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# Journal of Threatened Taxa

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

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### NEW DISTRIBUTION RECORDS IN THE ORCHID FLORA OF TRIPURA, INDIA

Arjun Adit, Monika Koul & Rajesh Tandon

26 November 2019 | Vol. 11 | No. 14 | Pages: 14876–14885

DOI: 10.11609/jott.4613.11.14.14876-14885



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ISSN 0974-7907 (Online)  
ISSN 0974-7893 (Print)

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**Abstract:** Ten species of orchids belonging to eight genera are recorded for the first time from Tripura State of India. The taxa include *Bulbophyllum affine* Wall. ex Lindl., *Bulbophyllum lobbii* Lindl., *Coelogyne suaveolens* (Lindl.) Hook.f., *Dendrobium tortile* Lindl., *Micropera pallida* Lindl., *Mycaranthes floribunda* (D. Don) S.C. Chen & J.J. Wood, *Pinalia acervata* (Lindl.) Kuntze, *Pinalia globulifera* (Seidenf.) A.N. Rao, *Thelasis khasiana* Hook.f. and *Trichoglottis ramosa* (Lindl.) Senghas. Geographical distribution along with detailed descriptions and photographs of the recorded species are provided.

**Keywords:** Epiphytes, Indo-Malayan, new report, northeastern India, Orchidaceae.

Orchidaceae represents the largest angiosperm family and is known to occupy a variety of niches, with growth forms ranging from terrestrial to epiphytic and even underground (IUCN 2017). With over 1,300 species, orchids make up nearly 9% of the Indian flora and represent the largest family of flowering plants in India (ICAR-NRICO 2017). The northeastern region of India is recognized for its rich and unexplored floristic diversity due to its placement in the Indo-Malayan ecozone. The earlier record from the state, the Flora of Tripura (Deb 1983) cites 33 orchid species. The publication, however, is more than 35 years old and the vegetation (floral species composition) of the state has changed since

## NEW DISTRIBUTION RECORDS IN THE ORCHID FLORA OF TRIPURA, INDIA

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then. There have been many new orchid records from the neighboring states in the northeastern region (Odyuo et al. 2013, 2017; Chowlu et al. 2014; Nanda et al. 2014; Panday et al. 2014; Verma & Lavania 2014), however, only a few new records are published from the state of Tripura (Das & Datta 2016; Panda et al. 2016). The present report provides records of 10 orchid species which were earlier not known from the state. The specimens were gathered during field surveys conducted during the first half of 2018 and were systematically identified using available literature (Kumar & Kumar 2005; Schuiteman et al. 2008; Chen et al. 2009; Agrawala & Chowdhery 2013; Kumar et al. 2018).

### MATERIALS AND METHODS

Extensive field surveys were conducted in the forests of Tripura State between March and August 2018. Orchids were photographed and morphometric data were gathered besides the GPS coordinates and details of habitat. Only one orchid specimen representing each taxon was collected due to their threatened status and low population size, and was pressed, treated with formalin and prepared using standard method (de Vogel 1987; Bridson & Forman 1992). These herbarium specimens were deposited at the Delhi University

DOI: <https://doi.org/10.11609/jott.4613.11.14.14876-14885>

Editor: Pankaj Kumar, Kadoorie Farm and Botanic Gardens (KFGB) Corporation, Hong Kong S.A.R., P.R. China. Date of publication: 26 November 2019 (online & print)

Manuscript details: #4613 | Received 05 October 2018 | Final received 30 October 2019 | Finally accepted 05 November 2019

Citation: Adit, A., M. Koul & R. Tandon (2019). New distribution records in the orchid flora of Tripura, India. *Journal of Threatened Taxa* 11(14): 14876–14885; <https://doi.org/10.11609/jott.4613.11.14.14876-14885>

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Funding: Rufford Small Grants for Nature Conservation.

Competing interests: The authors declare no competing interests.

