



RESEARCH ARTICLE

New distributional record of two species for the flora of Assam, India

Puranjy Mipun¹, Deiji Narah², Bob Christie Kutum³ & Jintu Sarma^{4*}

¹Department of Botany, B. N. College, Dhubri, Assam, 783 324, India

²Department of Botany, Joya Gogoi College, Khumtai, Assam, 785 619, India

³North Lakhimpur Range Forest Office, Lakhimpur, Assam, 787 001, India

⁴Department of Botany, Guwahati College, Guwahati, Assam, 781 021, India

*Email: drjintusarma@gmail.com



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Abstract

Peliosanthes bipiniana D. K. Roy, N. Odyuo & N. Tanaka (Asparagaceae), an endemic plant and *Begonia limprichtii* Irmsch. (Begoniaceae) are recorded herewith as new distributional record for the flora of Assam. Morphological descriptions, phenology, taxonomic notes and field photos along with distribution map are provided for easy identification in the field.

Keywords

Peliosanthes, *Begonia*, New report, Endemic, Assam

Introduction

During the botanical explorations (2019–2020) in Nambor Wildlife Sanctuary, Garampani Wildlife Sanctuary in Golaghat district of Assam, an interesting species of *Peliosanthes* was observed and collected. Later, again in the month of October 2020 additional collections were made (Fig. 1). After critical taxonomic studies and careful analysis of detailed morphology (Fig. 2) based on the collected fresh specimens and literature (1–21), the taxon was identified as *Peliosanthes bipiniana* D. K. Roy, N. Odyuo & N. Tanaka (21) which was not recorded from Assam before this report. *Peliosanthes* Andrews belongs to the subfamily Nolinoideae (22) under Asparagaceae (23) and comprises of about 72 species, distributed widely over subtropical and tropical Asia covering Nepal, Bhutan, India, Bangladesh, Myanmar, China, Cambodia, Laos, Vietnam, Taiwan, Thailand, Indonesia and Malaysia (1, 2, 24, 25). It is allied to *P. subspicata* N. Tanaka by the compact inflorescence, flowers nodding and large, but differing by perianth segments entire, externally green, internally dark purple, corona convex, 6-denticulate and dark purple. As per the current status from NE India, 13 species and a variety of *Peliosanthes* have been recognized but the number of species may increase if more field surveys are conducted in regions. The currently known species and varieties from North Eastern region of India are *P. ligniradicis* N. Tanaka, Taram & D. Borah (Arunachal Pradesh), *P. khasiana* N. Tanaka (Arunachal Pradesh to Assam), *P. macrophylla* Wall. ex Baker (East Himalaya, Assam), *P. griffithii* Baker (East Himalaya, Assam), *P. ashihoana* D. K. Roy, N. Odyuo & N. Tanaka (Meghalaya), *P. bipiniana* D. K. Roy, N. Odyuo & N. Tanaka (Meghalaya and Assam – current report), *P. nagalandensis* Odyuo, D. K. Roy, N. Tanaka & A. A. Mao (Assam), *P. tobuensis* Odyuo, D. K. Roy, Lytan, N. Tanaka & A. A. Mao (Assam), *P. arunachalensis* D. K. Roy, A. A. Mao & Aver. (Arunachal Pradesh), *P. teta* Andrews (Assam, East Himalaya), *P. pumila* N. Tanaka (Assam), *P. macrostegia* Hance (Assam), *P. subspicata* N. Tanaka (Assam), *P. macrophylla* var. *assamensis* N. Tanaka & D. Borah (Assam) (9, 17–21).

In another field trip at Dullungand Kakoi Reserve Forest, the last remaining patch of semi-evergreen to tropical forests in Lakhimpur district of Assam during 2019–2020 along with several rare species viz. *Parakaempferia synantha* A. S. Rao & Verma, *Amblyanthopsis bhotanica* (C. B. Clarke) Mez, *Pyrenaria khasiana* var. *lakhimpurensis* Odyuo & D. K. Roy, *Kayea assamica* Prain, *Goniothalamus simonsii* Hook.f. & Thomson and *Zingiber flavofusiforme* M. M. Aung & Nob. Tanaka, one interesting *Begonia* was also collected from Kakoi RF (Fig. 1). Based on the examination of live specimens, literature as well as herbarium consulta-

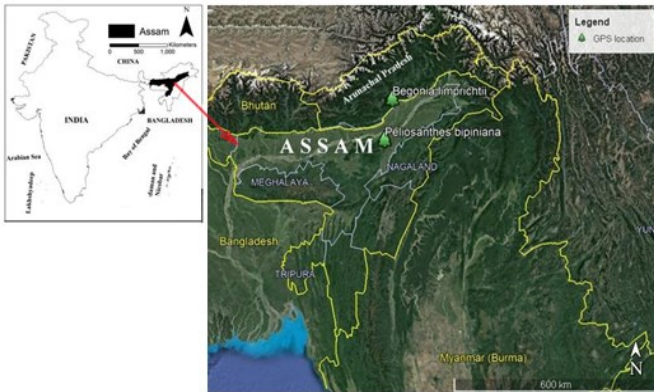


Fig. 1. Distribution map of recorded species in Assam.

tion at ASSAM, ARUN, CAL, GUBH, E & G, the plant was identified as *Begonia limprichtii* Irmsch. (26) which is hitherto unrecorded for Assam. Recently, however, it was recorded for the flora of India from Siang district of Arunachal Pradesh (26). So far, Northeast India is well represented by 42 species of *Begonia*, falling under four different sections (*Begonia* sect. *Diploclinium* (Lindl.) A. DC., sect. *Parvibegonia* A. DC., sect. *Platycentrum* (Klotzsch) A. DC. and sect. *Monophyllum* A. DC.) (27).

