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Biological Control of *Meloidogyne javanica* on Tomato by *Trichoderma harzianum* BI and Salicylic Acid

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Abstract: In this study, *Trichoderma harzianum* BI was evaluated for its capacity to reduce the incidence and pathogenicity of the root-knot nematode *Meloidogyne javanica* on tomato. Culture filtrates of *T. harzianum* BI at different concentrations, (standard, 1:1, 1:10, and 1:100) were studied. *In vitro* studies revealed that hatching of *M. javanica* eggs was inhibited by the culture filtrates and this inhibition was positively correlated with increase in the concentration of culture filtrates. Parasitism of *M. javanica* eggs by *T. harzianum* BI ranged from 21% in control to 84% in antagonistic fungi *T. harzianum* BI reduced nematode damage to tomato in vivo,too. Treatment of the soil with the antagonistic fungi and salicylic acid clearly improved nematode control when applied jointly or alone. The antagonistic fungi and salicylic acid were further tested for their ability to induce production of defense related enzymes in tomato. Earlier and increased activities of soluble peroxidase (SPOX) was observed in *T. harzianum* BI and salicylic acid treated tomato challenged with *M. javanica* Thus, the present study shows that in addition to direct antagonism, induction of defense-related enzymes involved in peroxidase pathway contributed to enhance resistance against invasion of *M. javanica* in tomato.

Key words: *Biological control, Meloidogyne javanica, Trichoderma harzianum BI, Peroxidase*

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