



Research Article



Article History

Received: 15.05.2024

Accepted: 21.06.2024

Available online

Version: 1

Additional Information

Peer review: The publisher expresses gratitude to the anonymous reviewers and sectional editors for their invaluable contributions during the peer review process.

Reprints and Permissions Information

is available at:

https://phytotalks.com/journal/index.php/PT/open_access_policy

Publisher's note: Regarding jurisdictional claims in published maps and institutional affiliations, PhytoTalks maintains its objectivity.

Copyright: PhytoTalks Journal. All right reserved.

Cite this article: Shivam Kishwan, HB Naithani, Anup Chandra, Praveen Kumar Verma. A Remark on the Occurrence and Nomenclature of North Indian *Tropidia maxwellii* Ormerod (Asparagales: Orchidaceae). *PhytoTalks*. 2024; 1(2): 157-160.

A Remark on the Occurrence and Nomenclature of North Indian *Tropidia maxwellii* Ormerod (Asparagales: Orchidaceae)

Shivam Kishwan¹ , H. B. Naithani¹ , Anup Chandra¹ ,
Praveen Kumar Verma*¹

¹Forest Botany Division, ICFRE-Forest Research Institute, Dehradun, Uttarakhand 248001, India.

Corresponding author's Email: vermapk@icfre.org

Abstract

Since its discovery in 1971, the name of *Tropidia maxwellii* Ormerod, found in the Doon Valley in northern India, has been unclear. *Tropidia curculigoides* Lindl. and *Tropidia pedunculata* Blume were the names given to the species in the past. In order to make identification easier, the current article explains the terminology and provides coloured photos, and a thorough description. There's also a brief mention of the freshwater marshes in Dehradun, which serve as its habitat..

Keywords: *Tropidia*, Doon Valley, Freshwater Swamp, nomenclature, conservation.

1. Introduction

John Lindley created the genus *Tropidia* in 1833, with *T. curculigoides* serving as the type species. One species, *T. polystachya*, is found in Ecuador and is dispersed from the United States to South Eastern Asia, the South Pacific Islands, and Northern Australia^{1,2,3}. The genus has thirty-three species. Six species had previously been found in India to constitute the genus *Tropidia*^{4,5}.

From North India, a species, viz. *T. curculigoides* Lindl. was reported by Deva and Arora⁶. However, during the preparation of the orchid flora of Western Himalaya, Deva and Naithani⁷ placed it under *T. pedunculata* Blume. Later, Ormerod¹ while revising Asiatic *Tropidia*, stated that the material quoted by Deva and Naithani⁷ under *T. pedunculata* belongs to *T. maxwellii* which was first described by Ormerod¹ from Thailand. Its distribution is in India (Uttarakhand, Jharkhand, Sikkim), Bangladesh, Myanmar, Philippines, Indonesia, and Papua New Guinea. Ormerod¹ further stated that Hooker⁸ was the first to realize the mixture in Lindley's concept of *T. curculigoides*. Later, Seidenfaden⁹ identified material from Thailand as *T. pedunculata*, followed by Deva and Naithani⁷ and Jalal *et al.*¹⁰. The confusion about the identity of this species still exists as the recent publications, Singh *et al.*⁵ and Rawat *et al.*¹¹ have placed it under *T. pedunculata*. Also, Naithani¹² mentioned the occurrence of *T. pedunculata* from India. However, the true *T. pedunculata* is distributed in Malaysia, Indonesia, the Philippines, and Papua New Guinea^{1,2}.

2. Materials and Methods

During a recent botanical exploration in the Doon Valley, Uttarakhand, a scattered population of *Tropidia* was located in the Golatappar (30°04'51.8" N, 78°12'21.5" E, 397 m) freshwater swamp. After a critical and comparative study of the specimens based on literature¹ and the type collection (Online), it was identified as *Tropidia maxwellii* Ormerod. The specimens are submitted to the Herbarium of Forest Research Institute, Dehradun (DD).

