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Web Blight of Moth bean: An Incite into a Chronic Disease and It's Management

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Introduction

Moth bean is grow in about 8-9 lakh hectares area in India. The crop is known for poor plant type, more biomass and poor conversion old varieties used to spread like met on the ground, covering between the rows even if planting has been done at 60 cm apart. Moth bean has been so neglected as far disease management is concerned that, it has inspired few articles on practical diseases management during past half decade. However, there are a number of pathogens which affect moth bean crop causing substantial yield and quality losses to grain and fodder produce. Inspite of severe disease problems, the attempts on disease management through chemicals have not been undertaken at the farmers level but practically management strategies being employed, are the use of tolerant genotypes to some extent only. However, the important foliar disease of moth bean is discussed *viz.*, seedling blight and web blight.

Causal organism

Rhizoctonia solani Khun

Distribution and importance

This disease appears during heavy rains and high temperature. Disease occurs through soil, seeds and naturally infected hosts. Temperature of 25-30ºC and RH of 85% is most congenial for the development of this disease. Losses due to this disease are more severe at the seedling stage.

Symptoms

Light small round web like patches can be seen on both surfaces of the leaves. Small necrotic lesions (2-10 mm) in diameter with brown center and olive green margins found on

leaves. The lesion becomes water soaked, enlarges and coalesces rapidly to take on a scalded appearance, and become covered by whitish to brown mycelium with small sclerotia.


Host range

Literature reveals that the fungus *R. solani* can infect 32 plant families. Singh and Malhotra (1994) carried out extensive study on the host range of the fungus *R. solani* causing web blight of winged bean and observed that urd bean, lobia, beans, soybean, groundnut, arhar, french bean, mung bean, paddy, castor, bottle gourd, bitter gourd, tomato, brinjal, chillies and okra were also infected by fungus while maize and raddish were found free from infection. Sharma and Tripathi (2001) have also worked on the host range of isolates of *R. solani* and found the wide host range belongs to family Leguminoceae, Solanacae, Brassicaceae, Malvaceae, Cucurbitaceae etc.

Biology and spread

R. solani is a common soil borne pathogen that has many hosts forms sclerota in/on soil and survives for a long period in the absence of a host either as sclerotia or thick walled brown hyphae in plants debries (Boosalis and Scnaren, 1959). Most of sclerotia occurred on the tap root of diseased plants and in the soil adjacent to the diseased root. Over 80 per cent sclerotia occurred in the top 10 cm of the soil and within 10 cm from the diseased roots. The similar results were reported by Leach and Devey (1938). Mycoparasitic and other antagonistic effect of soil microorganism on sclerotial germination and survival of *R. solani* in the soil has been reported by Naiki and Ui T (1981). *R solani* can survive in soil as sclerotia in association with crop residue by pathogenic growth on hosts or by sporophytic growth on fallen dry leaves and organic matter. Primary inoculum sources consist of sclerotia and hyphae or when the teleomorph *T. cucumeris* is present, (Baker and Martison, 1970). The pathogen can be disseminated by irrigation water, infected/ infested or contaminated seeds,

transplanted material, air currents and rain splash, by soil through farm equipments. In the tropics where the teleomorph of *R. solani* develops regularly, the pathogen spreads rapidly by the production and dissemination of basidiospore (Galindo *et aI,* 1982).

Management

Use of resistant varieties. Seed treatment with carbendazim + Mancozeb @ 3 g/kg seed will be the economical control measures. Close planting may be avoided Inclusion of non-leguminous crop in the rotation. Incorprated of *Trichoderma viride, T. harzianum* and *Gliocladium virens* significantly reduces the mycelial and sclerotial production of *R. solani* (Dubey 1998). Foilar spray of Pyrochlostrobin @ 0.1/kg seed may result in complete elimination of seed-born infection.

Conclusion

Plant diseases constitute one of the major causes of crop losses all over the world. Crop losses in India have been estimated to vary between 10 to 30 per cent depending upon the crop region and the severity of the pest infestation amounting to an annual losses of about Rs. 60,000 crores (Agnihotri, 1999). And beside these a no of diseases are also responsible for qualitative losses which ultimately reduces the market value of produce hence it adversely affects the farmer income. Research investigations carried at various research organizations have led to development of host of ecofriendly management strategies against important diseases. However, proper dissemination of these strategies to the level of farmers has not occurred so far. This is an area which requires almost attention of researchers, policy planners and extension personnel, simultaneously; there is a need to develop low input sustainable technologies, Such as promation and ultilization of resistant/tolerant cultivars which are agronomically superior and recommended for the area promation of non-chemical management strategies such as alteration in sowing time field sanitation , use of bio agent , botanicals and animal waste etc. which can be adopted by small and marginal farmers of arid region. Forewarning of weather dependent diseases like blights, powdery mildew etc is also needed to minimize losses if farmers adopt prophylactic measures against weather dependent diseases.

References:

Agnihotri, N.P., Walia, S.C. and Gajbhiye, V.T. 1999. towards, green pesticides in green pesticides crop protection and safety evaluation (eds. Agnihotri, N.P., Walia, S.C. and Gajbhiye, V.T. pp 1-20 society of pesticides science IARI New Delhi, India.

Baker, R. and Martinson, C. A. 1970. In: Rhizoctonia solani, Biology and Pathology. (J.R. Parmeter, Jr Ed.), University of California Press, Berkeley. 172-188pGalindo, M. P. *et a/.* (1982). *Plant Dis.* 66: 390-394.

Dubey, S.C. 1998. Evaluation of different fungal antagonist, plant extracts and oil cakes against *Thanetophorus cucumeris* causing banded blight of rice. *J. Mycol. Pl. Pathol.* 28(3): 266-269.

Leach, L. D. and Devey, A. E. 1938. *J. Agric. Res.* 56: 619-632.

Sharma. J. and Tripathi, H. S. 2002. Indian Phytopathol. 55: 90-91.

Singh. A. and Malhotra, S. K. 1994. Bhartiya Krishi Anusahdhan Patrika. 9: 113-116.