

Cylindrolobus motuoensis (Orchidaceae), a new addition to the Flora of India

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Abstract: *Cylindrolobus motuoensis* X.H.Jin & J.D.Ya (Orchidaceae) is reported as a new distributional record to India from Arunachal Pradesh. A detailed description of the taxon along with line drawings and colour photographs is provided for easy identification.

Keywords: Arunachal Pradesh, Epiphytic orchid, New record, Orchid flora, Taxonomy.

Introduction

Orchidaceae is one of the larger angiospermic families in India with over 1430 species belonging to 191 genera (Misra, 2019) of which maximum number (about 900 species) are found in the Northeast region (Rao, 2007). The genus *Cylindrolobus* is represented by 79 species distributed in the tropical region from East Himalaya, China, and Southeast Asia to New Guinea (POWO, 2024).

Cylindrolobus was an alternate name proposed by C.L. Blume (1828) for his orchid genus *Ceratium* which he had established previously (Blume, 1825). However, the name *Ceratium* was later deemed invalid, as it was a later homonym of the algal genus *Ceratium* F.Schrank, (Schrank, 1793). Later, Blume (1856) treated *Cylindrolobus* as a subgenus under *Eria* Lindl. Subsequently, Leavitt (1909) reduced it to a sectional rank, a treatment followed by many orchidologist. Pridgeon *et al.* (2005) later suggested that *Cylindrolobus* should be subsumed under *Callostylis* Blume. However,

recent molecular and morphological studies have justified recognizing *Cylindrolobus* as a distinct genus, characterized by a multi-noded stem with leaves concentrated at the apex, short inflorescences with one to several flowers, and conspicuous and colorful bracts (Chen *et al.*, 2009; Ng *et al.*, 2018). Although the genus comprises relatively small and less showy flowers, many of its species are becoming increasingly rare due to the progressive loss of natural habitats.

In India, the genus has been represented by 9 species, *viz.* *Cylindrolobus arunachalensis* (A.N.Rao) A.N.Rao; *C. biflorus* (Griff.) Rauschert; *C. clavicaulis* (Wall. ex Lindl.) Rauschert; *C. glandulifer* (Deori & Phukan) A.N.Rao; *C. gloensis* (Ormerod & Agrawala) Schuit., Y.P.Ng & H.A.Pedersen; *C. lohitisensis* (A.N.Rao, Harid. & S.N. Hedge) A.N.Rao; *C. marginatus* (Rolfe) S.C. Chen & J.J.Wood; *C. pseudoclavicaulis* (Blatt.) Schuit., Y.P.Ng & H.A.Pedersen and *C. tenuicaulis* (S.C.Chen & Z.H.Tsi) S.C.Chen & J.J.Wood (POWO, 2024). In the present paper, one more species, *viz.* *Cylindrolobus motuoensis* X.H. Jin & J.D.Ya, hitherto known from Tibet (Ya *et al.*, 2019), is reported for the first time as a new addition to the orchid flora of India.

During a field trip to the forested area of Mishmi Hills, Lower Dibang Valley district of Arunachal Pradesh, on 13 May 2024, the first author collected an epiphytic orchid in its flowering condition and planted at the Regional Orchids Germplasm Conservation and Propagation Centre (Assam

Circle), Assam as a part of *ex situ* conservation as well as for detailed study. Based on available literature (King & Pantling, 1898; Pradhan, 1979; Chowdhery, 1998; Pearce & Cribb, 2002; Lucksom, 2007; Chen *et al.*, 2009; Gogoi, 2018, 2019; Misra, 2019; Singh *et al.*, 2019; Ya *et al.*, 2019) and critical examination of the flowers, it was identified as *Cylindrolobus motuoensis* X.H. Jin & J.D. Ya which is so far known endemic to China (Ya *et al.*, 2019). Hence, a detailed description, illustration, and information on habitat and distribution have been provided in the present manuscript. The voucher specimen has been deposited at the TOSEHIM (Herbarium of The Orchid Society of Eastern Himalaya).

Materials and Methods

All photographs were taken with a Canon 6D Mark-II fitted with an EF 100 mm f/2.8L Macro USM lens. The measurements and descriptions of the species were made from living plants, following the terminology for morphological descriptions

by Beentje (2012). Specimens were deposited in TOSEHIM (Herbarium of The Orchid Society of Eastern Himalaya), Regional Orchid Germplasm Conservation and Propagation Centre (Assam Circle), Assam. The types and other specimens of related species were examined directly available from various herbaria. Identification of species confirmed after consultation of literature (Ya *et al.*, 2019).

