

Field Application of Trichoderma Harzianum for Biological Control of Root-Knot Nematodes in Summer Tomatoes

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Abstract : To study the efficacy of the selected Trichoderma isolates, field trials were conducted in the root-knot nematode-infested areas of Dargai and Swat, Pakistan. Four isolates of *T. harzianum* viz, Th-1, Th-2, Th-9 and Th-15 were tested against root knot nematodes on summer tomatoes under field conditions. The *T. harzianum* isolates, grown on wheat grains substrate, were applied @ 8 g plant⁻¹, either alone or in different combinations. Root weight of tomato plants was reduced Th-9 as compared to 26.37 g in untreated control. Isolate Th-1 was found to enhance shoot and root lengths to the maximum levels of 78.76 cm and 19.59 cm, respectively. Tomato shoot weight was significantly increased (65.36g) in Th-1-treated plots as compared to 49.66 g in control. Maximum (156) number of flowers plant⁻¹ and highest (48.18%) fruit set plant⁻¹ was observed in Th-1 treated plots, while there were 87 flowers and 35.50% fruit set in the untreated control. Maximum fruit weight (70.97 g) plant⁻¹ and highest (17.99 t ha⁻¹) marketable yield were recorded in the treatments where *T. harzianum* isolate Th-1 was used, in comparison to 51.33 g tomato fruit weight and 9.90 t ha⁻¹ yield was noted in the control plots. It was observed that *T. harzianum* isolates significantly reduced the nematode populations. The fungus enhanced plant growth and yield in all the treated plots. Jabban isolate (Th-1) was found as the most effective in nematode suppression followed by Shamoza (Th-9) isolate. It was concluded from the present findings that *T. harzianum* has a potential bio control capability against root-knot nematodes.

Keywords : biological control, Trichoderma harzianum, root-knot nematode, meloidogyne

Conference Title : ICFAPE 2015 : International Conference on Food and Agricultural Process Engineering

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015