Acknowledgements: AA is thankful for the financial assistance from the Rufford Small Grants for Nature Conservation (25610-1), United Kingdom and the Junior Research Fellowship from the Council of Scientific and Industrial Research (CSIR). We are deeply grateful to the Forest Department, Government of Tripura for providing logistics required during the project besides the permission to conduct research in the state (No.F.2-61/For/Misc/Estt-2013/23009-019).



Herbarium (DUH), India, and accession numbers were noted down. Comparisons between herbarium records were made using online portals such as the Kew Herbarium Catalogue (<http://apps.kew.org/herbcat/gotoHomePage.do>) and the Swiss Orchid Foundation at the Herbarium Jany Renz (<https://orchid.unibas.ch/index.php/en/database-search/advanced-search>).

#### TAXONOMIC TREATMENT

##### *Bulbophyllum affine* Wall. ex Lindl.

Gen. Sp. Orchid. Pl. 48. 1830; *Sarcopodium affine* (Wall. ex Lindl.) Lindl. & Paxton, Paxton's Fl. Gard. 1: 155. 1853; *Phyllorkis affinis* (Wall. ex Lindl.) Kuntze, Revis. Gen. Pl. 2: 677. 1891; *Bulbophyllum kusukusense* Hayata, Icon. Pl. Formosan. 4: 48, f. 19. 1914. Type: Nepal, 1852, N. Wallich 1982 (K!)

Erect epiphytic herb; rhizome sturdy, 0.5–0.8 cm in diameter; pseudobulbs erect, 6–8 cm apart, cylindrical, 2.5–3.5 cm in length, 0.8–1.2 cm in diameter; leaf solitary with entire margin, petiole 1–2 cm long, lamina 14–16 x 2–3 cm, oblong with parallel venation, retuse apex and decurrent base; inflorescence consisting of a single flower originating from the rhizome; flower pedicellate, bracteate, 2.0–2.5 cm long, zygomorphic; sepals and petals lanceolate with acute apices, 1.3–1.7 x 0.4–0.7 cm, white with longitudinal maroon stripes; lip lanceolate with acute apex, 0.4–0.5 x 0.1–0.2 cm, orange to scarlet in color; column slightly recurved, 0.5 cm long, sessile; anther cap orange, pollinia 2, cream yellow (Images 1, 11).



Image 1. *Bulbophyllum affine* Wall. ex Lindl.

Flowering and Fruiting: June–July.

Habitat: Found in a large population growing on a single *Balakata baccata* (Roxb.) Esser tree in moist broadleaf forest adjacent to Tlangsang Village in Jampui Hills.

Specimen examined: DUH 14443 (DUH), 7.vi.2018, Tlangsang, North District, Tripura, India, 23.906°N, 92.272°E, 690m, coll. Arjun Adit 2121.

Other specimen examined: K001114844 (K), 1852, Nepal, coll. N. Wallich 1982.

Distribution: Bhutan, Cambodia, India (throughout), Laos, Myanmar, Nepal, southern China, Taiwan, Thailand, and Vietnam.

##### *Bulbophyllum lobbii* Lindl.

Edwards's Bot. Reg. 33: 29. 1847; *Sarcopodium lobbii* (Lindl.) Lindl. & Paxton, Paxton's Fl. Gard. 1: 155. 1850; *Sarcobodium lobbii* (Lindl.) Beer, Prakt. Stud. Orchid. 306. 1854; *Phyllorkis lobbii* (Lindl.) Kuntze, Revis. Gen. Pl. 2: 677. 1891; *Phyllorchis lobbii* (Lindl.) Kuntze, Revis. Gen. Pl. 2: 677. 1891. Type: Java, Pangerango, Lobb 312 (K-LINDL.)

