Evaluation of Rhizobacterial Isolates Antagonism to *Meloidogyne incognita* Infecting Tomato

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Tomato is one of the most widely cultivated vegetable in the tropical and subtropical regions of the world. Root-knot nematode (RKN) species, *Meloidogyne incognita* and *M. javanica* are serious constraints to vegetable crops, especially tomato under protected cultivation, causing yield loss up to 25-100%. In the present study rhizobacterial isolates from polyhouse tomato cultivars were isolated and assessed for *M. incognita* antagonism. Among 80 isolates that were tested for mortality of *M. incognita* juveniles (J2s). The results show that cell free filtrate (CFF) of four rhizobacterial isolates (*B. pumilus*, *B. megaterium*, *B. cereus* and *B subtilis*) caused high mortality (>90%) in *M. incognita* J2s on exposure at 24h. Egg masses kept in CFF showed significant ($p< 0.05$) hatch inhibition in the range of 85.04 to 100% compared to control, on incubation for 21 days. Among the treatments, *B. subtilis* caused maximum inhibition (88.6-100 %) followed by *B. pumilus* (83-100%), *B. cereus* (81.5-94.7%), and *B. megaterium* (78.83-90.7%) as compared to control. Pluronic gel bioassays using tomato seedlings (cv Pusa Ruby) revealed that significantly reduced ($p <0.05$) juvenile (J2s) attraction towards the rhizobacteria treated roots on observation at 2h and 4h.The maximum inhibition was observed with *B. subtilis* treatment where an average numbers of J2s that reached a distance of 0.5-1.0 cm were 15-20 at 2h in treated plates as compared 29 -30 in control treatment.. The rhizobacterial isolates were significantly ($p <0.05$) reduced nematode infection Thus the rhizobacterial isolates were antagonistic to *M. incognita* in tomato. Their utilization in polyhouses is a promising approach for management of *M. incognita* in tomato.

Keywords: *Bacillus pumilus*, Rhizobacteria, Egg hatch inhibition, *Meloidogyne incognita,* Tomato.