Taxonomic Treatment

Cylindrolobus motuoensis X.H. Jin & J.D. Ya in *PhytoKeys* 130: 108. 2019. *Type*: CHINA, **Xizang Autonomous Region**, Motuo, 2000 m (alt. or elev.?), 26.02.2017, Ji-Dong Ya, Cheng Liu, Hua-Jie He 17HT0073 (holo KUN!). **Figs. 1 & 2**

Epiphytes. Roots terete, slender, pubescent. Rhizome creeping, 0.3–0.4 cm thick. Stem terete, 18–24 × 0.3–0.6 cm, slender, 3–4 leaved apically, covered by close-fitting sheaths. Leaves ligulate-lanceolate, 10–13 × 1.5–2.0 cm, acuminate.



Fig. 1. *Cylindrolobus motuoensis* X.H. Jin & J.D. Ya: **a.** Plants in habitat; **b.** Inflorescence; **c.** Close-up view of flower.

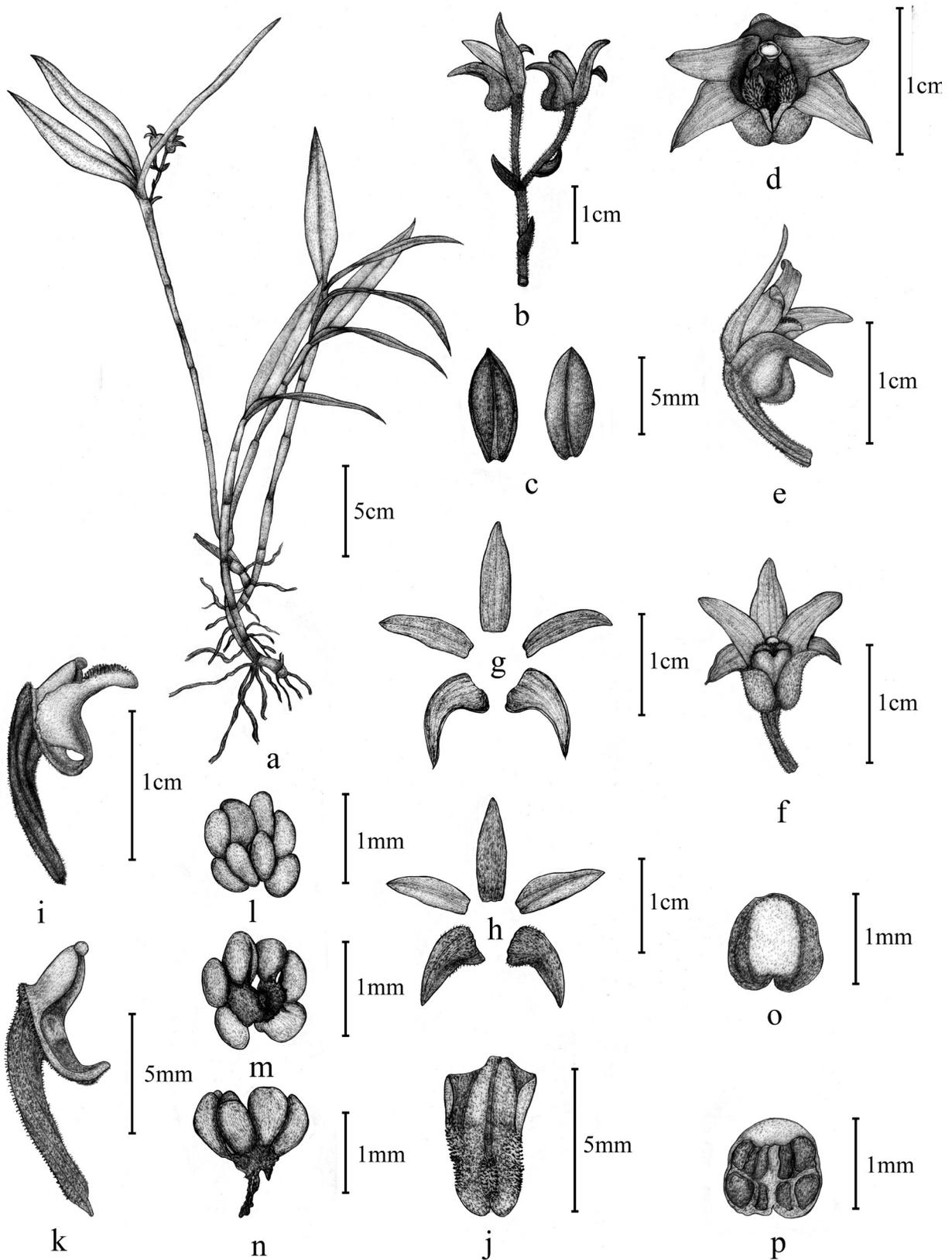


Fig. 1. *Cylindrolobus motuoensis* X.H.Jin & J.D.Ya: **a.** Habit; **b.** Inflorescence; **c.** Floral bracts—ventral and dorsal view; **d.** Flower—ventral view; **e.** Flower—sideview; **f.** Flower—dorsal view; **g.** Perianth—ventral view; **h.** Perianth—dorsal view; **i.** Lip with ovary & column; **j.** Lip inside view showing 3 calli on disc and glandular hair on upper half; **k.** Ovary with pedicel and column; **l, m, n.** Pollinarium; **o.** Anther cap—ventral view; **p.** Anther cap inside view with pollinia in situ (Illustration by Khyanjeet Gogoi).

Inflorescences 2–3 cm long, 2-flowered, axillary, pubescent, borne near stem apex; peduncle 1.0–1.5 cm long with 2 sterile bracts, amplexicaul; rachis c. 0.2 cm long, floral bracts elliptic, c. 0.7 × c. 0.3 cm, acute, concave, sparsely tomentose, dark red or purple. Flowers 1.3–1.5 cm across, white, sepal externally with brown tomentose, peduncle and ovary c. 1.0–1.5 cm long, densely brown tomentose. Dorsal sepal lanceolate, c. 1.1 × c. 0.4 cm acute at apex; lateral sepals falcate-lanceolate, 0.9 × 0.5 cm, acute at apex, base adnate to column foot form a subglobose and obtuse mentum. Petals lanceolate, c. 1.0 × c. 0.3 cm slightly oblique, acute; lip ovate in outline, c. 0.6 × c. 0.3 cm, 3-lobed, base hinged to the apex of the column foot, apex obtuse and emarginate, curved; lateral