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Oreorchis patens (Orchidaceae): an addition to the flora of Eastern Indian Himalaya

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Abstract

This paper reports an extended distributional record of *Oreorchis patens* (Lindley) Lindley in the Eastern Indian Himalaya region. A brief description, notes on phenology and distribution and photo plate are provided for its easy identification in the field and to facilitate conservation measures.

Résumé

Cet article fait état de la découverte d'*Oreorchis patens* (Lindley) Lindley dans la région orientale de l'Himalaya indien, découverte qui élargit la zone de présence de l'espèce. Il propose une brève description morphologique du taxon, accompagnée de photographies et de notes sur sa phénologie et sa distribution géographique, afin de faciliter à la fois son identification sur le terrain et la définition de mesures de protection.

Keywords: Eastern Himalaya, new distribution range, West Bengal.
Mots-clés : Bengale occidental, extension de la distribution, Himalaya oriental.

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Introduction

During a recent plant exploration for the ongoing project on Angiospermic flora of Neora Valley National Park in the Eastern Indian Himalaya, the authors collected many specimens, including *Oreorchis patens* (Lindley 1840:535) Lindley (1858:27). Based on floral characters, comparison with available specimens housed at CAL & BSD and consultation of work on Indian Orchidaceae (Hooker,1888-1890 and 1895; King & Pantling, 1898; Duthie, 1906; Santapau & Kapadia, 1966; Pradhan, 1976 and 1979; Bose & Bhattacharjee, 1980; Deva & Naithani, 1986; Kataki, 1986; Kumar & Manilal, 1994; Pearce & Cribb, 1996; Hynniewta *et al*., 2000; Misra, 2004 and 2007; Lucksom, 2007 ; Yonzone *et al*., 2011 & 2012; Kumar *et al*., 2013; Agrawala *et al*., 2013; Singh *et al*., 2019), the identity was confirmed. This species was reported as new to Indian flora from Western Himalayan region in the year 2013 (Agrawala *et al*., 2013). The scrutiny of all the pertinent literature after 2013 including Ghosh & Mallick (2014) and Singh *et al*. (2019) revealed that this species has not been reported from Eastern Indian Himalaya covering Sikkim, Darjeeling hill region of West Bengal, Arunachal Pradesh and Bhutan (Fig.2) so far. The present report is therefore the first record of this species for eastern Himalayan region from the sub-temperate area of Neora Valley National Park. A brief description along with photographs is provided to facilitate field identification and conservation measures.

Taxonomic treatment

***Oreorchis patens* (Lindley) Lindley** (Fig. 1), *Journal of the Proceedings of the Linnean Society*, Botany 3: 27 (1858); Pearce & Cribb, *Edinburgh Journal of Botany* 54(3): 319 (1997); Xinqi *et al*., in Wu, Raven & Hong (eds.), *Flora of China* 25: 246 (2009); Agrawala *et al*., *Richardiana* 13: 267 (2013); Singh *et al*., *Orchids of India* - A Pictorial Guide: 397 (2019); Basionym: *Corallorhiza patens* Lindley, *Genera and Species of Orchidaceae Plants*: 535 (1840), Type: Siberia, *J. Prescott s.n*., 1826, (holotype K-LINDL *n.v*.).

Indian material studied: West Bengal, Darjeeling, Neora Valley National Park, on the way to Choudapheri to Zero point (near PHE Source camp), 29.05.2019, 2441.5m, 27.088861N and 88.712379E, *Vinay Ranjan, Gopal Krishna* & *Anant Kumar* 80603 (CAL).

