

Effect of Volatile and Non-Volatile Substances Produced by *Trichoderma viride* on Stem Blight Pathogen of Cowpea

KAMLESH MATHUR and KALPNA BHATNAGAR

Department of Plant Pathology, Agriculture Research Station
Durgapura, JAIPUR - 302 018 Rajasthan (India)

Stem blight of cowpea caused by *Macrophomina phaseolina* (Tassi) Goid. is a widespread and commonly occurring disease in Rajasthan. Several reports indicating the biocontrol potential of *Trichoderma* spp. are available. The ability of *Trichoderma viride* Pers:Fr in producing volatile and non-volatile substances against stem blight pathogen of cowpea was assessed *in-vitro* and is presented in this note.

T.viride used in this study was isolated from the soil of cowpea field on Elad and Chet medium. The ability of *T.viride* to produce volatile and non-volatile substances effective against the stem blight pathogen was assayed by the method of Dennis and Webster (1971) at 28°C. Observations on the effect of these substances on growth of *M. phaseolina* was recorded after 3, 5 and 7 days of incubation. There were five replications for each treatment. A check was maintained without *T.viride*.

T.viride produced non-volatile substances in agar culture which completely inhibited the growth of *M.phaseolina*. In control plates, pycnidia were clearly observed while in *T.viride*-

treated plates, no pycnidia were formed even after 7 days.

Volatile substances produced by *T.viride* also inhibited the growth of *M.phaseolina* completely. After 3 days, the original mycelial disc of *M.phaseolina*, which was kept in inverted plates above *T.viride*, failed to show any growth when transferred on fresh medium.

The production of volatile and non-volatile substances by *T.viride* which suppressed the growth of *M.phaseolina in vitro*, has been demonstrated by Dennis and Webster (1971). Our observations indicated that volatile and non-volatile substances inhibited pycnidial formation also.

KEY WORDS : Stem blight, Volatile and non-volatile, substances
Macrophomina phaseolina,
Trichoderma viride

REFERENCE

- DENNIS, C. and WEBSTER, J. 1971. Antagonistic properties of specific groups of *Trichoderma* I. Production of volatile antibiotics. *Trans. Br.Mycol.Soc.*, 57, 41-48.