

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/281308399>

Occurrence of Alternaria Blight on Phyllody of Parthenium hysterophorus

Article · December 2009

CITATIONS

0

READS

45

1 author:



[Dr. B. A. Kore](#)

Yashwantrao Chavan Institute of Science, Satara

43 PUBLICATIONS 62 CITATIONS

SEE PROFILE

Occurrence of *Alternaria* Blight on Phyllody of *Parthenium hysterophorus*

Basavaraj Kore

Department of Botany, Yashwantrao Chavan Institute of Science, Satara 415001, Maharashtra, India. E-mail: basavaraj.kore@rediffmail.com

Abstract

Some interesting specimens of phyllody of *Parthenium hysterophorus* showing blackening and sudden death were collected during rainy season (2006). Microscopic observations of these specimens revealed presence of conidia and mycelial segments of *Alternaria*. Interestingly the *Alternaria* infection occurred only in phyllody affected plants and not in other healthy plants. Blight associated phyllody of *P. hysterophorus* occurs only during rainy season and not in other seasons.

Key words: *Alternaria* blight, *Parthenium hysterophorus*, phyllody, phytoplasma

Citation: Kore B. 2009. Occurrence of *Alternaria* blight on phyllody of *Parthenium hysterophorus*. *J Mycol Pl Pathol* 39(3):406-408.

Parthenium hysterophorus L. (Asteraceae), an obnoxious weed has developed a threat to human and animal health, indigenous biodiversity and ecotourism due to its high ecological niche. It has become one of the seven most dangerous weeds of the world because of its well known ability to takeover the natural vegetation and deplete nutrients. Various methods of control of this weed have in-built limitations in rescuing the field crops from this menace. Management of this weed through biological control is a great challenge to weed scientists (Tebeest 1991). In the present study *Alternaria* blight of *P. hysterophorus* phyllody is reported.

Materials and Methods

During routine survey of *Parthenium* growing habitats in and around Satara city (long. N 17°41.11' and lat. E 74°0.66', Alt. 653.3 m above msl) from Jul to Sep 2006, it was observed that certain specimens of phyllody of *Parthenium* were showing blackening and sudden death. Severely infected specimens were collected for laboratory inspection. The dried specimens were deposited in Mycological Herbarium, of this Institute. The same types of specimens were collected from other localities during rainy season of 2007 and 2008.

Results and Discussion

P. hysterophorus harbors many pathogens which include fungi, bacteria, viruses and phytoplasmas (Prasadrao et al 2005). Phytoplasmas are unicellular obligate parasites, without rigid cell wall, cause phyllody in plants (Pathak et al 1975). Phyllody has

wide occurrence in India (Bhanu and Gogoi 2005). The severity of disease depends on the climatic and congenial conditions of the locality. In western Maharashtra, phyllody of *Parthenium* occurs only during monsoon (Jul and Aug) and disappears thereafter. This may be due to absence of favorable environmental factors for the persistence of phyllody and its vector during other seasons. Phyllody of *Parthenium* is characterized by profuse floral malformation and severe stunting of plants. Such plants do not set seeds and become sterile. Leaves become thin and reduced in size and number or are sometimes absent. Several branches arise to give green colored witches' broom like appearance, the major symptom of phyllody.

Various localities were searched for existence of phyllody specimens and it was observed that their number was very less as compared to healthy population of *Parthenium* weed. One of the reasons for its poor occurrence may be less population of vector and their inefficiency to transmit phytoplasmas. These phyllody specimens exhibited a natural infection leading to blackening and death leaving only skeleton (Fig. 1 a, b). Such specimens can be easily located in green, healthy and luxuriant population of weed. The intensity of infection on phyllody was influenced by high humidity, cumulative rainfall, cool climate and cloudy weather prevailing for longer period during monsoon (especially in Aug and Sep). Microscopic observations revealed that mycelium was superficial, profusely branched and brown. Conidiophores were simple, single or in bunches, branched, septate and pale to dark brown.



Figure 1. *Alternaria* blight on phyllody of *Parthenium hysterophorus* L: a = blight at initial stage with non-blighted (green) and blighted (black) parts of witches' broom; b = progress in blight symptoms; c = completely blighted phyllody; d muriform conidia of *Alternaria*

Conidia were solitary or catenate, terminal, dry, ovoid, obovate, often rostrate, olivaceous-brown or brown, smooth or verrucose, transverse septate, frequently with oblique or vertical septa (muriform) and with basal or apical scars (Fig. 1 c-d). On the basis of morphology, the pathogen has been identified as *Alternaria* and disease as blight. Cool moist and continuous wet conditions were found favorable for initiation and spread of blight. End of rainy season stopped appearance of phyllody as well as its blight.

Various pathogens are reported to attack *Parthenium* throughout India. A perusal of literature (Bilgrami et al 1981; Jamaluddin et al 2004) has revealed that there is no record of *Alternaria* blight of phyllody of *P. hysterophorus* from India.

References

- Bilgrami KS, Jamaluddin and Rizwi MA.** 1981. *Fungi of India* Part II. Host index and Addenda. New Delhi, Today and Tomorrow's Printers and Publishers. 268p.
- Bhanu C and Gogoi AK.** 2005. *Parthenium* Phyllody: Its potential for biological control of *P. hysterophorus* L. Proc 2nd. Int Conf, *Parthenium Management*. Univ Agric Sci, Bangalore, pp 275-277.
- Jamaluddin, Goswami MG and Ojha BM.** 2004. *Fungi of India*. 1989-2001. List and References, Scientific Publishers. Jodhpur. 326pp.
- Pathak HC, Lundsagaard T, Padma R, Singh S and Verma VC.** 1975. Mycoplasma-like bodies associated with phyllody of *Parthenium hysterophorus*. *Phytopathology* 83: 10-13.
- Prasadrao RDV J, Govindappa MR, Devraja and Muniyappa V.** 2005. Role of *Parthenium* in perpetuation and spread of plant pathogens. Proc 2nd. Int Conf, *Parthenium Management*. Univ Agric Sci, Bangalore, pp 65-72..
- Tebeest DO.** 1991. Microbial control of weeds. Chapman & Hall Inc. New York, 284p.

Received: Aug 3, 2009

Accepted: Dec 4, 2009