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Effect of *Trichoderma* species on *Macrophomina phaseolina*

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ABSTRACT

The dual culture test was carried out to determine the antagonistic action of various species of *Trichoderma* and other biocontrol agents. Eight bioagents *viz., Trichoderma viride* isolate I, II, III, IV, *T. harzianum, T. koningii, T. hamatum and Gliocladium virens* were used under *in vitro* conditions. The data make it clear that all bioagents inhibited the growth of *M. phaseolina* ranged from 20.12 to 83.40 per cent. *Trichoderma viride* isolate-I only showed severe (highest) antagonism (83.40 %).

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Key words : *Trichoderma* species, *Macrophomina,* Phaseolina

Management of this soil borne disease with fungicides is not only different but not preferred due to bioefficacy consideration as well. Biological control is a distinct alternate possibility and eco-friendly approach for its management. Different scientist found bioagent inhibit the growth of disease causing fungi. Selvarajan and Jeyarajan (1996) noticed that *Trichoderma viride* reduced sclerotial size and germination and also germ tube numbers of *M. phaseolina*, Hooda *et al*. (2000) tested and investigated that *Trichoderma harzianum* and *T. viride* inhibit the mycelial growth of all fungi tested including *M. phaseolina*. Prashanthi *et al.* (2000) found that *T. viride* completely suppressed *M. phaseolina* under *in vitro*. Keeping in view the importance of the crop and the disease, present study was conducted to see the efficacy of *Trichoderma* species against this pathogen under *in vitro* condition and also to select a suitable bioagent for its effective management in future.

The dual culture test was carried out to determine the antagonistic action of various species of *Trichoderma* and other biocontrol agents. Eight bioagents *viz., Trichoderma viride* isolate I, II, III, IV, *T. harzianum, T. koningii, T. hamatum and Gliocladium virens* were used under *in vitro* conditions. 20ml of media was poured aseptically in each of the Petriplates and allowed to solidify. Mycelial disc of 4mm diameter of both *i.e.* each antagonist and test fungus were placed on solid media in the same Petriplate approximately 4cm away from each other. All the inoculated plates were incubated at 30±1^{o}C and observed after 7 days for the growth of antagonist and test pathogen.

The data presented in Table 1 make it clear that all bioagents have inhibited the growth of *M. phaseolina* ranged from 20.12 to 83.40 per cent. *Trichoderma viride* isolate-I only showed severe (highest) antagonism (83.40 %). Rest all other isolate of *Trichoderma* spp. and *Gliocladium virens,* provided weak antagonism index. The experiment results during present investigation are in favour of findings of Selvarajan and Jeyarajan (1996) who have also obtained reduction of sclerotial size, germination and germ tube numbers of *M. phaseolina*

Table 1 : Per cent growth reduction of *M. phaseolina* and antagonism index by various bioagent under *in vitro* conditions

Bioagent	Radial growth of *M. phaseolina* (mm)*	Growth reduction (%)*	Antagonism index **
Trichoderma viride-I	14.94	83.40	++++
Trichoderma viride-II	56.59	37.16	++
Trichoderma viride-III	71.89	20.12	++
Trichoderma viride-IV	70.00	22.22	++
Trichoderma harzianum	70.56	21.60	++
Trichoderma hamatum	58.89	34.57	++
Trichoderma koningii	57.89	35.68	++
Gliocladium virens	63.33	29.63	++
Control	90.00	0.00	-
S.E. ±	-	2.39	
C.D. (P=0.05)	-	7.19	
C V %	-	18.09	

* = Average of three replications, ** = Antagonism index where : ++++ = Severe, +++ = Moderate, ++ = Weak, - = No

with *T. viride*. Cent per cent inhibition of *M. phaseolina* with *T. viride* was reported by Hooda *et al.*(2000) and Prashanthi *et al.* (2000). Other workers (Muhammad and Amusa, 2003; El. Habbaa, 2002; Bandopadhyay *et al.*, 2003) have also been reported similar antagonism effect of *Trichoderma* spp. against *M. phaseolina*.

REFERENCES

El. Habbaa, G.M., Felaifel, M.S., Zahra, A.M. and Abdel Ghay, R.E. (2002). *In vitro* evaluation of some fungicides, commercial biocontrol formulation and natural plant extracts on peanut root rot pathogen. *Egyptian J. Agric.*, **80**(3):1017-1030.

Hooda, Ahmed A.M., Moneem, K.M.H.A., Allan, A.D. and Fahymy, F.G.M. (2000). Biological control of root rots and wilts diseases of cotton. *Assiut J. Agril. Sci.,* **31**(2):269-285.

Muhammad, S. and Amusa, N.A. (2003). *In vitro* inhibition of growth of some seedling blight inducing pathogens by compost inhibiting microbes. *African J. Biotechnol.,* **2**(6):161-164.

Prashanthi, S.K., Kulkarni, Shrikant and Anahosur, K.H. (2000). Management of safflower root rot caused by *Rhizoctonia bataticola* by antagonistic microorganisms. *Plant Disease Res.*, **15**(2):146-150.

Selvarajan, R. and Jeyarajan, R. (1996). Inhibition of chickpea root rot pathogens, *Fusarium solani* and *M. phaseolina* by antagonists. *Indian J. Mycol. & Pl. Path.,* **26**(3):248-251.

Shekhar, Bandopadhyay, Sharma, N.D. and Subrata, Dutta (2003). Screening of potential *Trichoderma* strains against major root pathogens. *Ann. Pl. Prot. Sci.,* **11**(1):163.

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