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**Research Note**

# Fungal isolates of carrot weed, *Parthenium hysterophorus* L. from Punjab

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**ABSTRACT:** **The survey on *Parthenium hysterophorus* conducted in six districts of Punjab during November, 1999 to January, 2000 revealed three species of fungi, *viz. Alternaria alternata, Sclerotium* sp. and *Aspergillus niger* infecting *P. hysterophorus*.**

**KEY WORDS:** Fungal isolates, *Parthenium hysterophorus*

*Parthenium hysterophorus* L. is a notorious annual weed, harmful to human beings and animals and causes allergy, dermatitis and infection in eyes. This weed is of great concern because of its fast multiplication, competition with useful vegetation and dominant nature as it does not allow other plants to grow due to secretion of toxic material from its roots. Chemical control of this weed is not effective, so efforts are being made to control it by biocontrol methods. For this, naturally occurring pathogens are screened with an objective to find some potential fungi. In the present study samples of diseased *P. hysterophorus* were collected from different places in Punjab with an objective to isolate various fungi and test them for pathogenesis to this notorious weed. Six different districts of Punjab, *viz.* Mansa, Ludhiana, Nawanshahar, Jalandhar, Kapurthala and Hoshiarpur were surveyed during November, 1999-January, 2000. The plant samples were brought to the laboratory for isolation of pathogens. The disease symptoms were recorded and pathogens isolated on potato dextrose agar.

**Symptoms of fungi on *P. hysterophorus***

***Alternaria alternata***: Small irregular brownish spots or discoloured lesions were observed. These spots or discoloured lesions coalesced involving large area resulting in drying of leaf. The colour of whole plant, particularly of the branches turned dark brown.

***Sclerotium* sp.**: The infected plant appeared pale green and stunted. Besides white cottony mycelial growth was also observed on basal portion of the stem.

***Aspergillus niger***: The leaves gave greenish black appearance.

**Isolation of plant pathogens and their pathogenesis**

The diseased plant parts of *P. hysterophorus*

were washed under running tap water and cut into small pieces with scissors and surface sterilized with a mercuric chloride (0.1%) solution for half minute and rewashed with sterilized distilled water. After washing the plant parts were transferred aseptically to potato dextrose agar (PDA) slants which were incubated for seven days at 25±1°C. The fungal isolates thus obtained were purified by transplanting a small fragment of the mycelium, which developed into a new colony. Same steps were repeated to get pure growth.

The fungal isolates thus obtained were re-employed for testing their pathogenicity by spraying the spore suspension of isolated fungi on aerial parts of *P. hysterophorus* grown in pots. The inoculated parts were then covered with aerated polythene bags sprinkled with water to provide appropriate moisture for growth of spores. *P. hysterophorus* sprayed with distilled water served as control. These plants were observed daily for the appearance of symptoms. From the plants showing the symptoms, organisms were reisolated and compared with original culture.

The studies revealed the association of *A. alternata, Sclerotium* sp. and *A. niger* with *P. hysterophorus*. The *A. alternata* was isolated from all the six sites while *Sclerotium* sp. from Jalandhar and Ludhiana district, and *A. niger* from Ludhiana and Mansa districts only (Table 1). While testing for pathogenesis *A. alternata* collected from two districts showed same symptoms of infection. *Sclerotium* sp. recorded from Jalandhar showed mild infection while *A. niger* did not show any symptoms. Kauraw and Chile (1999) and Pandey *et al.* (1990) have reported *A. alternata, Sclerotium rolfsii* and *Myrothecium roridum* Tode from *Parthenium* in India. Aneja (1994) reported *Cochilobolus lunata* causing leaf spots on *P. hysterophorus* in Punjab and Haryana.

In the present study three fungi were isolated but further efforts are required for the screening of more fungi having greater potential as bioagents to control *P. hysterophorus*.

Table 1. Fungal pathogens of *P. hysterophorus* from Punjab

| District | Location | Fungal Isolate |
|---|---|---|
| Hoshiarpur | Divida Rahana | *Alternaria alternata* |
| Jalandhar | Barring | *A. alternata*<br>*Sclerotium* sp. |
| Kapurthala | Phagwara | *A. alternata* |
| Ludhiana | Ludhiana | *A. alternata*<br>*Aspergillus niger*<br>*Sclerotium* sp. |
| Mansa | Maur Mandi | *A. alternata*<br>*A. niger* |
| Nawanshahar | Behram | *A. alternata* |


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## REFERENCES


Aneja, K. R., Kaur, M. and Sharma, A. 1994. Leaf spot disease of *Parthenium hysterophorus*- a new disease record. *National Academy Science Letters*, **17**: 179-180.

Kauraw, L. P. and Chile, A. 1999. Efficacy of *Trichoderma viride* Pers Ex (IN VITRO) as a Biocontrol agent for different pathogens of *Parthenium hysterophorus* L. *Pestology*, **23**: 45-46.

Pandey, A. K., Hasija, S. K. and Rajak, R. C. 1990. *Myrothecium roridum* Tode ex fr. a new pathogen of *Parthenium hysterophorus* L. with Biocontrol potential. *National Academy Science Letters*, **13**: 369-370.