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Caption: Malabar Slender Loris *Loris lydekkerianus malabaricus* © Dileep Anthikkad.



## Two new additions to the orchid flora of Assam, India

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Orchidaceae is one of the largest family and highly advanced monocotyledonous plants consisting of c. 28,000 species under 736 genera in the world (Chase et al. 2015; Christenhusz & Byng 2016). *Bulbophyllum* Thouars is one of the largest genera of Orchidaceae comprising c. 2000 species distributed in tropical and subtropical region of the world (Pearce & Cribb 2002; Pridgeon et al. 2014; Averyanov et al. 2018). In India it is represented by 134 species, including one subspecies, and two varieties (Singh et al. 2019). In northeastern India the genus is represented by 75 species and three varieties (Rao 2007). Assam contains 35 species and two varieties (Gogoi 2017).

During a floristic survey in Ultapani Forest of Chirang Reserve Forest, Kokrajhar under the Manas Biosphere Reserve, Assam, some specimens of *Bulbophyllum* were collected. To verify the identity of these specimens, we undertook morphological comparisons to earlier collections based on online available herbarium specimens at L, K, AMES, NY, P and consulting relevant literature (Averyanov & Averyanova 2003; Vermeulen & Byrne 2011; Wood et al. 2011; Averyanov 2013; Li et al. 2013; Vermeulen et al. 2015; Averyanov et al. 2016).

After critical examination these specimens were

found to represent *B. tenuifolium* (Blume) Lindl. and *B. parviflorum* C.S.P. Parish & Rchb.f. which are hitherto unrecorded for Assam state (Bose & Bhattacharjee 1980; Sarkar 1995; Misra 2007; Rao 2007; Gogoi 2017; Mao & Deori 2018; Singh et al. 2019; Singh & Ranjan 2021) and are therefore reported here as new records to the flora of Assam. Of them, *B. tenuifolium* was earlier recorded from Andaman & Nicobar Islands by Kumar & Sreekumar (2002).

Representative specimens of the species are deposited in Herbarium of Botanical Survey of India (BSI), Andaman & Nicobar Regional Centre Herbarium (PBL) and Bodoland University Botanical Herbarium (BUBH), Kokrajhar, Assam. Field photographs of the species are provided for easy identification.

### *Bulbophyllum tenuifolium* (Blume) Lindl. (Figure 1 & Image 1)

Gen. Sp. Orchid. Pl.: 50 (1830); *Diphyes tenuifolia* Blume, Bijdr. Fl. Ned. Ind.: 316 (1825). *Phyllorkis tenuifolia* (Blume) Kuntze, Revis. Gen. Pl. 2: 678 (1891). *Bulbophyllum angulatum* J.J.Sm., Bull. Dép. Agric. Indes Néerl. 15: 19 (1908). *Bulbophyllum microstele*