Erect epiphytic herb; rhizome sturdy, 1.0–1.5 cm in diameter; pseudobulbs erect, 10–15 cm apart, globose, 1.2–1.5 cm in length, 1.2–1.5 cm in diameter; leaf solitary with entire margin, petiole 1.4–1.7 cm long, lamina 10–10.5 x 2–3 cm, oblong with parallel venation, acute apex and decurrent base; inflorescence consisting of a single flower originating from rhizome; flower pedicellate, bracteate, 4.0–4.5 cm long, zygomorphic; sepals and



Image 2. *Bulbophyllum lobbii* Lindl.



petals lanceolate with acute apex, 2.5–3.0 x 0.7–1.1 cm, creamish-yellow with faint longitudinal maroon stripes; lip triangulate with acute apex, 1.0–1.2 x 1.2–1.4 cm, white; column slightly recurved, 0.8cm long, sessile; anther cap yellow, pollinia 2, cream yellow (Images 2, 12).

Habitat: Growing on *Cryptocarya amygdalina* Nees and *Magnolia montana* (Blume) Figlar trees in the moist broadleaf forest of Phuldungsei in Jampui Hills along with other epiphytes like *Hoya lanceolata* Wall. ex D.Don, *Mycaranthes floribunda* (D.Don) S.C.Chen and *Thelasis khasiana* Hook.f.

Flowering and Fruiting: March–April.

Specimen examined: DUH 14444 (DUH), 19.iii.2018, Phuldungsei, North District, Tripura, India, 23.810°N, 92.261°E, 923m, coll. Arjun Adit 2105.

Other specimen examined: K000364608 (K!), Malaya, coll. Lobb s.n.

Distribution: Bangladesh, Bhutan, Brunei, Cambodia, India (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura), Indonesia, Malaysia, Myanmar, Philippines, Singapore, and Thailand.

### *Coelogyne suaveolens* (Lindl.) Hook.f.

Fl. Brit. India. 5: 832. 1890; *Pholidota suaveolens* Lindl., Gard. Chron. 1856: 372. 1856; *Pleione suaveolens*

(Lindl.) Kuntze, Revis. Gen. Pl. 2: 680. 1891. Type: India, 19 May 1856, Bishop Winchester s.n. (K!)

Erect epiphytic herb; rhizome sturdy, 0.8–1.0 cm in diameter; pseudobulbs erect, 7–9 cm apart, cylindrical, 5.5–6.0 cm in length, 2.0–2.5 cm in diameter; leaves two, with undulate margin, petiole 3–3.5 cm long, lamina 19–20 x 3.2–3.5 cm, oblanceolate with parallel venation, acuminate apex and decurrent base; Inflorescence synanthous, consisting of 10–14 flowers in a raceme; flowers pedicellate, bracteate, 1.5–2.0 cm long, zygomorphic, white; bract one per flower, cymbiform, brown in color; sepals and petals oblong with acute apices, 1.2 – 1.5 x 0.5 – 0.8 cm, white; lip oblong with acute apex, 1.2–1.5 x 0.5–0.8 cm; lip keel lamellae crenate to dentate, longitudinally arranged, yellow, four to five in number; column white recurved, 0.4cm long, sessile; anther cap red, pollinia 2, yellow (Images 3, 13).

Habitat: Growing on *Magnolia montana* (Blume) Figlar tree in moist broadleaf forest along with *Pinalia acervata* (Lindl.) Kuntze at Vanghmun in Jampui Hills.

Flowering and Fruiting: April–July

Specimen examined: DUH 14445 (DUH), 6.v.2018, Vanghmun, North District, Tripura, India, 23.976°N, 92.278°E, 633m, coll. Arjun Adit 2114.

Other specimen examined: K000079285 (K!), India, Bishop Winchester s.n.

Distribution: Bhutan, India (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura), Laos, Myanmar, southern China, and Thailand.

### *Dendrobium tortile* Lindl.

Gard. Chron. 1847: 797. 1847; *Dendrobium dartoisianum* De Wild., Gard. Chron. 39: 380. 1906; *Dendrobium haniffi* Ridl. ex Burkill, Gard. Bull. Straits Settlem. 3: 295. 1924. Type: June 1847, Veitch s.n. (K!)

