

***Haplanthus laxiflorus* (Blume) Gnanasek., G.V.S.Murthy & Y.F.Deng (Acanthaceae): A New Generic Record for Nepal**

**Satya Gupta^{1,2}, Yogendra Bikram Poudel², Bhaskar Adhikari³, Dipak Lamichhane⁴ &
Gaurav Parmar^{1*}**

¹National Botanical Garden, Department of Plant Resources, Godawari, Lalitpur, Nepal

²Central Department of Botany, Tribhuvan University, Kirtipur, Kathmandu, Nepal

³Royal Botanic Garden Edinburgh, Edinburgh, UK

⁴Department of Plant Resources, Thapathali, Kathmandu, Nepal

*Email: gaurav_mascot4u@yahoo.com

Abstract

Haplanthus laxiflorus (Blume) Gnanasek., G.V.S.Murthy & Y.F.Deng is reported here as a new generic record for the flora of Nepal. A detailed description, along with notes on habitat, distribution, photographs and a herbarium image have all been provided. This species can be easily distinguished by its distinctly pouched filaments inserted at the base of subactinomorphic corolla.

Keywords: Distribution, *Haplanthus*, Himalaya, Taxonomy

Introduction

The genus *Haplanthus* Nees belongs to the tribe Andrographideae and family Acanthaceae (Manzitto-Tripp et al., 2022). It consists of four species worldwide, with three varieties in one species (Gnanasekaran et al., 2016). This genus' native range is from South China to Tropical Asia, including Bangladesh, Bhutan, Cambodia, India, Malesia, Myanmar, Thailand and Vietnam (Gnanasekaran et al., 2016; Plants of the World Online [POWO], 2023a). Nees established the genus *Haplanthus* with a single species, *H. tener* Nees, in 1832. Later, Anderson (1867) transferred *H. tener*, the type of *Haplanthus*, to *Andrographis* Wall. ex Nees and made a new combination as *A. tenuiflora* T. Anderson. During the systematic study of *Andrographis* in India, Gnanasekaran et al. (2016) restored *Haplanthus* as a distinct genus from *Andrographis*, based on morphological characters. *Haplanthus* differs from *Andrographis* by its subactinomorphic corolla with curved tube, included filaments that are pouched at the apex, dorsally hairy anther connectives and oblong, compressed, not distinctly grooved seeds (Gnanasekaran et al., 2016).

Specimens of *Haplanthus laxiflorus* (Blume) Gnanasek., G.V.S.Murthy & Y.F.Deng were

collected from different locations of Godawari, Lalitpur district, Nepal. *Haplanthus laxiflorus* is native to Assam to South China and West Malesia (POWO, 2023b), but its occurrence in Nepal is not yet documented in any previous literature (Hara et al., 1982, Singh, 2001, Shrestha et al., 2022), therefore, it has been recorded as a new genera for the flora of Nepal.

Materials and Methods

The field survey was conducted for the floristic investigation in Godawari area of Lalitpur district from January to June in 2023. During the investigation, some specimens of an unfamiliar species belonging to the family Acanthaceae were collected. After consulting pertinent literature, herbarium specimens at different herbaria (BM, E, KATH & KUN) including the types, and various online databases (Jiaqi et al., 2011, <https://powo.science.kew.org/>), the species was identified as *Haplanthus laxiflorus*. During our study of herbarium specimens at different herbaria, one specimen identified as *Haplanthus laxiflorus* was found in KUN which was collected by Prof. Xinfen Gao (from the Chengdu Institute of Biology, China) and her team from Pokhara. However, it has not been published or reported.

Results and Discussion

Haplanthus laxiflorus (Blume) Gnanasek., G.V.S.Murthy & Y.F.Deng in *Blumea* 61(3): 168 (2016). a” *Justicia laxiflora* Blume in *Bijdr. Fl. Ned. Ind.*: 789 (1826). a” *Andrographis laxiflora* (Blume) Lindau in *H.G.A.Engler & K.A.E.Prantl, Nat. Pflanzenfam.* 4(3b): 323 (1895). a” *Rungia laxiflora* (Blume) C.B.Clarke in *J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist.* 74: 698 (1908). **Type:** Indonesia, Java, s.d., *Blume* s.n. (L0003148).