Description (Fig. 1). Terrestrial herbs, ca.30 cm high. Roots thick, emerging from the base of pseudobulbs. Pseudobulbs greenish, ovoid to ovoid-

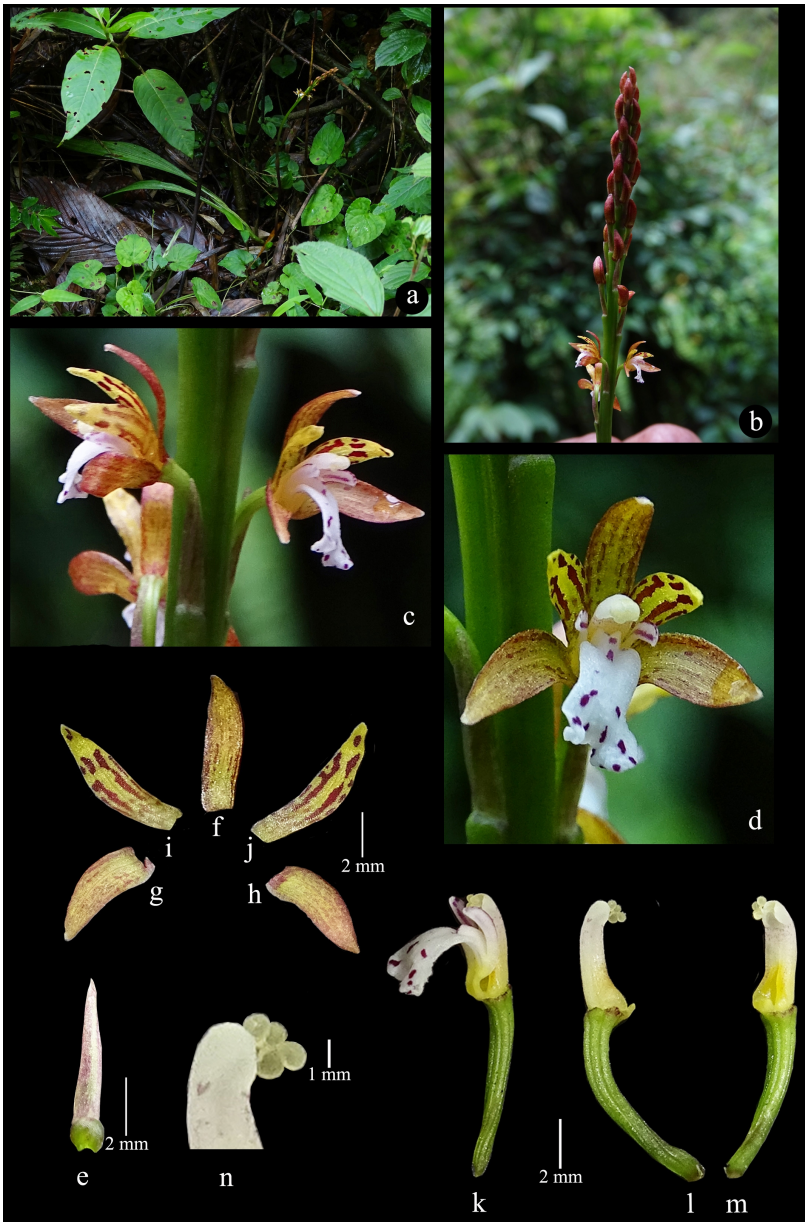

Fig. 1. *Oreorchis patens* (Lindley) Lindley

a: Habit. b: Inflorescence. c: Lateral view of flowers. d: Front view of flower. e: Floral bract. f: Dorsal sepal. g-h: Lateral sepals. i-j: Petals. k: Labellum with column and pedicellate ovary. l: Lateral view of column. m: Front view of column. n: Pollinia with apical portion of column.