Erect epiphytic herb; non-rhizomatous; pseudobulb in form of erect cane with nodes, cylindrical, 30–40 cm in length, 1.0–1.5 cm in diameter; leaves simple with entire margin, alternately arranged, sessile, lamina 10–13 x 1.3–1.5 cm, linear with parallel venation, acute apex and decurrent base; inflorescence terminal in groups of 2–4 flowers; flowers pedicellate, bracteate, 5–6 cm long, zygomorphic, white; bract one per flower with papery texture, transparent 0.5–0.7 x 0.4–0.5 cm; sepals and petals lanceolate with acute apices, 3.0–3.5 x 0.4–0.6 cm, twisted, white with purplish hue; lip tubular and enclosing the column with acute apex, 2.5–2.8 x 2.0–2.5 cm, white, mentum greenish white 0.5–0.8 cm long; column green, 0.3cm, sessile; anther cap green, pollinia 2, cream (Images 4, 14).



Image 3. *Coelogyne suaveolens* (Lindl.) Hook. f.



Image 4. *Dendrobium tortile* Lindl.

Habitat: Growing on *Tectona grandis* L.f., *Shorea robusta* C.F. Gaertn., *Dipterocarpus turbinatus* C.F. Gaertn., *Artocarpus chama* Buch.-Ham., and *Vitex altissima* L.f. in moist deciduous forests of Garji and Kumarghat reserve forests.

Flowering and Fruiting: February–May.

Specimen examined: DUH 14446 (DUH), 23.iii.2018, Garji Reserve Forest, Gomti District, Tripura, India, 23.438°N, 91.471°E, 38m, coll. Arjun Adit 2107.

Other specimen examined: K000596550 (K!), 3.ii.1926, Wangka, Kanburi, Thailand, 15.133°N, 98.5°E, 200m, coll. A.F.G. Kerr 0278.

Distribution: Bangladesh, India (Assam, Meghalaya, Mizoram, Manipur, Nagaland, and Tripura), Laos, Malaysia, Myanmar, Thailand, and Vietnam.

#### *Micropera pallida* (Roxb.) Lindl.

Edwards's Bot. Reg. 18: 1522. 1833; *Aerides pallida* Roxb., Fl. Ind. (ed. 1832). 3: 475. 1832; *Camarotis apiculata* Rchb.f., Bonplandia. 5: 39. 1857; *Dendrocolla apiculata* Zoll. ex Rchb.f., Bonplandia. 5: 39. 1857; *Camarotis pallida* Lindl., J. Proc. Linn. Soc., Bot. 3: 37. 1859; *Sarcochilus cochinchinensis* G. Nicholson, Ill. Dict. Gard. 3: 360. 1886; *Sarcochilus roxburghii* Hook.f., Fl. Brit. India. 6: 36. 1890; *Saccolabium saxicolum* Ridl.,

Trans. Linn. Soc. London, Bot. 3: 374. 1893; *Sarcanthus apiculatus* (Rchb.f.) J.J. Sm., Orch. Java: 598. 1905; *Sarcanthus thorelii* Guillaumin, Bull. Soc. Bot. France. 77: 331. 1930; *Micropera apiculata* (Rchb. f.) Garay, Bot. Mus. Leaflet. 23: 186. 1972. Type: Bangladesh, Comilla, 7 September 1871, C.B. Clarke 14202 (K!).

Erect or hanging epiphytic monopodial herb; non-rhizomatous; stem terete, 25–30 cm in length, 0.3–0.5 cm in diameter; leaves simple with entire margin, alternately arranged, sessile, lamina 7–10 x 0.8–1.0 cm, linear with parallel venation, obtuse apex and sheathing base; inflorescence axillary and drooping with 9–11 flowers; flowers pedicellate, bracteate, 1.0–1.5 cm long, zygomorphic, yellow; bract one per flower, brown black; sepals and petals obtuse with round apices, 0.5–0.6 x 0.2–0.3 cm, yellow; lip obtuse with acute apex, 0.3–0.4 x 0.2–0.3 cm, yellow, spur yellowish-white 0.1–0.2 cm long; column white, 0.1cm long, sessile; anther cap yellow at head and cream on tail, pollinia 2, yellow (Images 5, 15).

