

Cephalanthera erecta var. *oblanceolata* (Orchidaceae): A new record for the Flora of India

Manoj Singh¹, Harish Negi¹, Jeewan Singh Jalal² & Dinesh Kumar Agrawala³

¹Forest Research Range, Uttarakhand Forest Department, Gopeshwar – 246401

² Botanical Survey of India, CGO Complex, 3rd MSO Building, 5th and 6th Floor
DF Block, Sector-1, Salt Lake City, Kolkata – 700 064,

³ Botanical Survey of India, Sikkim Himalayan Regional Centre, Gangtok – 737103

*Corresponding author: drdkbsi@gmail.com

सिफलान्थेरा इरेक्टा प्रभेद ऑब्लान्सिओलाटा (आर्किडेसी): भारत के फ़्लोरा के लिए एक नवीन अभिलेख

मनोज सिंह, हरीश नेगी, जीवन सिंह जलाल एवं दिनेश कुमार अग्रवाला

सारांश

सिफलान्थेरा इरेक्टा (थुंब.) ब्लूम प्रभेद *ऑब्लान्सिओलाटा* एन. पियर्स और पी.जे. क्रिब (आर्किडेसी-एपिडेन्द्रोयडी-नियोटिडी) का पता पहली बार भारत के उत्तर-पश्चिम हिमालय के उत्तराखंड राज्य से संग्रहित प्रतिरूपों के आधार पर लगाया गया है। इसकी पहचान को सरल बनाने के लिए संक्षिप्त विवरण, तस्वीरों के साथ साथ ऋतुजैविकी, आवास स्थल एवं सवितरण भी प्रदान किए गए हैं। प्रभेद के साथ इसका संबंध, इसके प्रभेद स्थिति के लिए समुचित एवं औचित्यपूर्ण व्याख्या की गई है। आईयूसीएन मानदंडों के आधार पर भारत के सन्दर्भ में इसके संकटीय स्थिति का भी आंकलन किया गया है।

Abstract

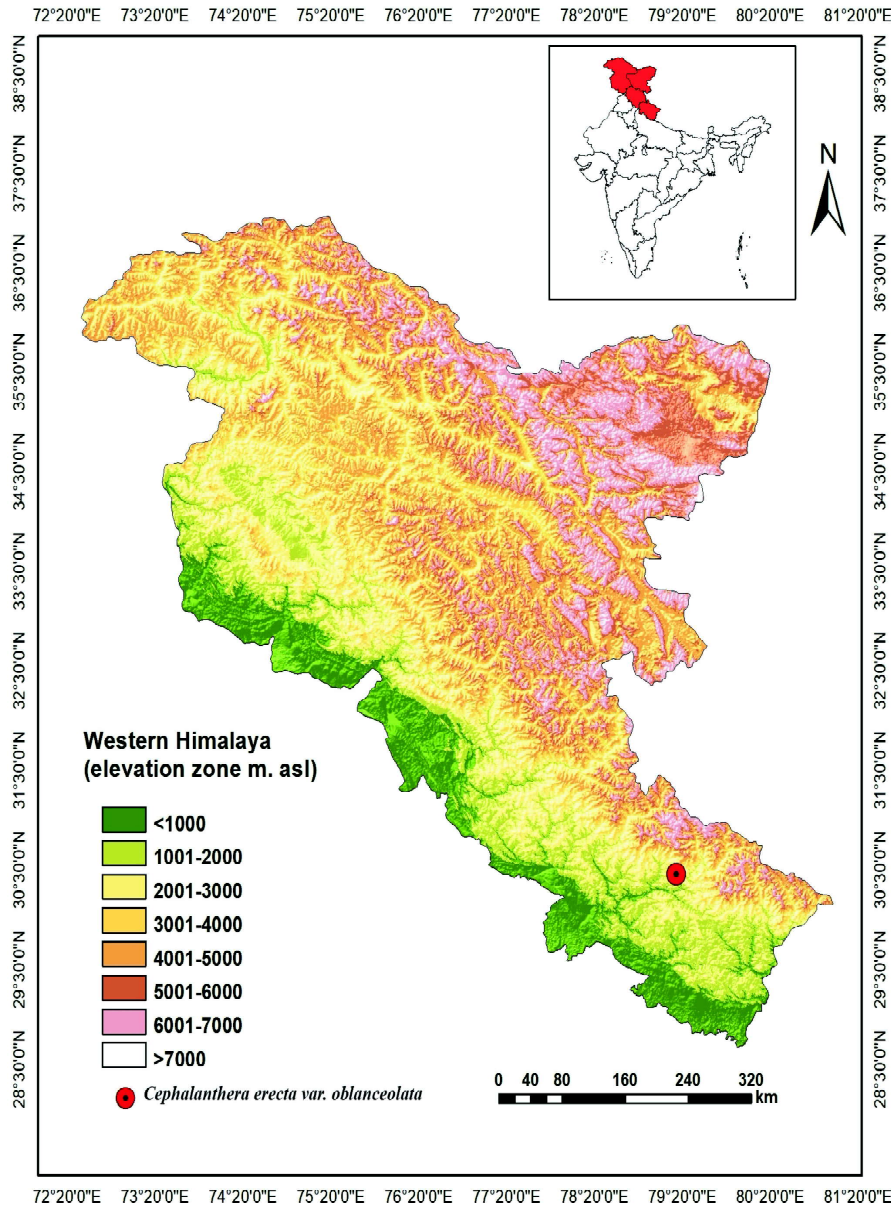
Cephalanthera erecta (Thunb.) Blume var. *oblanceolata* N. Pearce & P.J. Cribb [Orchidaceae-Epidendroideae-Neottieae] is reported for the first time from India based on specimens collected from Uttarakhand in North-Western Himalaya. A brief description, photographs, along with information on phenology, habitat and distribution have been provided to facilitate its identification. Its relationship with the variety proper and justification for its varietal status has been discussed. The threat status has been assessed in Indian perspective by applying the IUCN guidelines.

