



Short communication

Polygala arvensis Willd.: A taxonomic note for the Flora of Nepal

Saroj Bashyal, Giri Prasad Joshi, Deepak Raj Pant*

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

*Corresponding author; email: deepak.pant@cdb.tu.edu.np

Submitted 18 November 2024; revised 27 November 2024; accepted 30 November 2024; published 2 June 2025

Abstract

This paper reports *Polygala arvensis* Willd. from the Siwalik region of central Nepal as a new addition to the flora of Nepal. Detailed information about this species, including description and taxonomic treatment, is provided.

Keywords: Nepal Flora, new taxon, Polygalaceae, Siwalik.

Introduction

The genus *Polygala*, belonging to the family Polygalaceae, is one of the most diverse genera of flowering plants. It has an almost cosmopolitan distribution, absent only in the Arctic and New Zealand (Eriksen and Persson 2007). Due to its wide distribution, there is no consensus on the exact number of species. However, a recent study estimates the number of species within the genus to be 552 (Pastore *et al.* 2019). In Nepal, the genus *Polygala* is represented by 11 species (Shrestha *et al.* 2022). The genus is characterized by papilionaceous flowers with five sepals, a trimerous corolla with a fringed crest, and eight stamens. The capsule may be either stipitate or sessile and contains two seeds, each equipped with a caruncle (Aydin 2019).

A specimen collected during a field trip to the Malmala Devi Temple area of Sainamaina Municipality, Rupandehi district of central Nepal (Figure 1) is identified as *Polygala arvensis* Willd. Previously this species has been reported from Uttar Pradesh, Bihar, and West Bengal, the Indian provinces adjoining Nepal. Kundu (2009) reported its occurrence in Nepal based on secondary sources, but no details of the specimens and collection locality were mentioned. All major checklists related to the Flora of Nepal such as Hara *et al.* (1979), Press *et al.* (2000), Rajbhandari and Rai (2019), and Shrestha *et al.* (2022) do not report its presence within the political boundary of Nepal. Here, we report the first confirmed finding of *Polygala arvensis* (Figure 2) in Nepal.

Materials and methods

Plant specimens were recorded at the forest margins of the Malmala Devi Temple area, which falls under the Siwalik region of Sainamaina Municipality, Rupandehi, central Nepal (Figure 1).

The plant specimens examined here were collected during a field visit conducted in September and October 2021, accompanied by photographs and detailed notes on the habitat. The plant was restricted to forest margins associated with grasses. The collected specimens were identified and compared with relevant literature and herbarium specimens housed at TUCH and KATH. Furthermore, digital images of specimens available in online databases of other herbaria were also consulted. After taxonomic examinations of the specimens, we concluded that this taxon has not been documented in the existing literature related to the Flora of Nepal.

Taxonomic treatment

***Polygala arvensis* Willd., Sp. P1. 3(2): 876. 1803. Roxb., Fl. Ind. 3:218. 1832.**

Annuals, 5–25 cm tall. Stem erect or ascending, herbaceous, ciliate. Petiole 1–2 mm; lamina linear-lanceolate or elliptic, 15–22 × 3–7 mm, base rounded, apex obtuse, margin hairy, surface pubescent. Flowers in axillary raceme, shorter than leaves, crowded. Bracts persistent. Sepals 5, outer sepals linear, inner ovate. Petals 3, yellow. Stamens 8, united at base. Capsule orbicular, 3–5 mm long, ciliate. Seeds oblong, 2–3 mm long, white villous.

Fl & Fr: July–October.

Ecology: Forest margin.

Distribution: Nepal (C), W Himalaya, Assam-Burma, India, Pakistan and Australasia (POWO 2023).

Specimen examined: Lumbini Province, Rupandehi District, Sainamaina Municipality, 27°42'26" N 83°19'12" E, 129 m, 9 October 2021, S. Bashyal, S37 (TUCH).