Herbs, up to 70 cm. Roots tuberculated, yellowish. Stem erect or decumbent, quadrangular; branched, pubescent on angles, internodes 9–12 cm. Petioles 0.2–2 cm, glabrous. Leaf blade elliptic to lanceolate, 1.2–9 × 0.6–4 cm, base cuneate, apex acute-obtuse, margin entire, both surfaces sparsely pubescent,

lateral veins 3–5 pairs. Inflorescence axillary and/or terminal, compound leafy panicle of racemes. Bracts 2, linear, ca. 4 mm. Bracteoles present. Calyx 5-lobed; lobes linear, ca. 4 × 1 mm, apex acuminate, sparsely pubescent outside. Corolla whitish, ca. 9 mm long, outer surface sparsely pubescent with glandular and eglandular hairs; tube curved, ca. 6 mm long, inconspicuously ventricose; lower lip deeply 2-lobed, ca. 3 mm; upper lip 3-lobed, ca. 3 mm. Stamens 2; filaments inserted at the base of corolla tube, ca. 4 mm, pouched at apex, eglandular-pubescent; anthers lobed, bitheous, ca. 1 mm. Disc present. Ovary oblong, ca. 1 mm, eglandular or glandular; style ca. 4 mm, eglandular-pubescent, proximally curved slightly. Capsules linear, 10–13 mm long, glabrous. Seeds 19–21 per capsule, oblong, compressed (Figure 1).

