

## Efficacy of fungicides against *Trichoderma harzianum* and *Sclerotium rolfsii*

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### SUMMARY

*Trichoderma* spp. are important potential bioagents against soil borne fungal plant pathogens. *Sclerotium rolfsii* is a soil borne pathogen and difficult to control. Farmers are applying talc based *Trichoderma harzianum* with different cakes or FYM for biological control of *Sclerotium rolfsii*. Testing of fungicides against *Trichoderma harzianum* and *Sclerotium rolfsii* were done *in vitro*, to find out safer and effective fungicides against *Trichoderma harzianum* and *Sclerotium rolfsii*, respectively. Among these fungicides, wettable sulphur (0.20%), copper oxychloride (0.20%) and mancozeb (0.20%) were found comparatively safer against *Trichoderma harzianum* as compared to others fungicides. Cent per cent growth inhibition of *Sclerotium rolfsii* was found in propiconazole (0.025%) and mancozeb (0.20%). While wettable sulphur (0.20%), copper oxychloride (0.20%) and carbendazim (0.025%) were found least effective against *Sclerotium rolfsii* *in vitro*.

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### Key words :

*Trichoderma harzianum*,  
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Fungicides, Stem  
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*Trichoderma* spp. are important bioagents against *Sclerotium rolfsii* (Sacc.). *Sclerotium rolfsii* causes stem rot and is potential threat to groundnut production in many warm and humid areas. In India, stem rot occurs in all groundnut growing states and is most severe in Maharashtra, Gujarat, Madhya Pradesh, Karnataka, Andhra Pradesh, Orissa and Tamil Nadu (Mayee and Datar, 1988). Pod yield losses can reach over 80% in heavily *Sclerotium rolfsii* infected fields of groundnut (Mehan *et al.*, 1995). An approach for biocontrol agents have been used with fungicides without any toxic effect on antagonists. Therefore, different fungicides were evaluated to know the tolerance limit of *Trichoderma harzianum*. Present investigation may be useful for compatible as well incompatible reaction with *Trichoderma harzianum* in response to fungicides and also effective against *Sclerotium rolfsii*.

Eight fungicides *viz.*, carbendazim (0.10%), propiconazole (0.025%), mancozeb (0.20%), chlorothalonil (0.20%), copper oxychloride (0.20%) wettable sulphur (0.20%), zineb (0.20%) and carbendazim + mancozeb (0.20%) were tested *in vitro* condition. *Trichoderma harzianum* and *Sclerotium rolfsii* were grown on Potato dextrose agar medium by adding required quantity of fungicides at desired concentrations. Twenty ml-poisoned medium was poured in each Petri

plates. Suitable controls were also maintained without adding of chemicals. Inoculated Petri plates were incubated at 28±1°C for 8 days. All treatments were replicated three times along with control. The diameter of fungus colony was measured in two directions and average recorded. The result was expressed as per cent inhibition of mycelial growth over the control. This was calculated by using standard formula given by Bliss (1934).

$$I = \frac{C - T}{C} \times 100$$

where, I=Per cent inhibition

T=Colony diameter (mm) in treated,

C=Colony diameter (mm) in control treatment.

Results presented in Table 1 reveal that fungicides *viz.*, wettable sulphur (0.20%), copper oxychloride (0.20%), and mancozeb (0.20%) were found comparatively safer fungicides against *Trichoderma harzianum* as compared to other fungicides. While carbendazim (0.025%), propiconazole (0.025%), chlorothalonil (0.20%), zineb (0.20%) and carbendazim + mancozeb (0.20%) were found to inhibit cent per cent growth of *Trichoderma harzianum*. Same result was found by Sharma *et al.* (2001) in which they reported that carbendazim was effective against *T. harzianum*. Where as propiconazole (0.025%) and mancozeb (0.20%) were inhibit

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**Table 1 : Effect of fungicides against *Trichoderma harzianum* and *S. rolfsii***

Sr. No.	Fungicides	Concentration (%)	Per cent inhibition of	
			<i>Sclerotium rolfsii</i>	<i>Trichoderma harzianum</i>
1.	Carbendazim	0.025	22.00	100.00
2.	Mancozeb	0.20	100.00	50.00
3.	Chlorothalonil	0.20	41.67	100.00
4.	Propiconazole	0.025	100.00	100.00
5.	Wt. Sulphur	0.20	12.77	28.00
6.	Copper oxychloride	0.20	7.22	30.00
7.	Zineb	0.20	69.44	100.00
8.	Carbendazim+ Mancozeb (Saff)	0.20	56.94	100.00
9.	Control	-	00.00	00.00

found to inhibit cent per cent growth of *Sclerotium rolfsii*. While copper oxychloride (0.20%), wettable sulphur (0.20%) and carbendazim (0.025%) were found least effective against *Sclerotium rolfsii* under *in vitro* conditions. Similar results were found by Kanzaria (1993) and Khare *et al.* (1974) who reported that thiram, mancozeb, captan, propiconazole and carboxin were found most effective under *in vitro* conditions.

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