbed. Floral bracts lanceolate, deflexed, acuminate, 1.0–2.0 mm long, 0.5mm wide. Flowers

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Image 1. *Crepidium aphyllum* (King & Pantl.) A.N. Rao from Bhutan. A—plant in its natural habitat, growing nearby another orchid, *Anthogonium gracile* Wall. ex Lindl. | B—plant in its natural habitat | C— close-up of the inflorescence | D—two voucher specimens deposited at National Herbarium Centre, Thimphu (THIM). © Kinley Rabgay.

shield-like, facing forward, non-resupinate, coloured uniformly in pale-yellow with dull purple towards edges, glabrous, 3.0–5.2 mm long, 1.5–2.5 mm wide; dorsal sepal ovate-oblong, erect, sub-obtuse, yellow tinted with reddish-brown, glabrous, margin curved backwards 1.5–1.8 mm long, 0.5–1.0 mm wide; lateral sepals obovate, sub-obtuse, margin entire, yellowish-green tinted with reddish-brown, reflexed backwards, 0.8–1.2 mm long, 0.2–0.3 mm wide; petals falcate or sickle shaped, placed close to the lateral sepals, acute, margin entire, yellowish-green, 0.8–0.2 mm long, 0.5 mm wide; lip ovate, acute, margin entire, no constriction between midlobe and side lobes, concave, with a linear cavity lined with glands on the margin, yellowish-green, 2.3–2.6 mm long, 1.5–1.8 mm wide; side lobes falcate, adpressed on the dorsal sepal, acute, margin entire, 0.7–1.0 mm long, 0.1–0.3 mm wide; column short, quadrangular, apically lobed with two stelia, ca. 0.6 mm long, 0.4 mm wide. Mature fruits clavate, ribbed, 0.6–0.7 mm long, 1.2–1.4 mm wide.

Flowering: June–July.

Habitat: Plants were found growing in litter on moss covered rock outcrops in a moist deciduous Oak *Quercus griffithii* forest.

Specimens examined: India, Sikkim, Teesta Valley, 305m, 11.vii.1896, Pantling No. 455 (P00404840) (PI-isotype). Bhutan, Galing, Trashigang Forest Division, 11.viii.2019, K. Rabgay 20190711-01 (THIM).

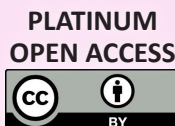
Global conservation assessment: *Crepidium aphyllum* was previously considered to be endemic to India with distributions in Arunachal Pradesh, Sikkim and West Bengal (King & Pantling 1898; Chowdhery 1998; Lucksom 2007; Rao 2010; Sherpa et al. 2018; Govaerts et al. 2019) until its recent discovery in China (Fan et al. 2012). Hence it is an addition to the orchid flora of Bhutan. This is a very rare species, which is evident from the fact that the only specimens existing across the online herbaria of the world are the type and isotypes of Pantling collected almost 123 years ago. There is, however, a possibility of finding a specimen of this species at some non-online herbaria in India. There is not even a single digital image of this species available on google search except for the painting from King & Pantling (1898). The current sighting of *C. aphyllum* in Bhutan comprised only five mature plants. Based on GeoCAT (Moat 2007), the extent of occurrence is estimated as 29,310.577 km² and area of occupancy as 20 km². The total number of mature individuals seen in Bhutan was six, and the poor representation of the image on social media also points towards its rarity. Fan et al. (2012) already assessed this species as Critically

Endangered globally, which seemed to be incorrect due to the occurrence of this species in at least two countries and four locations. With this rate of encounter the estimated number of mature individuals throughout its distribution range including the five known current locations cannot be more than 500. In this whole area, there is a major threat of habitat degradation due to forest loss. This is a partial mycoheterotrophic plant which are very specific to its mycorrhizal symbiosis and hence to their habitats (Jacquemyn et al. 2016). Based on current information, previous assessment and following IUCN Standards and Petitions Committee (2019) guidelines, this can be assessed as Vulnerable (VU-D2).

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