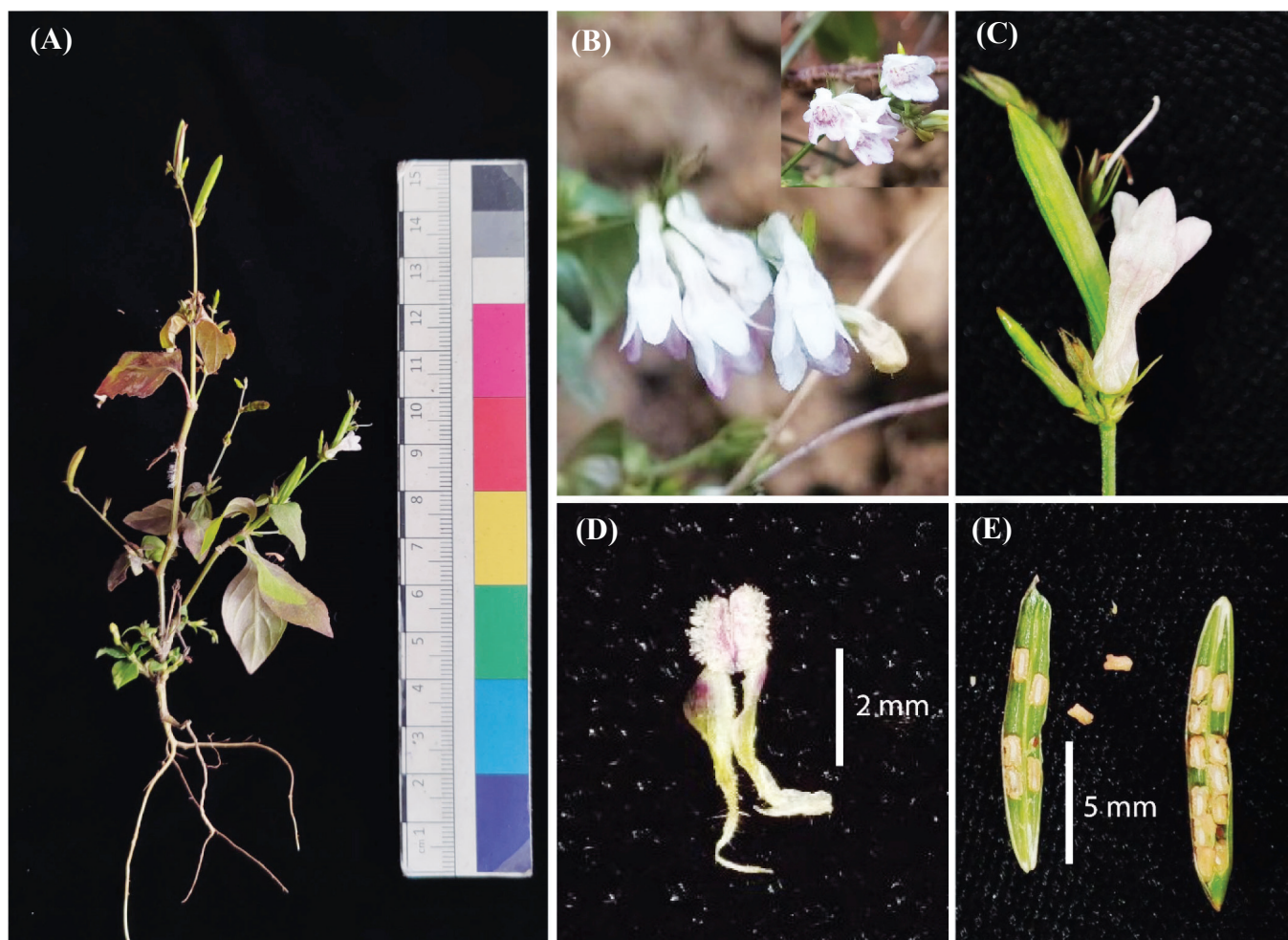


Figure 1: *Haplanthus laxiflorus*, (A) Habit, (B) Flowers, (C) Flowers, one dissected showing a pistil, (D) Stamen with pouched filament at apex, (E) Capsule with seeds

Habitat

In the forest margins, in the vicinity of rocky substrate and in disturbed area near road in the subtropical region.

Distribution

1000-1650 m in Kaski and Lalitpur Districts, Central Nepal. It is distributed in Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malesia, Myanmar, Thailand and Vietnam.

Phenology

Flowering and fruiting from March to August.

Specimens examined

Central Nepal: Gandaki Province, Kaski District, Pokhara, Nayapul, 1002 m, 12 August 2017, *X. Gao et al.*, QTP-II08-TO5-000394 (KUN); Bagmati Province, Lalitpur District, Godawari, 1510 m, 5 March 2023, *S. Gupta & K. Tiwari*, SG1 (KATH), Lalitpur District, Godawari, 1510 m, 16 March 2023, *S. Gupta & G. Parmar*, SG2 (KATH), Lalitpur District, Godawari, 1640 m, 7 May 2023, *S. Gupta, K. Tiwari & G. Parmar*, SG4 (KATH) (Figure 2).

Notes: Gnanasekaran et al. (2016) have described three varieties of *Haplanthus laxiflorus*, viz., var. *laxiflorus*, var. *parishii* (T.Anderson) Gnanasek., G.V.S.Murthy & Y.F.Deng, and var. *recedens* (C.B.Clarke) Gnanasek., G.V.S.Murthy & Y.F.Deng. However, it is not convincing to distinguish this species at the variety level based on observation of few specimens, as var. *laxiflorus* and var. *recedens* share similar morphology, and the latter is only described from the type specimen collected from Myanmar.

Conclusion

Haplanthus laxiflorus, reported from Kaski and Lalitpur Districts of Central Nepal, is a new generic record for the flora of Nepal.

Author Contributions

D. Lamichhane & G. Parmar conceptualized the research. S. Gupta did the microscopic study. S. Gupta, Y.B. Poudel & G. Parmar drafted the manuscript. B. Adhikari, D. Lamichhane & G. Parmar revised the manuscript.

