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Effect of times and levels of inoculum of Trichoderma for controlling root rot and collar rot of lentil

ABSTRACT

The experiments were carried out during 2010 to 2011 to find out the time of application and level of inoculum of T. harzianum for controlling root rot (F. solani) and collar rot (S. rolfsii) of lentil (Lens culinaris Medik). F. solani and S.rolfsii and their antagonist, Trichoderma were collected from different pulses growing areas of Bangladesh. The experiments were carried out following CRD with five replications. Fourteen isolates of Trichoderma were tested against F. solani and S. rolfsii under Dual Culture Technique. The inhibition was ranged from 60.42 to 99.27% at 10 DAI against F. solani and from 64.07ï 99.41% at 6 DAI against S. rolfsii. The highest inhibition 99.27% against F. solani was found in isolate, Th-2 and 99.41% was found in isolate TG-2 against S. rolfsii. In the pot, the treatment of soil with the Th-2 isolate of T. harzianum at 2g/kg shown the highest germination (96.67%) and plant stand (81.67%) and the lowest root rot (15.52%), where the isolate of TG-2 of T. harzianum at 20g/kg of soil was observed better for controlling S. rolfsii. T. harzianum (Th-2) increased germination (17.86%), plant stand (171.43%), vigour index (33.27%) and yield (260.74%) over control against root rot. T. harzianum (TG-2) also increased germination (248%), plant stand (600%), vigour index (865.91%) and yield (1209.81%) of lentil over control against collar rot. The soil treatment with Trichoderma at 9, 6 and 3 days before sowing and also at the time of sowing showed significantly better effect in increasing germination, plant stand and reducing root rot and collar rot compared to control. The highest germination, seed yield and lower root rot was obtained by treating soil with Trichoderma before 9 days of sowing against both the pathogens.

Keyword: Biological control; Collar rot; Lens culinaris; Root rot; Soil treatment; Trichoderma