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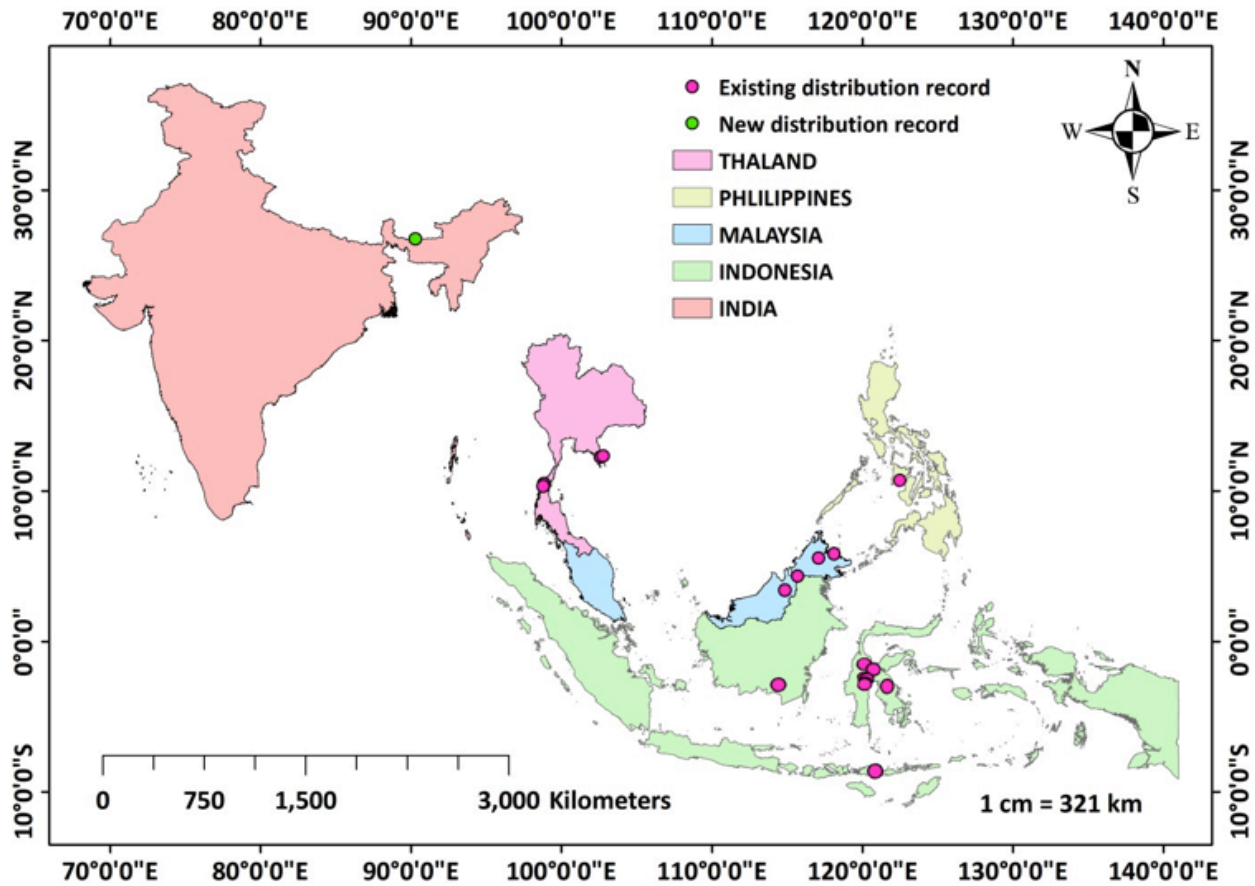


Figure 1. Distribution of *Bulbophyllum tenuifolium* (Blume) Lindl. across the world (Data shows as per GBIF).

Schltr., Repert. Spec. Nov. Regni Veg. 8: 569 (1910). *Cirrhopetalum chryseum* Kraenzl., Repert. Spec. Nov. Regni Veg. 8: 97 (1910); *Bulbophyllum chryseum* (Kraenzl.) Ames, Philipp. J. Sci., C 6: 54 (1911). *Bulbophyllum nigromaculatum* Holttum, Gard. Bull. Singapore 11: 276 (1947). *Bulbophyllum konstantinovii* Aver., Turczaninowia 16(4): 29 (2013).

**Type:** Indonesia: Java, Salak (?), coll. Blume 639 (L, holotype HLB 902.322479). Malaysia: Sarawak, Bei Kutching, 13.xii.1926, coll. Schlechter 15835 (K!, isotype [K000829845]).

**Description:** Dwarf creeping epiphyte, rhizome wiry, thin, greenish on young, later whitish-grey, 0.6–1 mm in diameter, pseudobulbs 0.7–2.2 cm apart from each other; green to yellowish-green, ovate, 5–10 mm tall, 2–6 mm in diameter, oblique in slightly bending to rhizome, longitudinally irregularly grooved with single apical leaf; leaves leathery, narrowly ovate, 1.5–5 × 0.4–1 cm, apex obtuse, petiole very short or sessile; inflorescence arising from the base of pseudobulb, sometimes from the matured rhizome, 1.5–3 cm long, with single terminal flower, ascending, filiform,