3. Result and Discussion

After Arora and Som Deva, the present collections made by the authors (S.K. and H.B.N.) from the same locality (i.e., Golatappar) are after a lapse of 54 years. Its collection from only one place and four collections indicates its rarity in North India. To facilitate identification, detailed descriptions, and colored photographs have been provided.

Tropidia maxwellii Ormerod, Checkl. Papuas. Orch.: 438. 2017 et in Harv. Paper. Bot. 23(1): 79. f.2. 2018. *T. curculigoides* auct. non. Lindl., Lindl., Gen. Sp. Orch. Pl. 497. 1840 p.p.; King & Pantl. in Ann. Roy. Bot. Gard. Calcutta 8: 275. 1888; Deva & Arora in Indian Forester 97: 699. 1971. *T. pedunculata* auct. non. Blume, Sidenf. & Smitinand, Orch. Thailand 1: 98. 1959; Deva & Naithani, Orch. Fl. NW Himal. 93. f.42. 1986; Misra, Orch. Orissa: 277-281, f.'s, 771 p.p., 2004; Uniyal, Sharma, Choudhery & Singh, Fl. Pl. Uttarakhand (Checklist) 234. 2007. Lucksom, Orch. Sikkim & NE Himal.: 73, f.45. 2007; Rawat, Jalal and Rawat, Orch. Uttarakhand 339. 2023. *T. formosana* auct. non. Rolfe, Gogoi, Orchidophile 116: 335, f., 2016. (Figure 1, 2).

Terrestrial herbs that can grow up to 30 cm in height. Wiry roots. Stems: upright, terete, solitary or branched; internodes 2–5 cm long; main stem 7–11 leaves, branches 4–7 leaves,

dark green. Sheathing into the stem, the leaves cluster close to the inflorescence. They are dark green above, 6-18 × 1-3 cm, narrowly lanceolate to lanceolate, or broadly elliptic, with pronounced veins on the lower surface that extend to the sheath. Both terminal and axillary inflorescences are present; the terminal inflorescences are 7–31 mm long, the axillary ones are leaf opposed, simple or rarely branched, and the peduncle is 3–17 mm long. The peduncle sheaths are 1-2 and tubular, and the rachis is 4–14 mm long. The floral bracts are broadly triangular to lanceolate, acute, 3-5 veined, with the marginal veins not reaching the apex, and they are green, measuring 3.5–10 mm long. Flowers are light greenish-white in color, with a yellow anther cap, a yellow lip tip, and a white column. Pedicel plus ovary terete to clavate, 4–7 mm length, sparsely furfuraceous. Dorsal sepal: 5.5-10 × 2.5-3.0 mm, sparsely furaceous basally, ovate-elliptic to oblong-lanceolate, apex subacute, 3-5 veined, concave. Lateral sepals: ovate-elliptic to oblong-lanceolate, oblique, acute to subacute; lower inner edges adherent, sparsely furfuraceous basally, 6-11 × 2.6-3.2 mm; midvein carinate at apex; 3.5 veined. Petals are obliquely oblong-lanceolate, acute to subacute, faintly falcate, with three veins, 4.7-9.2 × 1.9-2.8 mm, with a broadly thickened lower midvein. 4.2-7.0 mm long, labellum ovoid-cymbiform; hypochile cymbiform to ovate-elliptic; epichile oblong to ovate-lanceolate; apex obtuse, deflexed, and briefly cucullate; 1.2-2.2 mm long. column 2.9–3.8 cm long, robust, and slant upright.

Note: *Tropidia pedunculata* can be easily distinguished from *T. maxwellii* by its proliferated inflorescences. Also, *T. maxwellii* can be differentiated from *T. curculigoides* in having pedunculate inflorescences (vs. sessile in *T. curculigoides*) and longer narrower floral bracts.



Figure 1. *Tropidia maxwellii* Ormerod: A. Habit with infructescence; B. Flower; C. Fruits.

