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Antagonistic effects of rhizobacteria isolates against *Meloidogyne incognita* infecting tomato plants under greenhouse conditions

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Abstract : Thirty rhizobacteria (RB) isolates isolated from rhizospheres of healthy plants - free from nematode infection *viz*. 13 isolates (RBba1-RBba13) from banana; 6 isolates (Rbbe1-RBbe6) from bean ; and 11 isolates (RBcu1 - RBcu11) from cucumber. All the thirty RB isolates were primarily identified according to cultural characters using standard bacteriological method and their nematicidal activity were evaluated against *Meloidogyne incognita* at second stage juveniles (J_2) *in vitro*. Results of primary bioassay test of the thirty RB isolates against *Meloidogyne incognita* J_2 showed that the percentages of mortality ranged from 81 – 97%. RB isolates of banana, bean and cucumber reduced the mortality of *M. incognita* J_2 in the ranges of 81-97%, 85-96% and 84-95%, respectively. Isolates of RBba9, RBba10, RBba12, RBba13, RBbe5, RBbe6 RBcu1and RBcu6 showing the highest net mortality of nematode about ≥ 95% were selected and identified as *Bacillus* sp.ba9, *Bacillus* sp.ba10, *Bacillus* sp.ba12, *Bacillus* sp.ba13, *Bacillus* sp.be5, *Bacillus* sp.be6, *Bacillus* sp.cu1 and *Bacillus* sp.cu6 according to morphological, cultural and biochemical characters. Under greenhouse conditions, the eight select *Bacillus* spp. significantly reduced the root-knot nematode parameters, i.e. numbers of J_2 in soil (82.7 – 97.6%); J_2 in roots (91.7 – 95.8%) ; Galls (61.1- 85.3%) and egg-masses (63.8 - 87.0%), compared to untreated controls. The treatments also improved tomato plant growth parameters such as shoot length, shoot and root dry weight, compared to untreated controls.
Key words: *Bacillus* spp., Nematicidal activity, *Meloidogyne incognita*, Rhizo-bacteria, Tomato.

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