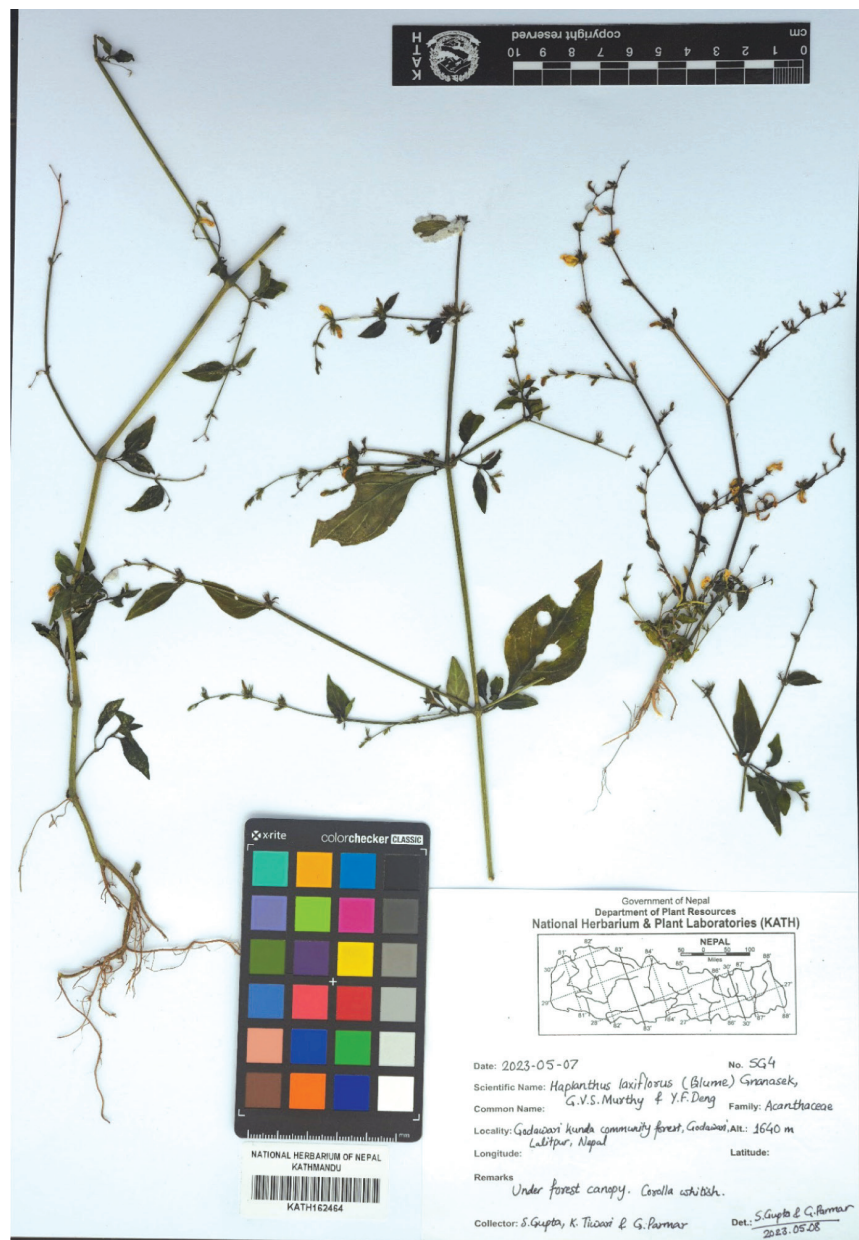


Figure 2: A specimen of *Haplanthus laxiflorus* deposited at KATH

Acknowledgements

Authors would like to thank curators of KATH, E and TUCH for giving access to their herbarium specimens. Ms. Kiran Tiwari is duly acknowledged for her assistance in the field and Dr. Keshab Raj Rajbhandari & Ms. Rashika Kafle for their suggestions. The authors are also grateful to Mr. Yagya Raj Paneru for providing the digitized image of our specimen deposited at the KATH and to the National Botanical Garden, Godawari, Lalitpur, Nepal for providing laboratory facilities.

References

- Anderson, T. (1867). An enumeration of the Indian species of Acanthaceae. *Botanical Journal of the Linnean Society*, 9(39), 425-454.
- Gnanasekaran, G., Murthy, G. V. S., & Deng, Y. F. (2016). Resurrection of the genus *Haplanthus* (Acanthaceae: Andrographinae). *Blumea*, 61(3), 165-169.
- Hara, H. (1982). *Acanthaceae*. In: H. Hara, A.O. Chater & L.H.J. Williams (Eds.), *An enumeration of the flowering plants of Nepal*, (Vol. 3) (pp. 138). Trustees of British Museum (Natural History) & University of Tokyo.
- Jiaqi, H., Yunfei, D., & Daniel, F.T. (2011). *Andrographis*. In: Z.Y. Wu, P. H. Raven, & D. Y. Hong (Eds.), *Flora of China*, (Vol. 19) (pp. 473-474). Science Press & Missouri Botanical Garden Press.
- Manzitto-Tripp, E. A., Darbyshire, I., Daniel, T. F., Kiel, C. A., & McDade, L. A. (2022). Revised classification of Acanthaceae and worldwide dichotomous keys. *Taxon*, 71(1), 103-153.
- Nees von Esenbeck, C. G. D. (1832). *Acanthaceae Indiae Orientalis*. In: N. Wallich (Ed.), *Plantae Asiaticae Rariores*, (pp. 70-117). Treuttel, Würtz & Ritter.
- Plants of the World Online. (2023a). *Haplanthus* Nees. Retrived December 6, 2023, from <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:627-1>
- Plants of the World Online. (2023b). *Haplanthus laxiflorus*. Retrived December 6, 2023, from <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:77159832-1>
- Shrestha, K. K., Bhandari, P., & Bhattarai, S. (2022). *Plants of Nepal (gymnosperms and angiosperms)*. Heritage Publishers & Distributors Pvt. Ltd.
- Singh, A. P. (2001). *Flowering plants of Nepal (phanerogams)*. Department of Plant Resources.