Materials and Methods

Specimens were collected during field trips (2019–2020) and herbarium sheets were prepared as per standard methods (28). For confirmation of the specimens, materials were studied at ASSAM, ARUN, CAL, GUBH, E & G. All the collected specimens were deposited at ASSAM. Photographs of the live specimen were taken using Canon EOS 1500D DSLR Camera and GPS maps are prepared using Google Earth and ArcGIS.

Taxonomic Treatment

Peliosanthes bipiniana

D.K. Roy, N. Odyuo & N.Tanaka, Taiwania 65(4): 496.2020. [Fig. 2, A-D].

Type

INDIA. D.K. Roy 128923 (holotype, ASSAM; isotype, ASSAM).

Acaulescent herbs, evergreen, perennial. Rhizome ascending to erect, subterete, branched. Roots cordlike. Leaves usually 2–3 at apex of shortly branched rhizome-like stem, basal, erect to obliquely spreading; petiole subterete, erect to suberect. Inflorescences dense-flowered, 3.5–6.5 cm long in flower. Flowers 7–33 per rachis, acrope-



Fig. 2. *Peliosanthes bipiniana* A. Habitat B. Close view of inflorescence with flowers C. & D. Inflorescence in different stage. [Photo by P Mipun].

tally blooming, 1 each in axils of bracts, subglobose or bowl-shaped, 10–13 mm in diam., cernuous. Perianth fleshy, 6-cleft; proximal tubular part obconic, broadly ovate to ovate-orbicular, 4–4.5 mm long and wide, externally green, purplish along margins. Pistil 1, tricarpellate, dark purple. Fruits (seeds) not seen.

Flowering

October–December.

Habitat & Ecology

This species is found growing in the forest floors of semi evergreen forests in Nambor Wildlife Sanctuary, Assam. A total of 7 individuals were observed in the current locality. It was growing in association with *Goniothalamus sesquipedalis* (Colebr. ex Wall.) Hook.f. & Thomson, *Microtropis discolor* (Wall.) Wall. ex Meisn., *Catunaregam spinosa* (Thunb.) Tirveng., *Gomphostemma parviflorum* Wall. ex Benth., *Piper* sp. etc.

Specimen examined

INDIA, Assam, Golaghat district, Nambor Wildlife Sanctuary, 26°24'36.6"N, 93°52'34.7"E, 15 October 2020, P. Mipun 0155 (ASSAM).

Distribution

INDIA: Meghalaya (21), Assam (Present study).

Note

Longer petiole and scape, more flowers per inflorescence were observed in the present collection which was not reported earlier (25). As *P. bipiniana* was described from cultivated plants and is so far not reported from wild, this report is the first report from wild and it is a new addition to the flora of Assam.

Begonia limprichtii

Irmsch. Repert. Spec. Nov. Regni Veg. Beih. 12: 440 (1922).

[Fig. 3 A, B]

Type

CHINA. Szetschwan: Chia ting fu, zw. Leudientse u. Gaomiaio, westnordwestl. des Omeischan, 1100 m. 31 May 1914, *Limpricht* 1535 (holotype WU 0038811 image!).

Evergreen, perennial rhizomatous herbs, up to 50 to cm high. Roots fibrous, up to 25 cm long. Leaves alter-



Fig. 3. *Begonia limprichtii* (A, B). [Photo by BC Kutum].

nate; stipules ovate, subulate, 0.9–1.3 × 0.6–0.9 cm, margin irregular with short strigose hairs, apex acuminate, outer surface puberulent, inner surface glabrous; petiole terete, red; lamina orbicular to widely ovate 5–15 × 3.5–12 cm, margin serrate, apex acute, base cordate, basal lobes overlapping or nearly so, sparsely covered with red strigose hairs, 1–2 mm long; venation palmate, veins 6–7. Inflorescences axillary with 5–9 flowers. Flowers monoecious. Staminate flower: pedicels 0.9–1.2 cm long, white; tepals 4; the outer 1.1–1.5 × 0.6–1 cm; stamens 30–50, filament ca 0.5 mm across. Pistillate flower: pedicels 0.6–1 cm long, tepals 4–5, 0.8–1.5 × 0.4–1 cm, reddish white; style bifid from middle, 0.1–0.5 cm, yellow.

Flowering

May - June.

Habitat & Ecology

Begonia limprichtii prefers moist and shady habitats, growing in cracks and splits near ephemeral and perennial streams in tropical evergreen forests, between 200–400 m a.s.l., and grows in association with *Henckelia pumila* (D. Don) A. Dietr., *Lysionotus* sp., *Begonia palmata* D. Don, *Begonia griffithiana* (A. DC.) Warb., *Sonerilla* sp., *Nephrolepis cordifolia* (L.) C. Presl, *Angiopteris* sp., *Pilea* sp. etc.

Specimens examined

INDIA. Assam. Kakoi Reserve Forest, 07 May 2020, B. Kutum 038 (ASSAM).

Distribution

India (Arunachal Pradesh – Upper Siang (26) & Assam – present report); China (Sichuan and Yunnan).

Notes

Begonia limprichtii is similar to *B. thomsonii* A. DC. but differs in puberulent stipules (vs villous), upper surface of lamina sparsely strigose (vs densely hairy), peduncle with some long hairs (vs densely villous), ovary nearly glabrous (vs villous), upper ovary wing beaked and rounded (vs triangular) and lamina shorter relative to width, abruptly tapering. It is very characteristic in its strigose red hairs distributed in the leaf surface.

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Authors contributions

PM- Field work, DN- Composition, literature review, BCK- field work, JS- field work, compilation, concept, communication. All authors read and approved the final manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interests to declare.

Ethical issues: None.

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