conical, ca. 2.2 cm long, corm-like, 2-noded, covered with sheaths; sheaths brown, scarious, emerging from each nodes. Leaves 2, petiolate, apical on the psuedobulb; lamina elongate, elliptic-lanceolate, 25.5-28 × 2-2.7 cm, attenuate at base, acuminate at apex, entire margins, plicate, bending towards ground at the 45° angle when flowering; petiole 10-11 cm long, enclosed in tubular sheaths. Inflorescence scapigerous; scape terete, ca. 31 cm long, lateral on the pseudobulb (see note below), erect, enclosed with sheathing bracts, 2-noded, glabrous; sheathing bracts 2, brownish, tubular, 3.8-4.5 cm long, oblique, apex acute, striated, emerging from nodes on scape, glabrous; rachis ca. 5.5 cm long, subdensely flowered; floral buds dark to deep purplish red, parallel to rachis. Flowers basipetal, bracteate; pedicellate ovary green, filiform, 5-6 cm long, geniculate at anthesis, channelled, glabrous; floral bracts greenish, flushed purplish red, narrowly lanceolate, 5.5-6 cm long, base green, cupular, apex acute, glabrous. Sepals yellowish flushed with purplish red, 4-5 × 1.2-1.5 mm, apex acute, glabrous; dorsal sepal oblong-lanceolate; lateral sepals falcate, lanceolate. Petals yellow with deep purplish red spots, falcate, oblong-lanceolate, 5-6 × ca. 1 mm, apex acute. Labellum white with purplish spots, ca. 4 mm long, adnate to column foot, 3-lobed; side lobes linear-oblanceolate, ca. 1.5 mm long, apex obtuse, adnate at labellum base; mid lobe narrowly flabellate, ca. 2.5 mm long, base cuneate with a pair of elevated callus ridges, margin crispate, apex emarginate forming two lobules. Column white, arcuate, 4.2-4.5 mm long; column foot yellowish, short; rostellum short; anther whitish, apical, stipe hamular, J-shaped; pollinia 4, whitish yellow. Ovary yellowish; stigma triangular-shape, shallowly deep, viscid. Capsules not seen.

Taxonomic notes.

Agrawala *et al.* (2013) reported *Oreorchis patens* for the first time in India, from Uttarakhand in the Western Himalaya.

Later, in the year 2019, an unidentified specimen bearing number 49 in sched. at BSHC, probably collected by Long, McBeath, Nolte & Watson from Darjeeling, was also identified by Agrawala as *Oreorchis patens*. But this finding was not published.

A specimen at E, bearing the number 49 and also at first unidentified, probably a duplicate of BSHC specimen, was included by Pearce & Cribb (2002) as *Oreorchis micrantha* Lindley (1858:27) presuming that *Oreorchis patens* does not occur in India. In fact it belongs also to *Oreorchis patens*.

Pearce & Cribb (1997) has described *Oreorchis patens* with apical leaves and a lateral scape; the same was illustrated by Xinqi *et al.* (2009) and the same again is reported in our collection too. Quite the opposite, lateral leaves and terminal scape has been observed by Agrawala *et al.* (2013) in their collection and other synonyms taxa. Therefore, the morphological characters like the arrangement of leaves and scape on pseudobulbs are not stable and cannot serve as distinguishing characters.

Flowering. May-June.

Habitat. This species is reported from the dense and moist sub–temperate forest of Zero point area at an elevation of 2441m in the Neora Valley National Park of the Eastern Himalayan range. This species was seen growing along the Neora river in rock crevices covered with the leaf litter of *Quercus* sp., *Litsaea* sp., *Acer* sp. The collection area Zero point is a steep hilly area endowed with annuals (*Begonia* sp., *Impatiens* sp., *Stellaria* sp., *Viola* sp., mosses) and orchids.

Distribution (Fig. 2, A & B). INDIA: Uttarakhand, West Bengal; RUSSIA (SIBERIA), SOUTH KOREA, JAPAN, CHINA, TAIWAN.

Status in India. The genus *Oreorchis* Lindley (1858: 26) is represented in India by four taxa (Mishra, 2007, Agrawala *et al*., 2013, Singh *et al*., 2019) and is restricted to Himalayan range. All taxa are reported from Western Garhwal Himalaya while *Oreorchis foliosa* (Lindley) Lindley (1858:27) and *O. micrantha* Lindley (1858:27) are reported from Sikkim Himalaya too. The present species (*Oreorchis patens*) however is reported for the first time from Eastern Indian Himalaya from mountainous Neora Valley National Park. Due to vulnerable habitat and few numbers of individuals of *Oreorchis patens* in India, it was assessed as critically endangered by Agrawala *et al*. (2013).

