

BioScientific Review (BSR)

Volume 3 Issue 3, September 2021

ISSN(P): 2663-4198 ISSN(E): 2663-4201

Journal DOI: <https://doi.org/10.32350/BSR>

Issue DOI: <https://doi.org/10.32350/BSR.0303>

Homepage: <https://journals.umt.edu.pk/index.php/BSR>

Journal QR Code:



Article: *Parthenium hysterophorus*, an Emergent Weedy Plant Species Expanded its Geographical Range in Pakistan

Author(s): Muhammad Ali¹, Riaz Ahmad Afridi², Sadiq Ali³, Manahal Sarooj¹, Malik Nawaz Shuja⁴, Hasan Riaz⁵

Affiliation:
¹Department of Life Sciences, School of Science, University of Management and Technology, Lahore, Pakistan
²Directorate General Agricultural Research, Khyber Paktunkhwa, Pakistan
³Department of Weed Science, University of Agriculture, Peshawar, Khyber Paktunkhwa, Pakistan
⁴Department of Microbiology, Kohat University of Science and Technology (KUST), Kohat, Pakistan
⁵Institute of Plant Protection, MNS University of Agriculture Multan, Multan, Pakistan

Article DOI: <https://doi.org/10.32350/BSR.0303.i>

Article QR:



Muhammad Ali

Citation: Ali M, Afridi RA, Ali S, Sarooj M, Shuja MN, Riaz H. *Parthenium hysterophorus*, an emergent weedy plant species expanded its geographical range in Pakistan. *BioSci Rev.* 2021;3(3):84–87.

Copyright Information:



This article is open access and is distributed under the terms of [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)



A publication of the
Department of Life Sciences, School of Science
University of Management and Technology, Lahore, Pakistan

Indexing



***Parthenium hysterophorus*, an Emergent Weedy Plant Species Expanded its Geographical Range in Pakistan**

Muhammad Ali^{1*}, Riaz Ahmad Afridi², Sadiq Ali³, Manahal Sarooj¹, Malik Nawaz Shuja⁴, Hasan Riaz⁵

¹Department of Life Sciences, School of Science, University of Management and Technology (UMT), C-II Johar Town, Lahore, Punjab, Pakistan

²Directorate General Agricultural Research, Khyber Paktunkhwa, Pakistan

³Department of Weed Science, University of Agriculture, Peshawar, Khyber Paktunkhwa, Pakistan

⁴Department of Microbiology, Kohat University of Science and Technology (KUST), Kohat, Pakistan

⁵Institute of Plant Protection, MNS University of Agriculture Multan, Old Shujabad Road, Multan, Pakistan

*Corresponding Author: muhammad.ali@umt.edu.pk; ali4982@gmail.com

Parthenium hysterophorus [family Asteraceae], commonly known as carrot grass, is a flowering, short-lived perennial or an annual invasive-weedy plant native to American tropics. In recent years, this plant has spread rapidly (in epidemic proportions), especially in two provinces (Khyber Pakhtunkhwa and Punjab) and twin cities (Islamabad and Rawalpindi). The weed came into prominence after the monsoon rains and floods of September 2012 and August 2013, which hit large areas of Khyber Pakhtunkhwa and Punjab provinces of Pakistan. The massive spread of the weed was witnessed in areas awashed with the flood waters of the rivers Kabul and Indus. It is speculated that after an initial entry into the flood zones, the seeds then germinated and dispersed far and wide across the country, including hilly areas. This weed is poisonous and a probable source of skin allergies and itching. It may be a cause of the increased reports of asthma, cough, fever, and allergies related to eyes in these areas [1, 2]. Furthermore, it

has a tremendous potential to withstand abiotic and biotic stresses.

