

# Effect of Seed Pelleting with Antagonists in the Management of Seedling Disease of Cotton

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Biological control of plant diseases is gaining importance in the light of hazards caused by pesticides. In recent years, the use of *Trichoderma* spp. as biocontrol agents is found very promising in controlling various root diseases (Baker and Cook, 1974). The present investigation was therefore carried out to study the efficacy of *Trichoderma* spp. in the control of root rot of cotton, *Rhizoctonia solani* Kuhn. by seed pelleting method.

A pot culture experiment was conducted with LRA 5166 cotton. The experiment included the following six treatments replicated four times: seed pelleting with *Trichoderma viride* Pers.:Fr. (C.M.I. isolate), *T. viride* (Netherlands isolate), *T. viride* (native), *T. harzianum* Rifai, quintozone 5 g/kg of seed and untreated control. The cotton root rot pathogen *R. solani* multiplied in sand maize medium (Ramakrishnan, 1981) was incorpo-

rated (@ 100 sclerotia / gm soil) along with neem cake @ 20 g/kg of soil. Pelleting of seeds was done with 10 days old *Trichoderma* spp. multiplied in potato dextrose agar medium as per the method suggested by Sivan *et al.* (1984). Then the seeds were dried in shade and sown in the pots next day @ 10 seeds/pot. Germination and post emergence mortality 30 days after sowing were recorded.

Seed pelleting with the different antagonists could increase the germination rate and reduce the post emergence mortality of LRA 5166 cotton significantly when compared to control. *T. harzianum* which was found to be as effective as quintozone was superior to *T. viride* obtained from C.M.I. as well as Netherlands (Table 1). The native isolate of *T. viride* was however as effective as *T. harzianum*.

TABLE 1. Effect of seed pelleting with antagonists against the seedling disease of cotton

Treatments	Germination %	Post-emergence mortality %
<i>Trichoderma viride</i> (C.M.I. isolate)	70.2 c	21.2 bc
<i>T. viride</i> (Netherlands)	70.0 c	26.7c
<i>T. viride</i> (Native)	73.2 bc	18.8 ab
<i>T. harzianum</i>	79.5 ab	13.0 ab
Quintozone 5 g/kg of seed	83.5 a	10.9a
Control	56.1 d	75.2 d

Means followed by a common letter are not significantly different ( $P=0.05$ ) by DMRT

The benefits of antagonists in the suppression of disease symptoms has been widely reported by several authors (Wells *et al.*, 1972; Baker and Cook, 1974; Papavizas and Lumsden, 1980). The genus *Trichoderma* appears to include many species capable of parasitizing plant pathogenic fungi. Chet and Baker (1981) reported that *T. hamatum* conidial treatment reduced the incidence of damping off due to *R. solani* and *Pythium* in peas and radish, respectively.<sup>9</sup>

Richard (1981) succeeded in his attempts in commercialising a *Trichoderma*-based mycofungicide for the control of seed borne disease. Elad *et al.* (1982) observed that *T. harzianum* as seed treatment reduced *R. solani* infection in cotton and the method was widely used and found promising in Israel. Richard (1983) evolved the use of *T. viride* pellets for the control of dutch elm disease. The present studies also showed that the *Trichoderma* seed pelleting of cotton seeds reduced the seedling disease of cotton besides enhancing the germination rate of seeds.

Key words : *Trichoderma harzianum*, *T. viride*, cotton seed pelleting, *Rhizoctonia solani*

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## Serological Characterisation of Nuclear Polyhedrosis Virus of *Spodoptera litura*

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With increasing attention being given to the possible use of NPV of *Spodoptera litura* in India for biological control (Jayaraj *et al.*, 1979; Ramakrishnan *et al.*, 1981), more

sensitive, specific and quantitative serological methods are required to detect and monitor viruses *in vivo* and in the physical environment. Hence, this study was undertaken to determine the