Specimens examined: Golatappar swamp, Dehradun, 3rd August 2023, Shivam Kishwan 309, Acc. No. 174903, 174904, 174905 (DD); Golatappar swamp, Dehradun, 16th August 2023, H.B. Naithani 5893, Acc. No. 174115 (DD); Golatappar, Dehradun, 8th May 1969, Som Deva 4184, Acc. No. 153545, 154513 (DD). Golatappar, Dehradun, July 1969, CM Arora, Acc. No. 38869 (BSD).

Habitat and Ecology: The species grows in the freshwater swamp forest of Golatappar Swamp in Doon Valley. It generally grows under shady to semi-open canopy in solitary or small clumps of 5-6 individuals connected by runners.

Associated species: Commonly associated tree species of *Tropidia maxwellii* are *Diospyros malabarica*, *Pterospermum acerifolium*, *Shorea robusta*, *Syzygium cumini* and

Acronychia pedunculata. Other associated species include *Ficus pomifera*, *Jasminum multiflorum*, *Curculigo orchoides*, *Desmodium heterocarpon*, *Phyllanthus amarus*, *Ardisia solanacea*, *Cyperus mindorensis*, *Pogostemon benghalensis*, *Cyperus paniceus*, *Floscopa scandens*, *Rotala rotundifolia*, *Knoxia sumatrensis*, *Calamus tenuis*, *Arundo donax*, *Mimosa pudica*, *Pouzolzia pentandra*, *Rorippa nasturtium-aquaticum*, *Limnophila rugosa* and *Ophioglossum vulgatum*.

4. **Conclusion:** This article provided the all-inclusive information related occurrence and nomenclatural details of a rare plant of family Orchidaceae, *Tropidia maxwellii*. The article will be helpful for future taxonomists as an important source of reference.

Author contributions:

SK: field-work, collection, conceptualization, manuscript writing; HBN: field-work, collection, manuscript writing, review; AC & PKV: review and editing.

Acknowledgments

The authors are grateful to the Director, ICFRE- Forest Research Institute, Dehradun for encouragement and support.

References

1. Ormerod P. Notes on Asiatic *Tropidia* (Orchidaceae: Tropideae). *Harvard Pap Bot.* 2018; 23(1): 77-83.
2. POWO. Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; <http://www.plantsoftheworldonline.org/>. 2023; Retrieved 09 September 2023.
3. Paudel HR. The first record of the Genus *Tropidia* Lindl. (Orchidaceae) from Nepal. *Int J Appl Chem Biol Sci.* 2020; 1(3): 53-57.
4. De A, Hajra PK. The genus *Tropidia* in India. *J Orchid Soc India.* 2001; 15(1-2). 49-57.
5. Singh SK, Agrawala DK, Jalal JS, Dash SS, Mao AA, Singh P. *Orchids of India*. A Pictorial Guide. B.S.I. Kolkata. 2019.
6. Deva S, Arora CM. On the occurrence of *Tropidiacur culigoides* Lindl. at Golatappar, Dehradun. *Indian For.* 1971; 97: 699-700.
7. Deva S, Naithani HB. *Orchid Flora of North West Himalaya*. Print Media Associates, New Delhi. 1986.
8. Hooker JD. Flora of British India 6. *Orchidaceae to Cyperaceae*. L. Reeve & Co., London, 1890.
9. Seidanfaden G. Orchid Genera in Thailand VI. Neottioideae Lindl. *Dansk Botanisk Arkiv.* 1978; 33 (2): 5-1-95.
10. Jalal JS, Kumar P, Rawat GS, Pangtey YPS. List of Species. Orchidaceae, Uttarakhand, Western Himalaya, India. Checklist. 2008;4(3): 304-320.
11. Rawat GS, Jalal JS, Singh G. *Orchids of Uttarakhand-A Field Guide*. Bishen Singh Mahendra Pal Singh, Dehradun, 2023.
12. Naithani HB. *Floristic Diversity of North-East India*, R.F.R.I., Jorhat, Assam, 2020.