Keywords: Chamoli, Western Himalaya, Uttarakhand, Taxonomy, Conservation

INTRODUCTION

Cephalanthera Rich. [Orchidaceae-Epidendroideae-Neottieae] represents a small group of terrestrial orchids with about 19 taxa (Chase & al., 2015; Govaerts, 2021), mainly distributed in Europe, N. America and temperate parts of Asia. So far the genus is represented in India by two species viz. *Cephalanthera damasonium*

(Mill.) Druce and *Cephalanthera longifolia* (L.) which are confined to the Himalayan region (Singh & al., 2019). During a floristic exploration in the Chamoli-Garhwal region of Uttarakhand, a population of *Cephalanthera erecta* var. *oblanceolata* N. Pearce & P.J. Cribb could be located. These terrestrial orchids were found growing on the humus-rich soil of *Quercus-Rhododendron* Boreal forest at 1870 m. elevation (**Map 1**).



Map 1. Location map of *Cephalanthera erecta* (Thunb.) Blume var. **oblanceolata** in Western Himalaya.

Perusal of relevant literature [Duthie, 1906; Deva & Naithani, 1986; Pearce & Cribb, 2002; Chowdhery & Agrawala, 2013; Jalal & Jayanthi, 2015, Singh & al., 2019; Misra, 2019] revealed that this taxon was hitherto not recorded from India. The same is being reported here as an addition to the Indian Orchid Flora. A brief description, photographs, along with information on phenology, habitat and distribution have been provided to facilitate its identification. Artificial key for

identification of all taxa of *Cephalanthera* from India has also been provided. Its relationship with the variety proper and justification for its distinct status has been discussed. The threat status has been accessed in Indian perspective by applying the IUCN guidelines.

TAXONOMIC TREATMENT

Cephalanthera erecta* (Thunb.) Blume var. *oblanceolata N. Pearce & P.J. Cribb, Edinburgh J. Bot.

58(1): 110, fig.6. 2001 & Orch. Bhutan: 40. 2002.

Terrestrial herbs, 5–20 cm long. Roots fasciculate. Stem slender, erect, with 2–3 basal, tubular sheaths, 3-leaved above. Leaves alternate, distichous, elliptic to ovate-lanceolate, plicate, 3–5 × 1–2 cm, acute at apex, entire along margin, prominently 3–5 veined, sessile and sheathing at base. Raceme terminal, 3–5-flowered; rachis 2–5 cm long. Lowest floral bracts foliaceous, lanceolate, c. 3.5 × 1 mm long, apex acute; distal ones narrowly triangular, 1–2 mm long. Flowers erect, not fully opening, sub-actinomorphic, white, 6–10 mm long. Pedicel with ovary c. 5 mm long, green. Dorsal sepal oblanceolate, 7–8 mm long, subacute; lateral sepals oblanceolate, c. 7 × 1.2 mm, subacute. Petals similar to sepals but slightly shorter. Labellum simple, peloric, oblanceolate, 7–8 mm long, obtuse. Column erect, white, narrowly two winged at apex; stigma broad, fleshy. (Fig. 1).

Flowering: May – June; *Fruiting*: Not observed.

Habitat: Terrestrial, found growing on the humus-rich soil of Quercus-Rhododendron Boreal forest at 1870 m. elevation.

Distribution: India: Uttarakhand (Present report); Bhutan.

Specimen examined: INDIA: Uttarakhand, Chamoli, near Gharsari Mandal, 18.05.2021, MS & HN 1001 (CAL).

