

BIOLOGICAL CONTROL OF SEED BONE FUNGI OF COTTON

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➤ Abstract :-

Cotton (*Gossypium* spp) the white gold is one of the most important cash crop in the world. The seeds of cotton are found to be heavily infested with variety of fungi. These associated fungi are known to deteriorate the seeds and seed contents. In the present study, the efficacy of *Trichoderma viride* was tested *in vitro* against the growth of fungi isolated from the seeds of cotton. The antagonist was found to be inhibitory for the growth of these fungi.

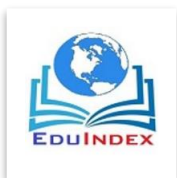
➤ **Key Words :-** Biological control, *Trichoderma viride*, seed borne fungi, cotton.

➤ Introduction :-

Cotton play an important role in Indian economy as it contribute significantly to both agriculture and industry in terms farm income, employment and export earnings. The seed of cotton are found to be heavily infested with variety of fungi. Pathogens present in almost any seeds of economically important crops which may be disastrous, therefore, seeds must be free from such inoculum with high level of germination and purity before sowing.

These associated fungi are known to deteriorate the seeds and seed contents. Neergaard (1977) stated that the cultivars of many crops carry seed borne disease so commonly. The cotton seeds are reported to carry many moulds in the fields and during storage (Sumar and Howard, 1983). The fungi associated with the seeds bring about several undesirable changes making them unfit for sowing. It can decrease the yield/production.

Traditionally the fungal disease of plants are controlled by using synthetic fungicides. The use of fungicides is not only costly but also hazardous to the environment. On the other hand,



the indiscriminate use of pesticides may result into development of resistance in the pathogens. To overcome these problems, some alternative control methods must be employed. In recent years, members of the genus *Trichoderma* have gained recognition as potential biocontrol agents. During the present investigation, the efficacy of *Trichoderma viride* was studied in vitro against some fungi isolated from the seeds of cotton.

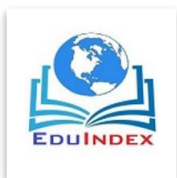
➤ **Materials and Methods :-**

The efficacy of *Trichoderma viride* against the test fungi was studied by dual culture technique using dextrose agar medium. Mycelial discs of 6 mm diameter cut from the edge of actively growing on week old culture of the test fungus and *Trichoderma viride* were placed opposite each other near periphery of petriplates. The medium inoculated with the test fungus alone served as control. The petriplates were incubated at 28° C for one week in BOD chamber. Two replicates were kept for each treatment and observations on colony diameter (mm) were recorded.

➤ **Results and Discussion :-**

From table – 1, it becomes clear that, *Trichoderma viride* caused inhibition of mycelial growth of all the fungi tested. However, maximum inhibition was recorded in *Alternaria alternata* (76.92 %) followed by *Aspergillus flavus* (57.33 %) and *Fusarium oxysporum* (41.42 %).

This study reveals that *Trichoderma viride* exhibited strong antagonism against the test fungi. The radial growth of the fungi in presence of *Trichoderma viride* was reduced. Much work has been done on the use of *Trichoderma viride* against the plant pathogenic fungi. *Trichoderma viride* and *Trichoderma harzianum* were found to be effective against *Fusarium* and *Rhizoctonia* (Pandey, 2005). Seed treatment with different species of *Trichoderma* was found in controlling root rot in mungbean (Kehri and Chandra, 1991). Gaikwad et al (1999) observed that *Trichoderma harzianum* and *Trichoderma viride* were antagonistic to *Fusarium oxysporum* f.sp. *lycopersici*. *Trichoderma harzianum* proved inhibitory to *Rhizoctonia solani* causing seed rot and damping off of chickpea (Prasad and Rangeshwaran, 2000). Sharma and Tripathi studied the efficacy of *Trichoderma harzianum* on *Rhizoctonia solani* causing web



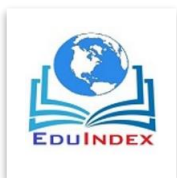
blight disease of uradbean. Patale and Mali (2009) recorded that the species of *Trichoderma* are effective against *Aspergillus niger* causing collar rot disease of groundnut.

Table 1 :- *In vitro* antagonistic activity of *Trichoderma viride* against seed borne fungi of cotton.

Test	Control growth (Radial growth without <i>Trichoderma</i> mm)	Growth in presence of <i>Trichoderma viride</i> (mm)	Percent inhibition
<i>Fusarium oxysporum</i>	70	41	41.42
<i>Alternaria alternata</i>	65	15	76.92
<i>Aspergillus flavus</i>	75	32	57.33

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