



## Effect of Soil Borne Fungi on Seed Germination of Brinjal by Using *Trichoderma* Species

**Anarse P. S.**

Dept. of Botany, Gandhi College,  
Kada. Dist. Beed.  
Panduranganarse43@gmail.com  
Mob: 9420786923

### ABSTRACT:

In present study the fungi on seed germination of Brinjal and their control by using Antagonistic activity of *Trichoderma* species. The efficiency of controlling seed borne fungal diseases by using one *Trichoderma* species. Four different hybrid varieties of Brinjal and one wild varieties of Brinjal sown in pot expt. in Botany Garden The seed were purchased in various company i.e. Ankur, Panchganga, Arnav Mahyco and Wild variety. The seed Germination in Ankur is 90.00%, Panchganga 87.09%, Arnav 82.00% and Mahyco 81.06% germination was seen as compare to wild variety

*KEYWORDS: Seed germination, Soil Borne, Seed Varieties, Trichoderma, Fungi, etc.*

### INTRODUCTION:

Egg - plant (*Solanum melongena*) is an important of the popular vegetable crop worldwide. It is affected by several diseases, which do not control the plants to grow and yield to the best of genetic potential. Various disease management methods have been implemented to combat and eradicate pathogenic fungi. These include cultural, regulatory, physical, chemical and biological methods. In that situation Bio- control offers a good choice to grows to control the disease avoid the pollution Biological control of plant disease is suggested as on alternative to chemical control (Cook, 1977) and is considered as a cost effective and an environmental ecofriendly technique. Humus an organic rich soil of valley is flavored to flourish the bioagents easily can control the diseases. Infect domestic antagonistic are most virulent strains to the pathogens (Dohroo, 2001) because of their persistent capability under soil and local climate conditions. Some fungi, bacteria and actinomycetes have been identified and used as antagonistic microbes against these pathogens including members of genus *Pythium* (Rakesh Kumar et al 2010). The most commonly using biological control



agents include three fungi. *Gliocladium virens* for the control of seedling diseases of ornamental and bedding plants, *Trichoderma harzianum* for the control of several plant pathogenic fungi and *T. polysporum* for the control of wood decay and germination of seeds (Khare and Singh, 2010)

#### **MATERIAL AND METHOD:**

The practical work is done in the laboratory as well as in pot culture in botanic garden. Four hybrid varieties of seed and one wild variety were taken for the study of seed borne fungi on seed germination of Brinjal, Ankur, Panchganga, Arnav Mahyco and wild variety of each of 100 seeds were sown in pot. The seeds are treated with *Trichoderma* species. The germination percentage of seed Panchganga is more than that of others. The seed health test is done by standard method (ISTA, 2001). The seed borne fungal pathogen associated with seeds was observed by binocular microscope by the key of Mathur and Kongsdal (1994). BAU - Bio fungicide (*Trichoderma* based preparation Hossain 2011) was collected from diseases resistance laboratory.

The germination percentage of hybrid varieties is more than that of wild variety by using the *Trichoderma spp* to control the pathogen of diseases. The height of stem, length of leaf treated plants is large than of control plants. Thus, it is reported that least but similar prevalence of the fungi was recorded in the varieties tested.

#### **RESULT AND DISCUSSION:**

The plant length improved with the increase in the dose of fungus bio control agents such as *Trichoderma viride* and *Trichoderma harzianum*. The plant height was observed in pot N0 1 with 2 gm inoculums of bio control agents *Trichoderma viride* and *Trichoderma harzianum*. It was followed by plants treated with 2.0 gm, 1.5 gm and 1.0 gm of inoculum as compared to untreated which shows lowest plant growth. The decrease in infection may also be due to release of toxic compounds and substances from the fungal agents which are inhibitory to pathogenic fungi. Bhat, et al (2003), reported that bio control agent *Trichoderma viride* and *Trichoderma harzianum* to stimulate of brinjal plant as compared to the un control plants.

