

Short Communication

***Ludwigia adscendens* AN AQUATIC WEED: A NEW RECORD FOR FLORA OF PAKISTAN**

Arshad Hameed<sup>1</sup>, Amir Sultan<sup>2\*</sup> and Zafeer Saqib<sup>3</sup>

[https://doi.org/10.28941/25-4\(2019\)-6](https://doi.org/10.28941/25-4(2019)-6)

**ABSTRACT**

*During an exploration of Lower Bari Doab canal, an aquatic plant with white spindle shaped pneumatophores was recorded. After detailed morphological examination it is identified as Ludwigia adscendens (L.) H. Hara. Its description, morphological key and illustrations are provided for easy identification.*

**Keywords:** Onagraceae, *Ludwigia adscendens*, Pakistan

---

<sup>1</sup> Department of Botany, Government Postgraduate College, Sahiwal, Pakistan.

<sup>2</sup> National Herbarium (Stewart Collection), National Agricultural Research Centre, Park Road, Islamabad, Pakistan.

<sup>3</sup> Department of Environmental Sciences, International Islamic University, Islamabad, Pakistan.

\*Corresponding Author's E-mail: [amirsultan\\_2000@yahoo.com](mailto:amirsultan_2000@yahoo.com).

## INTRODUCTION

*Ludwigia* comprises about 82 species in 23 sections, distributed on all continents except Antarctica (Jiarui *et al.*, 2007; Shilpi *et al.*, 2010). *Ludwigia* belongs to family Onagraceae which is represented in Pakistan by four genera - *Circaea*, *Ludwigia*, *Epilobium* and *Oenothera* (Hoch and Raven, 1981). *Fuschia* is also occasionally cultivated as an ornamental in temperate climate (e.g., in Murree and in Shogran, Sultan, A. pers. obs.).

A specimen of an aquatic plant was collected by first author (Arshad Hameed) on 1<sup>st</sup> November, 2013. The plant (an attached hydrophyte with spongy white pneumatophores emerging from nodes) was collected from the bank of canal Lower Bari Duab and appeared to be a novelty for flora of Pakistan but the specimen in hand had no flowers. Later, another plant was collected from Head Treemu in April, 2014 and added to live repository at National Herbarium, National Agricultural Research Centre, Islamabad, Pakistan. Flower colour, white spindle-shaped pneumatophores and spatulate leaves helped identification as *Ludwigia adscendens* (L.) Hara. The plant has not been documented in Stewart's annotated catalogue (1972) nor in the account of the family Onagraceae in the flora of Pakistan (Hoch and Raven, 1981) and hence represents a new record for Pakistan.

The other *Ludwigia* species known from Pakistan is *L. perennis* (section Caryophylloidea) recorded in Peshawar Valley, Abottabad: Pakuli plain, Chakdara and Hyderabad (Hoch and Raven, 1981; Stewart, 1972). *Ludwigia perennis* differs from *L. adscendens* (section Oligospermum) in having tetramerous flowers, small yellow petals and narrowly elliptic to lanceolate leaves.

## Description

*Ludwigia adscendens* is a hydrophyte with floating stems (Fig. 1) or prostrate perennial herb. Stems prostrate, to 1.6 dm, often pinkish, densely pubescent (hair eglandular, basifixed), with spongy white spindle-shaped pneumatophores and pinkish adventitious roots emerging from nodes. Leaves stipulate, stipules dark brown, broadly deltoid about 0.5 to 1 mm, alternate, subsessile to petiolate, petiole wanting to 2.4 cm, lamina obovate, lanceolate or spatulate, acute, obtuse or emarginate, indistinctly notched, ciliate along the margins, 2.6-5.8 to 1.2-2.3 cm, pinnately veined, glabrous to sparsely pubescent more so along the midrib, abaxial surface pubescent more so over the midrib. Flowers 2-bracteate, bracts c. 1mm, brown, deltoid, pedicel c. 2.7 - 5.1 cm. Sepals 5, deltoid-acute or acuminate, 8-11 mm, glabrous or pilose. Calyx persistent till the capsule ripens. Corolla creamy-white with yellow base, lobes obovate, emarginate, 1.6-1.8 × 1.1-1.2 cm. Stamens 10; filaments white, c. 3-4 mm; anthers c. 1-2 mm. Style white, c. 6-7 mm, pubescent except the apical part, stigma discoid, 5-6 lobed, ovary 1.6-2.2 cm, pilose. Capsule c. 2.5 × 0.4 cm, pubescent, brown with a truncate apex, longitudinally 10-ribbed.

