Usefulness of *Trichoderma* and Pseudomonas against *Rhizoctonia solani* and *Fusarium oxysporum* infecting tomato

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Abstract

The general inadequacy of chemical fungicides to tackle *Rhizoctonia solani* and *Fusarium oxysporum* diseases in tomato has led to the search for biocontrol solutions to these maladies. Twenty-six local isolates of *Trichoderma* spp. and 56 isolates of fluorescent pseudomonads from Kerala were evaluated for their antagonistic activity against*R. solani* and *F. oxysporum* under *in vitro* conditions. Different isolates showed varying degrees of antagonism. The two most antagonistic isolates against *R. solani* were *T. pseudokoningii* TR17 and *T. harzianum* TR20. Likewise, *T. viride* TR19 and TR22 formed the most effective isolates against *F. oxysporum*. Production of volatile and non-volatile antibiotic compounds varied among these isolates. Of the fluorescent pseudomonads, *Pseudomonas fluorescens* isolates P28 and P51 showed the greatest inhibition against *R. solani* whereas against *F. oxysporum*, P20 and P28 were most effective. Isolates obtained from the phylloplane were generally unsuccessful. Inhibitory property of the antagonistic bacteria was also media-dependent. Many of the pseudomonads, which inhibited the pathogens on KMB agar, failed to retard the pathogen's growth on the PDA medium. The bacterial and fungal antagonists were also not mutually antagonistic as their co-inoculation hardly inhibited each other.

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