Habitat: Growing on *Mangifera indica* L. and *Artocarpus hirsutus* Lam. in moist deciduous forests of Garji, Maharani and Kumarghat reserve forests.

Flowering and Fruiting: June–August.

Specimen examined: DUH 14447 (DUH), 9.vi.2018, Garji Reserve Forest, Gomti District, Tripura, India,



Image 5. *Micropera pallida* Lindl.

23.395°N, 91.440°E, 23m, coll. Arjun Adit 2122.

Other specimen examined: K000974275 (K!), 7.ix.1871, Comilla, Bangladesh, coll. C.B. Clarke 14202.

Distribution: Bangladesh, Brunei, Cambodia, India (throughout), Indonesia, Laos, Malaysia, Myanmar, Thailand, and Vietnam.

***Mycaranthes floribunda* (D. Don) S.C. Chen & J.J. Wood**

Fl. China 25: 348. 2009; *Dendrobium floribundum* D. Don, Prodr. Fl. Nepal. 34. 1825; *Eria paniculata* Lindl. in Wallich, Pl. Asiat. Rar. 1: 32. 1830; *Pinalia paniculata* (Lindl.) Kuntze, Revis. Gen. Pl. 2: 679. 1891. *Callista floribunda* (Rchb.f.) Kuntze, Revis. Gen. Pl. 2: 654. 1891. Type: India, Sikkim, J.D. Hooker 67 (K!)

Erect epiphytic herb; stem clustered without pseudobulbs; leaves simple with entire margin, sessile, alternately arranged, lamina 12–14 x 0.4–0.5 cm, linear with parallel venation, acuminate apex and sheathing base; inflorescences 2–3 in terminal position, consisting of 35–45 flowers in raceme; flowers pedicellate, bracteate, 0.3–0.5 cm long, zygomorphic; bract one per flower, green; sepals ovate with acute apices, 0.2–0.3 x 0.1–0.2 cm, yellowish green; petals ovate with acute apices, 0.2–0.3 x 0.1–0.2 cm, white with purple spots; lip rectangular with blunt apex, 0.2–0.3 x 0.1–0.2 cm, with cream colored protrusion; column white, 0.1 cm long, sessile; anther cap cream, pollinia 8, cream (Images 6,

16).

Habitat: Growing on *Cryptocarya amygdalina* Nees and *Magnolia montana* (Blume) Figlar trees in moist broadleaf forest of Phuldungsei in Jampui Hills along with other epiphytes like *Hoya lanceolata* Wall. ex D. Don, *Bulbophyllum lobbii* Lindl., and *Thelasis khasiana* Hook.f.

Flowering and Fruiting: May–June

Specimen examined: DUH 14448 (DUH), 7.v.2018, Phuldungsei, North District, Tripura, India, 23.810°N, 92.261°E, 923m, coll. Arjun Adit 2115.

Other specimen examined: K001114827 (K!), Pundua, Bangladesh, coll. F. De Silva 1971.

Distribution: Bangladesh, Bhutan, Cambodia, India (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura), Laos, Myanmar, southern China, Thailand, and Vietnam.

***Pinalia acervata* (Lindl.) Kuntze**

Revis. Gen. Pl. 2: 679. 1891; *Eria acervata* Lindl., J. Hort. Soc. London. 6: 58. 1851; *Eria poilanei* Gagnep., Bull. Mus. Natl. Hist. Nat. 23: 310. 1930; *Dendrobium seriatum* Wall. ex Hook.f., Fl. Brit. India. 5: 796. 1890. Type: Cambodia, 14 August 1928, M. Poilane 15285 (P!)