glabrous, light yellowish-green; stalk 1–2 cm long with small bract at the base; bracts 0.5–1 mm long, 0.2–0.3 mm in diameter; pedicel 6–10 mm long, filiform; flowers 1 cm across, with spreading lateral sepals; sepals light dull-yellowish with purple brown stripes, 4–6 × 1–2 mm, three distinct nerves, apex acute; median sepal elliptic with more darker stripes; lateral sepals narrowly ovate, spreading, slightly longer than the median sepals, slightly oblique at base; petals oblique ovate, 1.5–2 × 1–1.3 mm, bright-yellow, apex acute, margin with irregular dark purple spots; lip simple, elliptic 3–5 × 1–1.5 mm, yellow, base narrowing, forming bending neck, jointed with column foot apex; column erect, c. 0.8 × 0.5 mm, bright-yellow, apex with 2 straight, c. 0.6 mm long stelia; column head broadening into cup-shaped, c. 1 × 1 mm, operculum concave, ovoid, c. 0.4 mm, yellow; pollinia 2, globose, yellow.

**Flowering & fruiting:** November–January.

**Distribution:** India (Andaman & Nicobar Islands, Assam), Borneo, Cambodia, Java, Lesser Sunda Island, Malaysia, Philippines, Sulawesi, Sumatra, Thailand.

**Habitat & ecology:** Epiphytic on small branches of





Image 1. *Bulbophyllum tenuifolium* (Blume) Lindl.: A & B—Habit | C & D—Flowers | E—Showing stelia | F—Petals | G—Lip | H & I—Pollinia | J—Anther cap. © Sanswring Basumatary.

trees in evergreen or semi-evergreen humid forest along a stream at elevations of 100–700 m.

Specimens examined: India: Assam, Chirang Reserve Forest, Ultapani, 197m, 18.i.2021, coll. Sanswrang Basumatary & Sanjib Baruah, 0268 (BUBH, acc. no. 0000411). Andaman & Nicobar Islands, Middle Andaman, Kadamtala Reserve Forest, 01.xi. 2012, coll. Lal Ji Singh, 29572 (PBL, acc. no. 38319); Little Andaman, Krishna Nallah, 13.x. 2015, coll. Lal Ji Singh, 29673 (PBL, acc. no. 38320). Philippines: Leyte, Panda, Dagami, 11.v.1913, coll. C.A. Wenzel, 93 (NY, 04012457), (AMES, 00000415).

***Bulbophyllum parviflorum* C.S.P. Parish & Rchb.f.**  
(Figure 2 & Image 2)

Trans. Linn. Soc. London 30: 152 (1874); *Phyllorkis parviflora* (C.S.P.Parish & Rchb.f.) Kuntze, Revis. Gen. Pl. 2: 677 (1891). *Phyllorkis thomsonii* (Hook.f.) Kuntze, Revis. Gen. Pl. 2: 677 (1891); *Bulbophyllum thomsonii* Hook.f., Fl. Brit. India 6: 764 (1894).

**Type:** Myanmar: Tenasserim, coll. Parish 305 (W, holotype Herb No. 2273; K!, isotype [K000829138]).

**Description:** Rhizomes branched, pseudobulb compressed globose, with apical point, 1–1.5 cm in diameter, 3.5–7.5 cm apart; petiole up to 2.5 cm

long; inflorescence arising from the base of mature pseudobulb, up to 20 cm long, many flowered; flower c. 4 mm in diameter, pedicels 2–4 mm long, green; bracts (found on peduncle) c. 8 mm long, c. 3 mm diameter, encircled the peduncle, brown, apex acute; bracts (found at the base of pedicel) 2.5–4 mm long, ovate-lanceolate, apex acute-acuminate, glabrous; sepals pubescent at margin, c. 4 mm long, c. 1.5 mm at base, median sepal c. 2.5 mm long, c. 1 mm in diameter at base; petals c. 2 mm long, c. 1.5 mm in diameter, margin pubescent, white, lip c. 3 mm; anther cap c. 0.4 mm, brownish; pollinia 2, c. 0.3 mm, yellow.

Flowering & fruiting: November–January.

Distribution: India (Arunachal Pradesh, Assam, Manipur, Mizoram, Sikkim, West Bengal), Bhutan, Cambodia, China, Laos, Myanmar, Thailand, Vietnam.