TAXONOMIC NOTES

While establishing *Cephalanthera erecta* var. *oblanceolata*, Pearce & al. (2001) have differentiated it from the typical *Cephalanthera erecta* due to the presence of undivided, unadorned, and spurless labellum. They believed it as a peloric form of *C. erecta* which have a wider distribution range. Govaerts (2021) have listed both these taxa as synonymous and further included *Cephalanthera nanlingensis* A.Q. Hu & F.W. Xing within it. Although, these plants are quite identical

in habit, flower color, leaf shape and size to *C. erecta*, there are several reports and specimens available which are with simple, undivided, spurless labellum. In contrast, the labellum in *C. erecta* is clearly 3-lobed, ornamented and with a distinct spur and also not recorded in the areas where the sub-actinomorphic forms are distributed. These morphological differences, which are consistent within the population for many generations, vouch for the distinctness of the two varieties.

Cephalanthera nanlingensis A.Q. Hu & F.W. Xing from China is quite similar to *C. erecta* var. *oblanceolata* in its overall appearance, sub-actinomorphic perianth and undivided, unadorned, spurless labellum but differ in having wider, obovate-spathulate, obtuse perianth with abruptly narrowed base and 4-5 veins (vs. narrower, oblanceolate, non-unguiculate, sub-acute, 3-veined perianth in *C. erecta* var. *oblanceolata*). Hu & al. (2009) were probably unaware about the var. *oblanceolata* described from Bhutan by Pearce & al. (2001) and not compared their new species with it. They may be proved as conspecific if the materials from across the distribution range will be studied together and compared.

Another recently described peloric form of *Cephalanthera erecta* from Japan i.e. *C. erecta* f. *pelorica* Hiro. Hayak. & Suetsugu exhibit gross resemblance with *C. erecta* var. *oblanceolata* and *C. nanlingensis*. But this form has foliaceous floral bracts and oblanceolate, obtuse, 5-veined perianth which are 2-3 mm wide. While establishing this forma, Hayakawa & al. (2020) have observed a swollen organ on the abaxial surface of the column apex in the holotype specimen of *C. erecta* var. *oblanceolata* and said such swollen organ is absent in the new Japanese forma. There was no mention of this swollen organ in the protologue of *C. erecta* var. *oblanceolata*, neither it was depicted in the illustration provided in Pearce & al. (2001). All these three elements may prove to be same with further comparative study of fresh and type materials.

Artificial key for identification of all taxa of *Cephalanthera* known from India:

- 1a. Labellum undivided, unadorned ... **C. erecta** var. **oblanceolata**
- 1b. Labellum distinguished into hypochile and epichile, adorned with longitudinal lamellae ...2
- 2a. Leaves ovate; floral bracts 30–40 mm long; labellum with 5 longitudinal lamellae at base of epichile ... **C. damasonium**
- 2b. Leaves linear-lanceolate; floral bracts 5–7 mm long; labellum with 7 longitudinal lamellae at base of epichile ... **C. longifolia**



Fig. 1. *Cephalanthera erecta* (Thunb.) Blume var. *oblanceolata* N. Pearce & P.J. Cribb, A. Habit, B. Inflorescence, C. Close-up of flower. D. Column.

Red List assessment as per IUCN Guidelines (IUCN, 2012a; 2012b; 2019)

Cephalanthera erecta var. *oblanceolata*, although distributed in India, Bhutan and probably Nepal, it is known in India from a single locality (as presently reported) in Chamoli district of Uttarakhand in North-West Himalaya (Map-1). 20–30 individuals were observed growing on the humus-rich forest floor at nearly 1870 m elevation. The habitat is under direct threat to anthropogenic activities for tourism and pilgrimage. The aerial life-span of these plants is very short and they remain underground for the most part of the year. The plants are vulnerable to livestock

grazing and trampling. Pollination is vector dependent and seed germination is again subject to availability of suitable mycorrhiza. As it is known from a single locality, by considering the minimum grid size of 2×2 km, the Area of Occupancy (AOO) can be estimated as 4 sq. km. (Criteria B2). The number of location is one (B2a) and a continuous decline in area, extent, and quality of habitat is projected [B2b(iii)] considering the threats mentioned above. The number of matured individuals observed were not more than 30 (Criteria D). Therefore, the threat perception on this species is assessed as Critically Endangered [CR B2ab(iii); D] in Indian perspective. As the taxon is also distributed in neighboring countries like Bhutan and possibly in

Nepal sharing similar habitats, the population in India can be rescued through possible immigration of propagules or gene flow from such habitats. Therefore, the original red list assessment of 'Critically Endangered' has been down-listed to 'Endangered' as per the regional assessment guideline (IUCN, 2012b). More intense floristic survey and habitat management is recommended for its conservation.

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