Propagation mostly by adventitious rooting along the stem.

## Material examined

Sukheki Canal, Muhammad Latif, 20 September, 2018 (RAW10494); Head Treemu area, Amir Sultan & Zafeer Saqib, April, 2014 (RAW100265); Bank of Lower Bari Doab canal (30.666031, 73.138106), Sahiwal, Arshad Hameed, 11 July, 2016 (RAW100218).

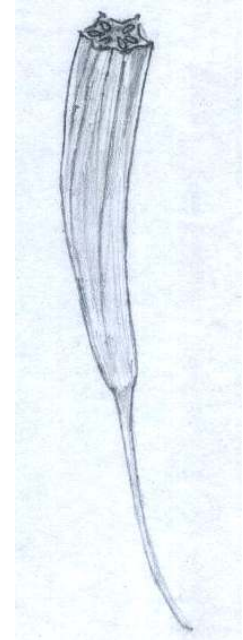


Fig. 1. *Ludwigia adscendens* growing along the bank of Lower Bari Doab. Top left: flower, top right: fruit, bottom left and right plants with white spongy pneumatophores and adventitious roots emerging from nodes

**Key to *Ludwigia* species occurring in Pakistan**

Flowers tetramerous, corolla yellow, petals up to 0.3 cm, capsule thin-walled - - *L. perennis*

Flowers pentamerous, corolla creamy-white with a yellow base, petals up to 1.8 cm, capsule woody - - - - -  
 - - - - -  
 - - - - - *L. adscendens*

*Ludwigia adscendens* (water primrose) has medicinal properties and is used as a febrifuge and antismelling plant (Jiarui *et al.*, 2007). It is an invasive perennial species and has been recorded as a weed in rice in the various countries of South and Southeast Asia (Bangladesh, Indonesia, India, Kampuchea, Laos, Malaysia, Nepal, Philippines, Sri Lanka, Thailand and Vietnam) (Moody, 1989).

**ACKNOWLEDGEMENTS**

We are thankful to Worldwide Fund for Nature (WWF), Pakistan for assistance with the field work in Treemu Head Works

area, District Jhang, Pakistan, to Dr. Sayed Afzal Shah for his valuable comments on an earlier version of this paper and to Mr. Saleem for illustration of *Ludwigia adscendens* fruit

#### REFERENCES CITED

- Hoch, P. C. and P. H. Raven. 1981. Flora of Pakistan. Onagraceae. No. 139. E. Nasir and S. I. Ali (eds.).
- Jiarui, C., P. C. Hoch, P. H. Raven, D. E. Boufford and W. L. Wagner. 2007. Flora of China.
- Onagraceae (Vol. 13: Clusiaceae through Araliaceae). Wu, Z. Y., P. H. Raven and D. Y. Hong, (eds.). Science Press, Beijing and Missouri Botanical Garden Press, St. Louis, Missouri, United States of America.
- Moody, K. 1989. Weeds reported in rice in South and Southeast Asia. International Rice Research Institute (IRRI), Los Banos, Laguna, Philippines.
- Shilpi, J. A., A. I. Gray and V. Seidel. 2010. Chemical constituents from *Ludwigia adscendens*. Biochemical System. Ecol., 38:106–109.
- Stewart, R. R. 1972. An annotated catalogue of the vascular plants of West Pakistan and Kashmir (Flora of Pakistan), Fakhri Printing Press, Karachi.