lobes suberect, subovate, apex slightly introvert; mid-lobe ligulate, c. 0.3 × c. 0.3 cm, thickened and papillate on margin, apex emarginate; disk with 3 keels, central keel longitudinal thickened, with orange papilla, running from base to the tip of mid-lobe, lateral keels glabrous, running from base to middle of mid-lobe. Column c. 0.4 cm long, broad winged at ventrally; foot incurved, c. 0.4 cm. Anther cap ovoid, c. 0.1 × c. 0.1 cm; pollinia 8, yellowish white. Fruits not seen.

Flowering and fruiting: Flowering from March to April; fruiting not observed.

Distribution: China (Tibet) and India (Arunachal Pradesh).

Habitat: Epiphytic on tree trunks in evergreen broad-leaved forests at an elevation of 1300 m.

Specimen examined: India, **Arunachal Pradesh**, Lower Dibang Valley district, Mishmi Hills, at an elevation of 1300 m, 13.05.2024, A.P. Gogoi 01161(TOSEHIM).

Notes: *Cylindrolobus motuoensis* is allied to the three new species described from Arunachal Pradesh viz. *C. lohitensis* (A.N.Rao, Haridasan & S.N. Hedge) A.N. Rao (Rao, 2010), *C. arunachalensis* (A.N.Rao) A.N.Rao (Rao, 2010) and *C. gloensis* (Ormerod & Agrawala) Schuit., Y.P.Ng & H.A.Pedersen (Y.P.

Ng *et al.*, 2018) in having 3-lobed lip with glandular hair in upper half and 3 calli on disc. It differs from them with its unique major characters like smaller flowers; dark red or purple, elliptic, concave, sparsely tomentose floral bracts; lip with 3 keels, central keel longitudinal thickened, with orange papilla, running from base to the tip of mid-lobe, lateral keels glabrous, running from base to middle of mid-lobe. Which makes the present species as distinct from them. This species is reported from a small area of Arunachal Pradesh. During the botanical excursions, we found abundant populations of the species and a large number of individuals inside each population. With the present species reported here, the total number of *Cylindrolobus* species found in India increases to ten.

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