



Screening of fungal biocontrol agents against *Sclerotium oryzae* the causal agent of stem rot of rice

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Abstract : *Sclerotium oryzae* causes rice stem rot disease which is an important disease of rice. In an effort to develop eco-friendly measures for the control of this disease different *Trichoderma harzianum* and *T. virens* isolates were screened. Variability in all the 15 isolates of *Trichoderma* spp. was tested against *Sclerotium oryzae* through monoculture. Results of monoculture showed variability amongst the isolates tested. All the isolates of *Trichoderma* spp. produced volatile compounds and maximum inhibition of the mycelial growth of *Sclerotium oryzae* (28.88%) was recorded by *Trichoderma* sp. (isolate no. 4). Cultural filtrate of all the four isolates of *Trichoderma* spp. resulted in the maximum inhibition of (94.44%) mycelial growth of *Sclerotium oryzae* when used at 50 per cent concentration. At 25 per cent concentration of cultural filtrate, maximum inhibition of mycelial growth (94.44) was observed in case of *Trichoderma* isolate 1 and 2. Glass house experiments showed that all the *Trichoderma* isolates tested were helpful in disease control and plant growth promotion both.

Key Words : *Trichoderma* spp., *Sclerotium oryzae*, Monoculture, Dual culture

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INTRODUCTION

Stem rot caused by *Sclerotium oryzae* Catt. is one of the most serious diseases of rice causing significant reduction in yield. Management of stem rot of rice is a problem, since commercial varieties resistance to this disease is not available. There are few effective chemicals are available but their use is limited due to rice has been used as alternative disease management strategies. There are few reports indicating effectivity of bioagents against stem rot pathogen. However, no systemic studies have so far been made to explore the possibility of developing biological management of stem rot. *Trichoderma harzianum* has been used as an effective biocontrol agent for damping off disease of peanut caused by *S. rolfsii* and *Rhizoctonia solani* (Chet *et al.*, 1979; Elad *et al.* 1980). The present investigation was carried out on the screening of different isolates of *Trichoderma* spp. against *S. oryzae* to find out the most effective strains for their further evaluation.

MATERIALS AND METHODS

Sclerotium oryzae was isolated from diseased plants showing characteristic symptoms and maintained on Potato dextrose agar (PDA) medium. Isolates of *Trichoderma* spp., *T. harzianum* isolates, *T. hamatum* and *T. virens* used in present investigation were obtained from Rice Pathology and Bio-control laboratory, Pantnagar. Few isolates of *Trichoderma* spp. were also isolated from rice leaves collected from different location of the district U. S. Nagar. Variability amongst different isolates of *Trichoderma* spp. was evaluated by using mono culture method. Twenty ml of sterilized melted PDA was aseptically poured in sterilized Petri plates and allowed to solidify. 5 mm mycelial discs of fungal isolates (biocontrol agents) cut from actively growing culture plates, were placed at a centre of Petri plate. These plates were incubated at 28±1°C. Periodic observations on the growth of fungal isolates were recorded. Fungal isolates (biocontrol agents) were

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