Due to its rapid growth and allelopathic effect, it soon came to dominate all other weeds and crop plants. Its vigorous growth resulted in the loss of the local floral biodiversity [3]. It dominated completely the wild cannabis (weeds), especially in Islamabad. Although, the cannabis weed has now seemingly overturned its dominance. The coming years may witness the revival of other plant species suppressed by *P. hysterophorus*. Although, it seems to be resistant or tolerant to biotic stresses, few specimens were identified with leaf rolling, vein yellowing, stunting and bunchy-top like diseases, indicative of begomovirus infection. PCR amplification and sequencing confirmed a symptomatic parthenium plant positive for the viral infection (unpublished observation; Figure 1). Previously, only a single report was available of parthenium being infected with geminiviruses [4].



Figure 1. *Parthenium hysterophorus* L. showing leaf-curl disease symptoms

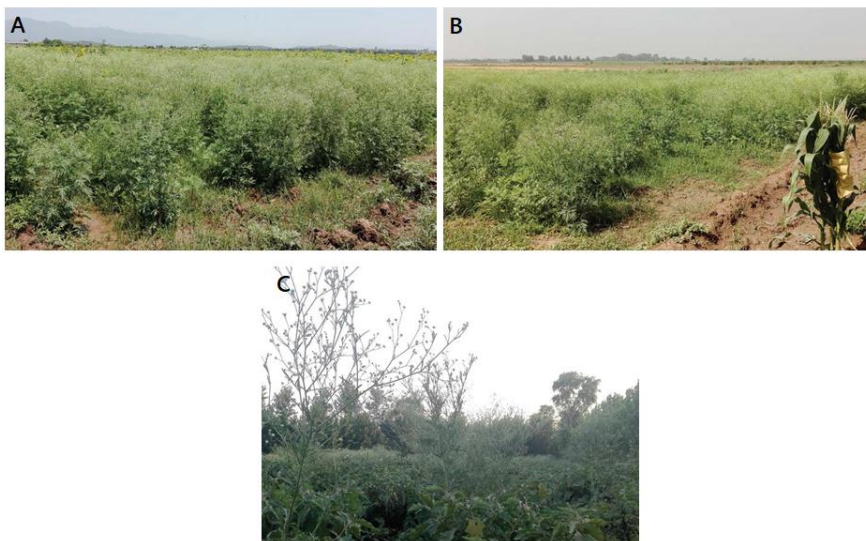


Figure 2. (A-C) *Parthenium hysterophorus* L. invasion in Khyber Pakhtunkhwa and the twin Cities

Currently, no weedicide is available to eradicate this weed. The only available alternative is to pull the plant out of the soil along with its roots before it bears seeds. The presence of the plant on barren lands, streets, along the drains, hilly terraces,

orchards, in lawn grass, and in crop fields makes complete eradication almost impossible (Figure 2 A-C). Increased ailments linked with parthenium like – toxicity in livestock and insect pollinators, skin allergies in humans and reduced

agricultural productivity necessitates that the government and non-government stakeholders should take stringent measures to safeguard human health, livestock and agricultural production.

References

- [1] Mohmad A. Parthenium in Khyber Pakhtunkhwa: An asbestos around farmers' neck. 2019. Naya Daur. <https://www.nayadaur.tv/2019/03/parthenium-in-khyber-pakhtunkhwa-an-albatross-Around-farmers-neck/>. Retrieved on March 31, 2019.
- [2] Khan H, Marwat KB, Hassan G, Khan MA. Socio-economic impacts of parthenium (*Parthenium hysterophorus* L.) in Peshawar valley, Pakistan. *Pak J Weed Sci Res.* 2013;19(4):1-19.
- [3] Ali S, Khan IA. Distribution of *Parthenium hysterophorus* (L.) in the Swabi District of Khyber Pakhtunkhwa. *Sarhad J Agric.* 2017;33:269-75. <http://dx.doi.org/10.17582/journal.sja/2017/33.2.269.275>
- [4] Kumar S, Srivastava A, Jaidi M, Chauhan PS, Raj SK. Molecular Characterization of a begomovirus, α -satellite, and β -satellite associated with leaf curl disease of *Parthenium hysterophorus* in India. *Plant Dis.* 2016;100(11):2299-305. <https://doi.org/10.1094/PDIS-09-15-0982-R>