Thus, as a result the treatment of plants with different dose of VAM fungi, *Glomus mosseae* and *G. fasciculatum* there was observed a reduction in the pathogen effect by *Fusarium oxysporum* and improvement in plant growth of brinjal plants. The



highest increase in the plant length is observed in plants grown in Pot No. 1 with 10gm of soil root of inoculum *Glomus mosseae* and *G. fasciculatum*. The improvement in plant growth and chlorophyll content might be due to structural physiological and biological changes in the environment (Dehine, 1982), VAM fungi have been found to increase mineral uptake especially P, K and Zn that improve the plant growth and caused plant to escape from root disease (Khaliq et al; 2001). Effect of the fungi on germination of Brinjal seed of three hybrid varieties presented in the table. Significantly the highest germination and growth rate was recorded more in Pot No. 1 as compared to other. This is due to the Bio control of *Trichoderma viride* and *Trichoderma harzianum*.

**Effect of *Trichoderma viride* on *Fusarium oxysporum* and plant growth of Brinjal:**

Variety	Treatment	Germination % after	
		10 days	20 days
Ankur	<i>T. viride</i>	90.00%	92.00%
Panchganga	<i>T. viride</i>	87.09 %	88.04%
Arnav	<i>T. viride</i>	82 .00%	83.00%
Mahyco	<i>T. viride</i>	81.06%	84.07%
Wild	-	50.10%	56.02%

**REFERENCES:**

- 1) A Khare; B.K. Singh; R.S. Upadhyay (2010) ; Biological control of *Pythium aphanidermatum* causing damping of off mustard by using *Trichoderma. Viride*.
- 2) Bhat; Z.A.; Bhat M.A. and Shawl; A.S. (2003) Comparative efficacy of biocontrol agents' botanical extracts and fungicides in management of Chickpea wilt caused by *Fusarium oxysporum* f. sp. *ciceri* proceed National seminar on Recent Advances in Plant Science Research 12-14 Oct -2003; pp 45.
- 3) Bari, M.A. and Alam, M.S. (2004) Major diseases of Wheat and Maize and their control. A Bengali Booklet published from the Division of plant pathology, BARI, Joydebpur, Gazipur 2: 12-16.



- 4) Cook, R.J. (1993) - ,Making greater use of introduced micro-organisms for biological control of plant pathogens, *Annual Review of Phytopathology*, 31:53-80 .
- 5) Dohroo N. P. (2001) Study on population dynamics of naturally occurring *Trichoderma harzianum* Rifai and its antagonistic potential against rhizome rot of Ginger. *Indian J. plant pathol*; 19 (1 &2): 39-43.
- 6) Dehine; H.W. (1982) Interaction Between Vesicular Arbuscular fungi and plant pathogens; *Phytopathology* 72:1115-1119.
- 7) Fakir, G.A. (2001), List of seed borne disease of important crops occurring in Bangladesh. *Seed pathol. Lab; Dept. pl. pathol; Bangladesh*.
- 8) ISTA -( International Seed Testing Association) (2001). International Rules for Seed Testing, Rules Amendments. *Seed Sci. and Tech.* 29 (2): 1-127.
- 9) Mathur S.B. and Konqsdal, O. (1994), *Seed Mycology Description and Illustration of Fungi DGISP for developing Denmark, 1<sup>st</sup> edn.*
- 10) Marley, P.S. and Gbenga, O (2004), Fungicide control of *steno carpella maydis* in the Nigerian Saranna *Archives of phytopathology and plant protection*. 37(1): 19-28.
- 11) Rakesh Kumar, Indra Hooda, S S Karwasra, (2010). Efficacy of Mahapancha Gavya (MPG) in controlling damping - off in Tomato caused by *Pythium aphanidermatum*. *Bangladesh Journal Agriculture Res*, 35 (1), 11-16.
- 12) Khaliq A; Gupta, M.L. and Kumar, S. (2001) The Effect of Vesicular Arbuscular Mycorrhizal fungi on Growth of Peppermint. *Indian Phytopathol.* 54: 82-84.