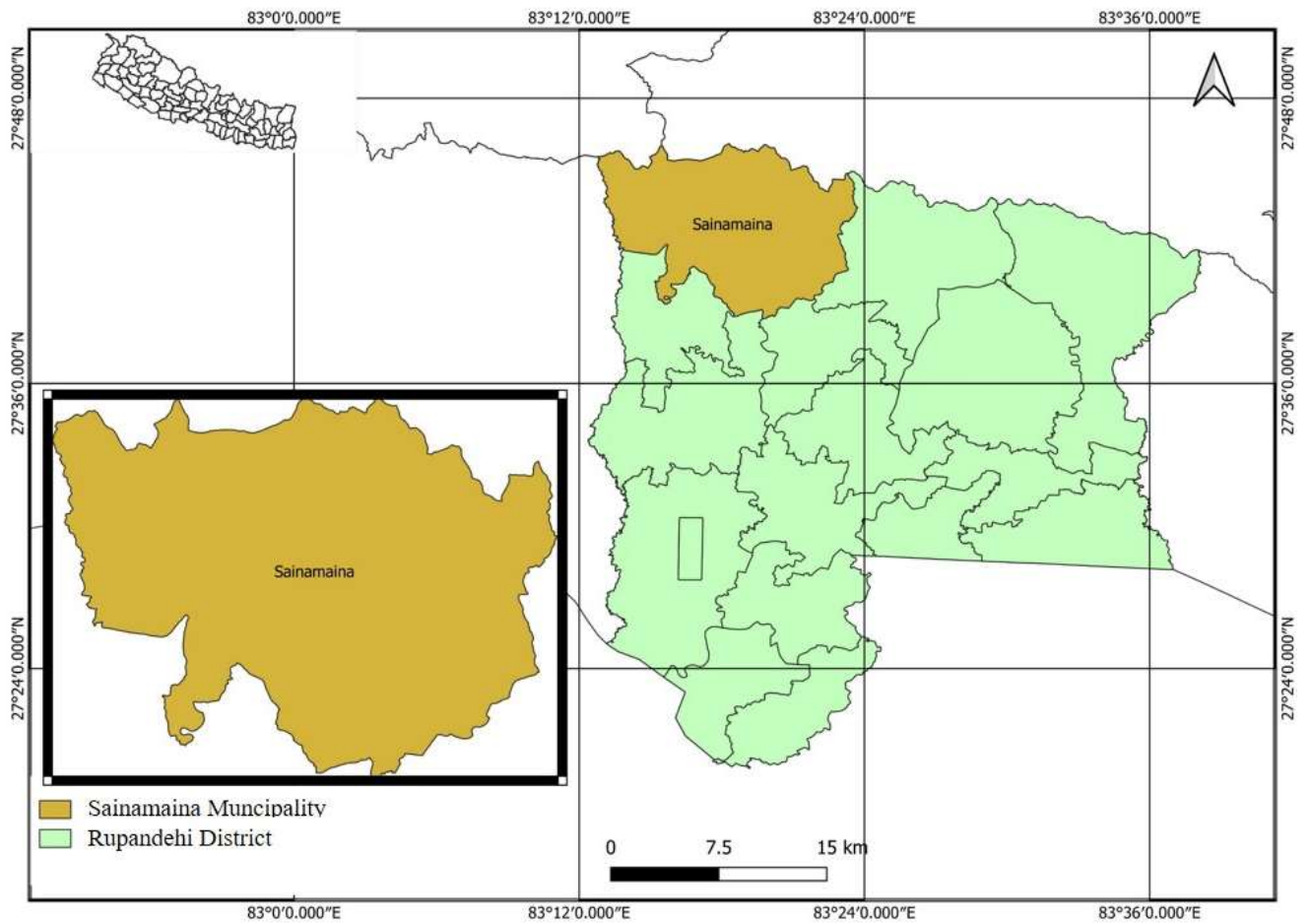


Figure 1. Map showing the study area: Sainamaina Municipality, Rupandehi, central Nepal.

