

## SYMPTOMS OF *MACROPHOMINA PHASEOLINA* INFECTIONS ON MOTH BEAN SEEDLINGS

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Moth bean [*Vigna aconitifolia* (Jacq.) Marechal] is one of the most important and drought tolerant native pulse crop of arid western India. Infections of *Macrophomina phaseolina* (Tassi.) Goid., one of the most virulent and destructive pathogens of many crops including pulses, were studied in the seeds and seedling stage crops of moth bean.

Seeds of 82 cv of moth bean were collected from CAZRI, Jodhpur; State Agriculture Department, Jodhpur; University of Udaipur, Udaipur; and from the farmers living in different parts of Rajasthan. The blotter method as recommended by International Seed Testing Association (Anonymous, 1966) was adopted for the isolation of the pathogen from the seeds. Apparently healthy as well as unhealthy (diseased) seeds were selected for the experiments.

Periodical surveys were carried out to collect and study the disease from various parts of States of Rajasthan, Gujarat, Haryana, Uttar Pradesh and Union Territory of Delhi. The isolations were maintained on PDA at  $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The method of Ruppel (1973) as adopted by Singh and Mehrotra (1982) was used for pathogenicity tests. The following diseases and symptoms were observed.

### A. Seed infection

*Macrophomina phaseolina* was isolated from 45 out of 82 cv studied. The isolations were made from the diseased as well as apparently healthy seeds. Infected seeds appear deformed, smaller in size, dull in colour, and most of them fail to grow and mature. Infected seeds may also appear apparently healthy. Seeds in storage may have surfaces covered with fungal mycelia and pycnidial bodies. Germination of infected seeds varied from 20% (in cv Jadia and IPCMO 909) to 90% (in PLMO 35).

### B. Seedling rot

The disease was first described by Sharma and Gupta (1981) from Rohtak (Haryana State). It was found in the fields at Bikaner, Pali, Jodhpur and Nagaur districts of Rajasthan. At Jodhpur seedling rot was observed in 16 out of 62 cv at Central Arid Zone Research Institute, Jodhpur during July-August 1983 and was most severe in cv Jadia, Jwala, IPCMO 768, T16 and T25.

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The seedlings are affected when they are 7 to 15 days old. The initial symptoms are discolouration of the young seedlings. The rotting starts from the young root tips and proceeds backward. The cotyledonary leaves appear completely blighted and necrotic. Stem decay in advanced stages of the disease destroys the young seedlings. Entire seedling appears black due to fungal growth on the surface. Pathogenicity test conducted for isolates on 82 cv revealed T25, Jadia, PLMU 935, Jagewala 3 and Somalsar-Sel 13 to be highly susceptible to the seedling rot.

### C. Collar rot

The discolouration of the stem starts with reddish browning at collar region and with the advancement of the disease the cells of the collar region dry and subsequently the whole plant wilts. The dead portions show dark brown to black patches at the infected parts. Inoculation of isolates on 2-week old plants produced typical collar rot symptoms after five days. Cultivars T3, T23, Parmal-Sel-10 and Palsana sel 2 (J) were most susceptible to collar rot.

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