Habitat & ecology: Epiphyte on branches of trees in semi-evergreen humid forest along a stream over tiny stones bedrock at elevations of 100–350 m.

Specimens examined: India: Assam: Chirang Reserve Forest, Ultapani, 215 m, 11.i.2021, coll. Sanswrang Basumatary & Sanjib Baruah 0268 (BUBH, acc.no. 0000405). Sikkim, 1850, coll. Thomson s.n. (K, K000829139). Sikkim, 3000 ft, ix.1898, coll. Pantling 245 (P, P00362005), (L, L. 1488763).

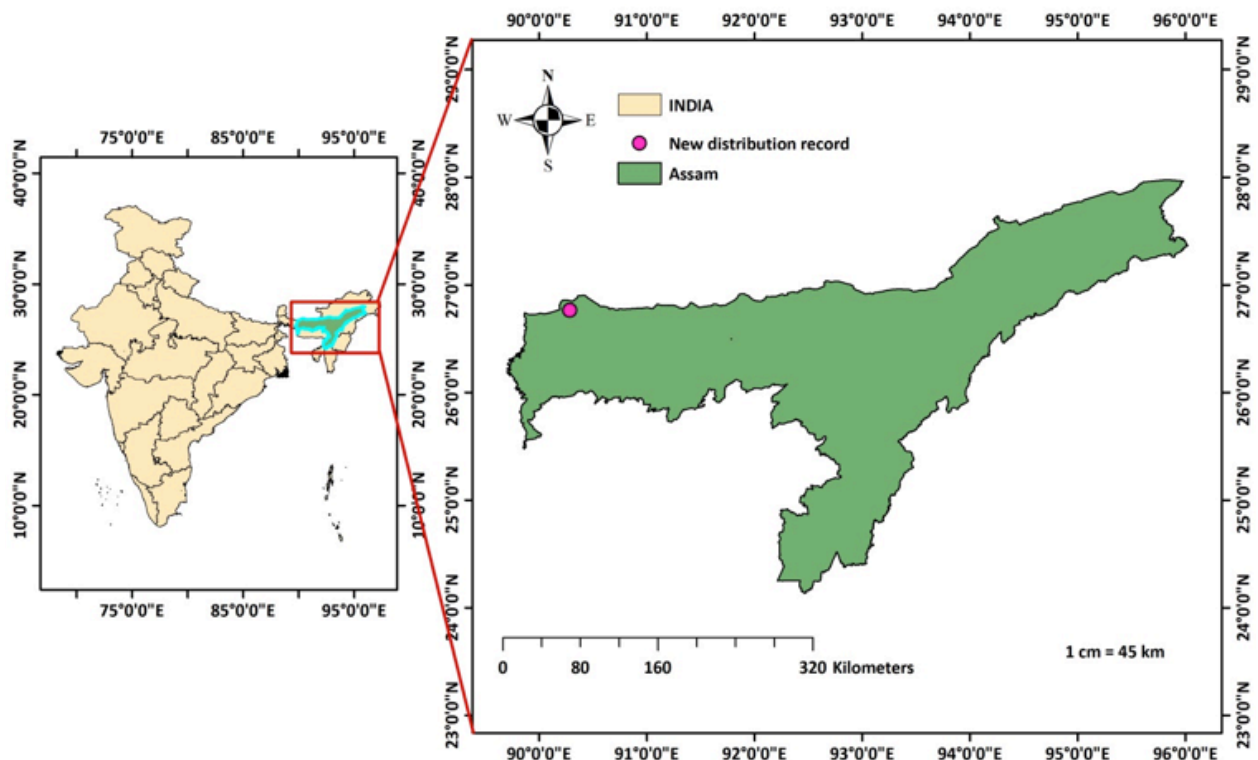


Figure 2. Distribution of *Bulbophyllum parviflorum* C.S.P. Parish & Rchb.f. in Assam.





Image 2. *Bulbophyllum parviflorum* C.S.P. Parish & Rchb.f.: A—Habit | B —Inflorescence | C & D—Bracts | E—Flowers | F—Flower after removing sepals | G—Sepals | H & I—Petals and lip | J—Stelidia, Pollen and Anther cap. ©Sanswraig Basumatary.

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