Erect epiphytic herb; arhizomatous; pseudobulbs erect, clustered, conical, 3.5–4.0 cm in length, 1.0–1.5 cm in diameter; Leaves simple with entire margin, sessile, lamina 14–18 x 1.0–1.2 cm, linear with parallel venation, acuminate apex and sheathing base; inflorescence



Image 6. *Mycaranthes floribunda* (D. Don) S.C. Chen & J.J. Wood



Image 7. *Pinalia acervata* (Lindl.) Kuntze



synanthous, consisting of 8–10 flowers in raceme; flowers pedicellate, bracteate, 1.6–1.8 cm long, zygomorphic; Bract one per flower, green; sepals and petals ovate with acuminate apices, 1.2–1.4 x 0.2–0.3 cm, white; lip broadly cuneate with acute apex, 1.2–1.5 x 0.5–0.8 cm with cream colored ornamentation, mentum 0.2–0.3 cm long; column white, 0.4 cm long, sessile; anther cap lemon yellow, pollinia 8, yellow (Images 7, 17).

Habitat: Growing on *Magnolia montana* (Blume) Figlar tree in moist broadleaf forest along with *Coelogyne suaveolens* (Lindl.) Hook.f. at Vanghmun in Jampui Hills.

Flowering and Fruiting: June–July.

Specimen examined: DUH 14449 (DUH), 6.vi.2018, Vanghmun, North District, Tripura, India, 23.976°N, 92.278°E, 633m, coll. Arjun Adit 2120.

Other specimen examined: K000596933 (K!), 22.vi.1915, Chiangmai, Thailand, coll. A.F.G. Kerr s.n.

Distribution: Bhutan, Cambodia, India (Arunachal Pradesh, Assam, Manipur, Meghalaya, Nagaland, Sikkim, and Tripura), Laos, Myanmar, Nepal, southern China, Thailand, and Vietnam.

#### ***Pinalia globulifera* (Seidenf.) A.N.Rao**

Bull. Arunachal Forest Res. 26: 103. 2010; *Eria globulifera* Seidenf., Opera Bot. 62: 125. 1982. Type: Thailand, Doi Pae Poe, 1982, Seidenfaden GT 7317 (C!)

Erect epiphytic herb; arhizomatous; pseudobulbs erect, clustered, cylindrical, 6–7 cm in length, 1.8–2.0

cm in diameter; Leaves four, simple, with entire margin, alternately arranged with negligible internodal distance, petiole 1.5–2.0 cm long, lamina 15–17 x 2.5–2.7 cm, oblanceolate with parallel venation, acuminate apex and decurrent base; inflorescences terminal, two in number, with 70–90 flowers in each globular raceme; flowers pedicellate, bracteate, 0.5–0.6 cm long, zygomorphic; bract one per flower, white; sepals and petals ovate with acute apex, 0.2 x 0.2 cm, white; lip ovate with acute yellow apex, 0.2 x 0.2 cm; column white, 0.1cm long, sessile; anther cap yellow, pollinia 8, yellow (Images 8, 18).

Habitat: Growing on a *Syzygium cumini* (L.) Skeels tree in moist broadleaf forest along with *Coelogyne fimbriata* Lindl. at Vanghmun in Jampui Hills.

Flowering and Fruiting: July–September.

Specimen examined: DUH 14450 (DUH), 14.vii.2018, Phuldungsei, North District, Tripura, India, 23.813°N, 92.259°E, 845m, coll. Arjun Adit 2126.

Distribution: Bhutan, Cambodia, India (Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, and Uttarakhand), Laos, Myanmar, Thailand, and Vietnam.

#### ***Thelasis khasiana* Hook.f.**

Fl. Brit. India. 6: 87. 1890; *Thelasis pygmaea* var. *khasiana* (Hook.f.) Schltr. Mem. Herb. Boissier. 21: 71. 1900. Type: India, Khasia Mts., Lobb s.n. (K!)

