



Paper (1)

Potency Evaluation of *Serratiamarcescens* and *Pseudomonas fluorescens* as Biocontrol Agents for Root-knot Nematodes in Egypt.

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A number of bacterial species, isolated from either root-knot nematodes conductive or suppressive soil of different localities in Egypt, were evaluated for suppression of *Meloidogyne incognita*, the causal agent of root-knot of faba bean. Nine isolates of 50 bacterial isolates significantly reduced nematode larvae population in soil elonging to *Meloidogyne* spp. Death percentage of nematode larvae ranged from 54.7% to 96.25%. Two potent bacterial isolates with higher nematocidal activity were selected and identified as *Serratiamarcescens* and *Pseudomonas fluorescens* using morphological and biochemical diagnosis tests. The identification was confirmed by genetic characterization, applying molecular finger printing of DNA of both isolates. RAPD sequencing and PCR sequencing analysis revealed genetic variation among the two isolates. The effect of bacterial treatment as bio-control agent on the development of *Meloidogyne incognita* infecting faba bean was evaluated under greenhouse conditions. Both *Serratiamarcescens* and *Pseudomonas fluorescens* were effective as bio-control agent and significantly reduced the incidence of root-knot disease in soil artificially infested with *Meloidogyne incognita*. All bacterial treatments significantly increased all growth parameters in the presence or absence of the pathogen. The application of the bio-control agents increases shoot and root dry weight, number of nodules and number of pods. The study indicated that *Serratiamarcescens* and *Pseudomonas fluorescens* were potent as bio-control agents for root-knot nematodes, the production of local Egyptian inoculums of both bacterial species as a safe bio-control agents for the root-knot disease is possible.