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Can Fusarium-Wilt-Resistant Tomato Varieties Suppress the Biological Control of Root-Knot Nematode Induced by Mutualistic Non-Pathogenic *Fusarium oxysporum* Antagonists?

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Abstract

Mutualistic endophytes are well known for their antagonistic activity against a wide range of plant pathogenic fungi and nematodes. One of the most important these endophytes is non pathogenic *Fusarium*. Many studies have been conducted using different isolates of the mutualistic endophytic *Fusarium oxysporum* as antagonists against different genera of plant parasitic nematodes on different hosts and varieties. Obtained results of these studies revealed that, there are many mechanisms involved in the interaction between these endophytes and the target pest or disease. Induced systemic changes in host attractiveness and or production of repellents is considered one of the most unique of these mechanisms. The Induction of host systemic resistance by the mutualistic endophytic *oxysporum* against *Meloidogyne incognita* was detected on susceptible tomato varieties to *Fusarium* wilt pathogen. In this study the endophytic fungus, *oxysporum* strain 162, was used in a split-root system to determine if *Fusarium*-wilt resistant tomato varieties adversely affect the induction of systemic activity to the root-knot nematode, *M. incognita* or not. Obtained results of presented study showed that the mutualistic endophytic *oxysporum* isolate (162) maintains effectiveness and significantly reduces infection on both inducer and responder root sections. The reduction in gall number was similar, 36 % and 34 %, on the inducer and responder sides respectively. The results therefore demonstrated that the induced systemic resistance activity of this antagonist was present even on tomato plants having resistance to the wilt fungus *F. oxysporum*. This is of practical importance in that many commercial varieties are resistant to the wilt fungus.

Keywords: Biological control, *Fusarium* wilt resistance tomato, induced resistance, *Meloidogyne incognita*, *Fusarium oxysporum*, root-knot nematode