Erect epiphytic herb; rhizome short; pseudobulbs erect, 0.5–1.0 cm apart, ovoid, 1.1–1.3 cm in length, 0.8–1.0 cm in diameter; leaves or sometimes with a second smaller leaf, simple with entire margin, petiole 1.2–1.5 cm long, lamina 6.5–6.9 x 1.1–1.3 cm, lanceolate with parallel venation, acute apex and decurrent base; inflorescence synanthous in form of raceme originating from the base of pseudobulb; flower pedicellate, bracteate, 0.3–0.4 cm long, zygomorphic; Sepals and petals lanceolate with acute apices, 0.1–0.2 x 0.1–0.2 cm, yellowish-green; lip ovate-lanceolate with acute apex, 0.1–0.3 x 0.1–0.2 cm, yellowish green; column slightly recurved, 0.1cm long, sessile; anther cap green; pollinia 2, yellow (Images 9, 19).

Habitat: Found on *Cryptocarya amygdalina* Nees tree in the moist broadleaf forest of Phuldungsei in Jampui Hills along with other epiphytes like *Hoya lanceolata* Wall. ex D. Don, *Bulbophyllum lobbii* Lindl. and *Mycaranthes floribunda* (D.Don) S.C. Chen.

Flowering and Fruiting: July–August.

Specimen examined: DUH 14451 (DUH), 14.vii.2018, Phuldungsei, North District, Tripura, India, 23.810°N,



Image 8. *Pinalia globulifera* (Seidenf.) A.N.Rao



Image 9. *Thelasis khasiana* Hook.f.

92.261°E, 923m, coll. Arjun Adit 2125.

Other specimen examined: K000891232 (K!), 18.ix.1850, Below Paurany, India, coll. J.D. Hooker and T. Thomson s.n.

Distribution: India (Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura), Laos, Myanmar, southern China, Thailand, and Vietnam.

#### *Trichoglottis ramosa* (Lindl.) Senghas

F.R.R. Schlechter, Orchideen Beschreib. Kult. Zücht., ed. 3, 1: 1315. 1988; *Staurochilus ramosus* (Lindl.) Seidenf. Opera Bot. 95: 95. 1988; *Oeceoclades flexuosa* Lindl., Gen. Sp. Orchid. Pl.: 236. 1833; *Saccolabium ramosum* Lindl., Gen. Sp. Orchid. Pl. 224. 1833; *Saccolabium flexuosum* Lindl., J. Proc. Linn. Soc., Bot. 3: 36. 1859; *Saccolabium flexuosum* (Lindl.) Rchb.f. in W.G. Walpers, Ann. Bot. Syst. 6: 886. 1864; *Aerides ramosa* (Lindl.) Wall. ex Hook.f., Fl. Brit. India 6: 72. 1890; *Cleisostoma ramosum* Hook.f., Fl. Brit. India. 6: 72. 1890; *Gastrochilus flexuosus* (Lindl.) Kuntze, Revis. Gen. Pl. 2: 661. 1891; *Gastrochilus ramosus* (Lindl.) Kuntze, Revis. Gen. Pl. 2: 661. 1891; *Sarcanthus ramosus* (Hook.f.) J.J.Sm., Natuurw. Tijdschr. Ned.-Indië. 72: 92. 1912; *Pomatocalpa ramosum* (Lindl.) Summerh., Kew Bull. 56. 1948. Type: India, Ganges delta, Wallich Icon no. 654 (K!)

Erect or hanging monopodial epiphytic herb; leaves

simple with entire margin, alternately arranged, sessile, lamina 10–17 x 0.8–1.2 cm, linear with parallel venation, emarginate apex and sheathing base; inflorescence branched, erect and terminal with 20–30 flowers on each side branch; flowers pedicellate, bracteate, 0.6–0.7 cm long, zygomorphic, brick red; bract one per flower, brown; sepals and petals oblanceolate with acute apex, 0.3–0.4 x 0.1 cm, brick red; lip rectangular with truncate apex, 0.2–0.3 x 0.1 cm, white with purple spot at the apex and yellow spot near the base, spur white 0.2–0.3 cm long; column pink, 0.1cm long, sessile; anther cap yellow, pollinia 2, yellow (Images 10, 20).