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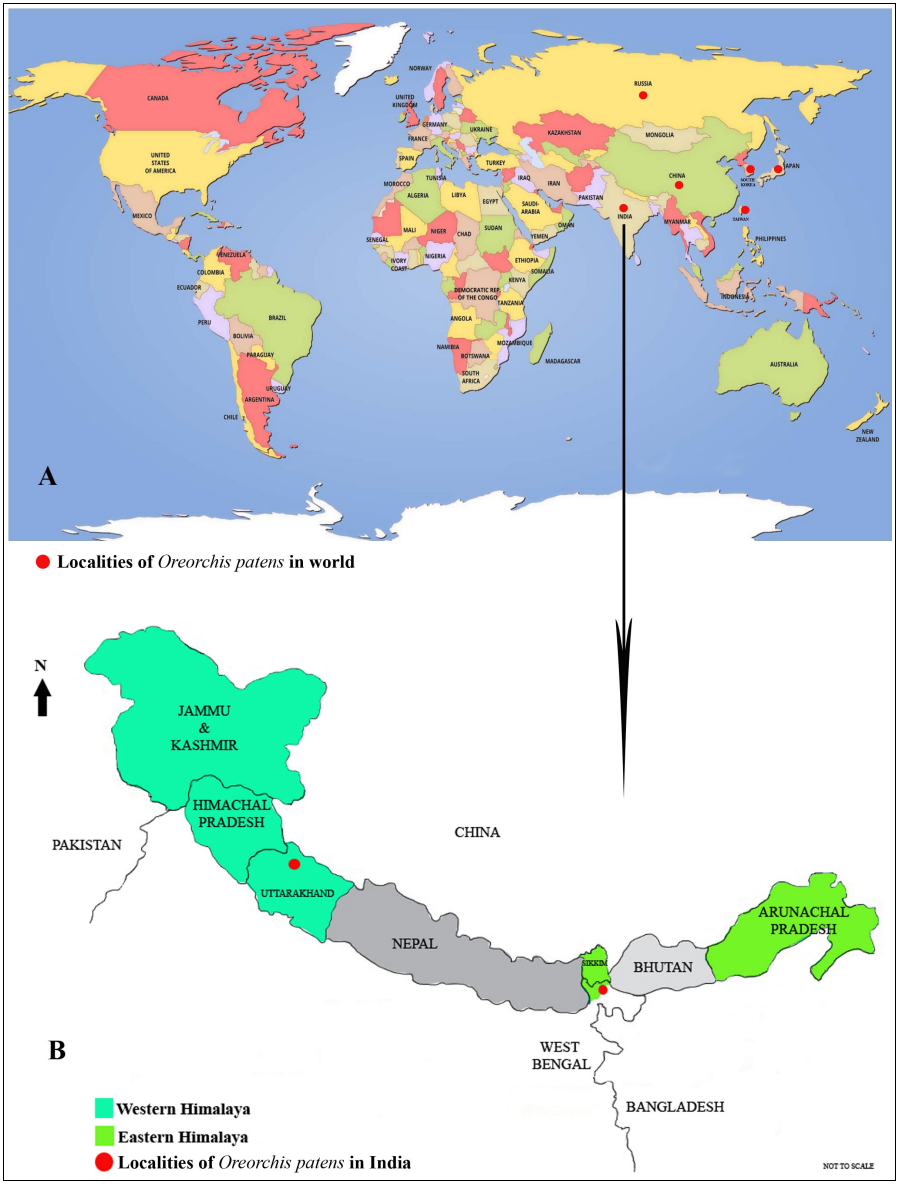

Fig. 2. Localities of *Oreorchis patens*.
A: Worldwide distribution. **B**: Distribution in India.

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