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Nematodes On Some Fruit Trees In Newly Reclaimed Land.  
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#### Abstract

Survey studies reveal that nine genera of plant parasitic nematodes were found associating with banana soils in different surveyed localities. These genera were, *Helicotylenchus*, *Hoploaimus*, *Longidorus*, *Meloidogyne*, *Pratylenchus*, *Rotylenchulus*, *Trichodoros*, *Tylenchorhynchus* and *Xiphinema*. were found associated with banana orchards collected from five different localities: El-Behera, Nobaria, Ismailia, Sadat and Cairo – Alex. Desert road. representing sandy soils of some newly reclaimed land, Egypt.

Such genera differed greatly in their prevalence and levels of abundance. The root-knot nematodes, *Meloidogyne* spp. Were the most frequently occurred and highest population density in the five surveyed localities.

The lance nematode, *Hoploaimus* spp., the stunt nematode, *Tylenchorhynchus* spp. and the spiral nematode, *Helicotylenchus* spp. came after the root-knot nematodes, with less frequency occurrence, population densities and prominence values.

All tested microorganisms gave a significant effect on the mortality percent of *Meloidogyne incognita* (J2), but differ greatly in their effect with the toxic concentrations of the micro-organisms. The most effective micro organisms for 1 : 10 concentration, was *T. harzianum*, *Paecilomyces lilacinus*, *Bacillus subtilis*, followed by *Bacillus* spp in laboratory bioassay.

The influence of these microorganisms in controlling *M. incognita*, at low, moderate and high population densities levels (500, 2000 and 5000 J2 / pot ) on banana cv. Williams were studied under greenhouse conditions. Data indicated that significant decrease in nematode population density of each of; soil juveniles (J2), root development stages, number of galls and egg masses on roots. The best effect was obtained with *Paecilomyces lilacinus*, *Trichoderma harzianum*, *Bacillus subtilis*, *Bacillus thuringiensis* and *Bacillus* sp. Addition of 15-ml. of the antagonistic micro-organisms gave higher increase in plant growth parameters, compared with the treatments of 10-ml. *P. lilacinus* and *T. harzianum* gave the highest plant growth parameters of banana plants.

The combination between four different microorganisms as three bacterial isolates of, (*Bacillus* sp., *Bacillus subtilis* and *Bacillus thuringiensis*) and one species of fungi, *Trichoderma harzianum* against moderate level (2000 J2/ pot) and high level (5000 J2 / pot) of *Meloidogyne incognita* infection. The combination between different micro-organisms against *M. incognita* at were significantly decreasing different nematode population density in soil and within roots and significantly increasing different plant growth parameters. The effect of the combination treatment between *Trichoderma harzianum* + *Bacillus subtilis* in moderate level of infection was more pronounced on nematode population density. The same combination gave more evident (significantly) increasing parameters with plant growth of banana plant.

The tested antagonistic microorganisms *phaenerochaete chrysosporium* and *Streptomyces* antibiotics at all used doses against *M. incognita* on banana plant under green house conditions were significantly decreasing nematode population density in soils and within roots. The microorganisms; *P. chrysosporium* and *S. antibiotics* dose 30 ml./plant, gave better suppression on nematode population density recorded compared with the other dose (15 ml./plant). Also, *S. antibiotics* (30 ml) treatment gave better results in reducing nematode population density, tested microorganisms, increased all plant growth parameters, compared to untreated plant. The highest increase was recorded with *S. antibioticus* (30ml).

The effect of the plant extracts; chamomile flower, chamomile foliage system,

The effect of the plant extracts: chamomile flower, chamomile foliage system, Garlic, onsol and kabar against *M. incognita* (J2) at different exposure times were studied under laboratory conditions. In general, the time exposure affected the potential component of the tested extracts, the Garlic gave the highest toxicity curve. It is clear that adding garlic was needed to low the concentration to reach high ratio of mortality after time exposure of 24, 48 and 72 hours. The least effective extract type was onsol showed that adding of onsol need to high concentration to reach effect.

The influence of the same plant extracts: chamomile (suspension and dry powders extracts of flowers), garlic (fresh mashed, suspension and powder) against three inoculation levels (low, moderate and high) of *M. incognita* on banana cv. Williams were applied under green house conditions. The highest effective plant materials were found with different garlic treatments (Smashedm suspension and powder), compared with chamomile flower (suspension and powder) with low, moderate and high levels of J2 infection. Significant increase in plant growth parameters of banana was found when these plant materials were used, as compared to untreated plant.

*Nerium oleander* gave the highest percentages of reduction in nematode population treatments in soil and roots of banana plants, followed by *Conyza giscardis*, specially at the high dose, while the lowest percentage of reduction was found with *Azolla pinnata*, at the low dose. The plant fresh materials: *C. giscordis*, *N. oleander* and *A. pinnata* significantly increased plant growth parameters (lengths and weights of both shoots and roots besides the pseudostem and corm girth), on banana plant, the lowest percentages of increase was found with *A. pinnata*, at the low dose.

Application of the three concentration of Jojoba oil, significantly decreased soil and root nematode stages and increased plant growth, compared to untreated plant; lengths and weights of both shoots and roots and corm girths of banana infected with *M. incognita*.

All tested *Trichoderma harzianum* + *Paecilomyces Lilacinus*, *Trichoderma harzianum* + *Bacillus thuringiensis*, *Trichoderma harziaum* + *Bacillus subtilis* and *Bacillus subtilis* + *Bacillus thuringiensis*, *Trichoderma harzianum* + *Bacillus subtilis* and *Bacillus subtilis* + *Bacillus thuringiensis*, Nemaless, besides the nematicides Vydate reduced nematode densities in soil and roots, the highest percentages of soil nematode Juvelniles (J2) reduction of *M. incognita* infecting banana under field conditions were (*T. harzianum* + *B. subtilis*) treatment, after the first month from application of these materials.

Also, the highest reduction percentages, after the third month from application, (*T. harzianum* + *P. lilacinus*). The same trend obtained for the percentages of nematode reductions of *M. incognita* after the 1<sup>st</sup> and 3<sup>rd</sup>. month was obtained after the 4<sup>th</sup> and 6<sup>th</sup>. month from application.

Dry leaf powders of *Ricinus communis*, *Eucalyptus globules*, *Melia azedarach* the nematicide mocap, reduced nematode densities in soil and roots infecting banana under field conditions. The least percentage of nematode reductions was obtained after the 3<sup>rd</sup> month, since they were decreased in all treatments.

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