Habitat: Found growing on *Melaleuca viminalis* (Sol. ex Gaertn.) Byrnes in close association with *Acampe praemorsa* (Roxb.) Blatt. & McCann and *Rhynchostylis retusa* (L.) Blume in moist deciduous forest of Clouded Leopard National Park and Sepahijala Wildlife Sanctuary.

Flowering and Fruiting: April–July

Specimen examined: DUH 14452 (DUH), 11.v.2018, Clouded Leopard National Park, Sepahijala District, Tripura, India, 23.675°N, 91.320°E, 47m, coll. Arjun Adit 2117.

Other specimen examined: K000364567 (K!), Sikkim, India, coll. J.D. Hooker s.n.

Distribution: Bangladesh, Bhutan, India (except Jammu & Kashmir, Laddakh, Himachal Pradesh and Uttarakhand), Myanmar and Thailand.



Image 10. *Trichoglottis ramosa* (Lindl.) Senghas





Image 11. Herbarium record of *Bulbophyllum affine* Wall. ex Lindl.



Image 12. Herbarium record of *Bulbophyllum lobbii* Lindl.



Image 13. Herbarium record of *Coelogyne suaveolens* (Lindl.) Hook. f.



Image 14. Herbarium record of *Dendrobium tortile* Lindl.





Image 15. Herbarium record of *Micropera pallida* Lindl.



Image 16. Herbarium record of *Mycaranthes floribunda* (D. Don) S.C. Chen & J.J. Wood

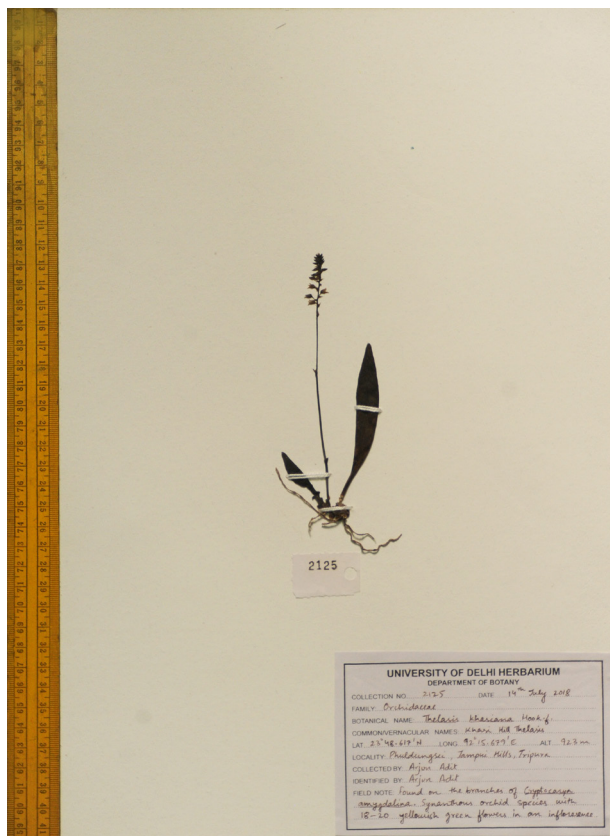


Image 17. Herbarium record of *Pinalia acervata* (Lindl.) Kuntze



Image 18. Herbarium record of *Pinalia globulifera* (Seidenf.) A.N.Rao



Image 19. Herbarium record of *Thelasis khasiana* Hook.f.Image 20. Herbarium record of *Trichoglottis ramosa* (Lindl.) Senghas

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

November 2019 | Vol. 11 | No. 14 | Pages: 14787–14926

Date of Publication: 26 November 2019 (Online & Print)

DOI: 10.11609/jott.2019.11.14.14787-14926

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

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