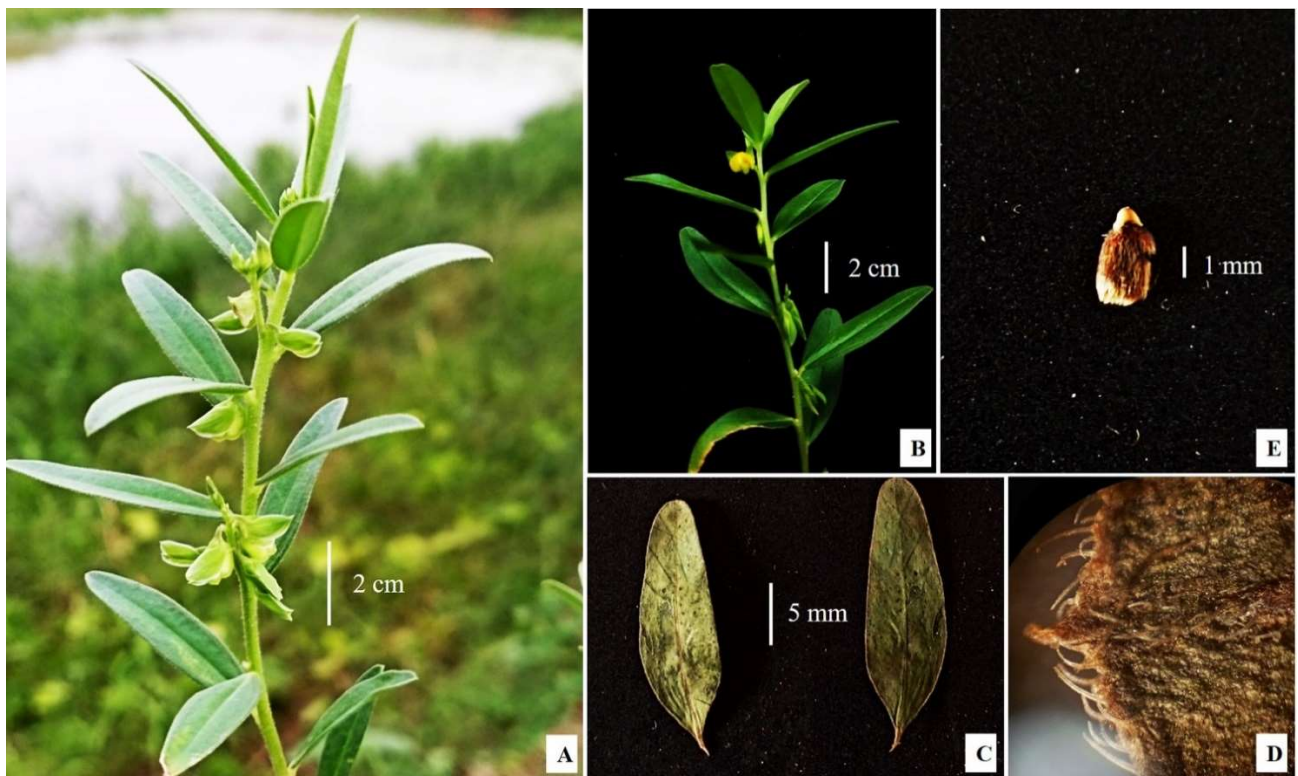


Figure 2. *Polygala arvensis* Willd.: A, habit; B, a branch with flower; C, dorsal and ventral surface of leaf; D, leaf margin under microscope; E, a seed.

Acknowledgements

The authors would like to thank Mr. Bikash Rawot, Mr. Puskar Basyal, and Mr. Sawan Rajbanshi for their valuable suggestions, and help during the field visit and post-visit taxonomic treatment. We thank the University Grant Commission, Nepal for financial support (UGC, grant no. MRS-77/78-S&T-15). The authors would like to thank the Department of Plant Resources, Ministry of Forests and Soil Conservation, Government of Nepal for permission to collect specimens from the wild.

References

- Aydın Z.U. 2019. Comparative capsule and seed morphology of *Polygala* L. (Polygalaceae) species in Turkey with implications for taxonomy. *Plant Biosystems – An International Journal Dealing with all Aspects of Plant Biology*, 154: 189–196.
- Eriksen B. and Persson C. 2007. Polygalaceae. In: *The families and Genera of Flowering Plants* (K. Kubitzki, ed.), Volume 9, pp. 345–363. Springer, Berlin, Germany.
- Hara H. 1979. Polygalaceae. In: *An Enumeration of the Flowering Plants of Nepal* (H., Hara, W.T. Stearn and L.H.J. Williams, eds.), Volume 2, pp. 50–51. Trustees of British Museum (Natural History), London, UK.
- Kundu S.R. 2009. A synopsis of Polygalaceae in Indian subcontinent: its distribution and endemism. *Acta Botanica Venezuelica*, 32: 63–77.
- Pastore J.F.B., Abbott J.R., Neubig K.M., Van Den Berg C., Almeida Mota M.C.D., Cabral A. and Whitten W.M. 2019. Phylogeny and biogeography of *Polygala* (Polygalaceae). *Taxon*, 68: 673–691.
- POWO. 2023. *Plants of the World Online*. Facilitated by the Royal Botanic Gardens, Kew. Available online: powo.science.kew.org (accessed on 16 Nov. 2024).
- Press J.R., Shrestha K.K. and Sutton D.A. 2000. *Annotated Checklist of the Flowering Plants of Nepal*. The Natural History Museum, London, UK.
- Rajbhandari K.R. and Rai S.K. 2019. *A Handbook of the Flowering Plants of Nepal, Volume 2*. Department of Plant Resources, Ministry of Forests and Environment, Government of Nepal, Kathmandu, Nepal.
- Shrestha K.K., Bhandari P. and Bhattarai S. 2022. *Plants of Nepal: Gymnosperm and Angiosperms*. Heritage Publishers & Distributors Pvt. Ltd., Kathmandu, Nepal.