

IMPACT OF CERTAIN HOST PLANTS OF THE INSECT, *Spodoptera littoralis* ON NEMATODE PENETRATION AND REPRODUCTION OF *Heterorhabditis bacteriophora* IN-VITRO.

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ABSTRACT

The effect of eight host plants i.e. bean, castor, cotton, jaw's mallow, peanut , sesame , sweet potato and watermelon leaves of the cotton leaf worm, *Spodoptera littoralis* larvae on penetration and reproduction of entomopathogenic nematodes *Heterorhabditis bacteriophora* to *S. littoralis* larvae were studied under laboratory conditions. The last instar larvae of tested insect were reared on leaves of these host plants under study. Results indicated that the plant on which the host insects fed on significantly affected nematode penetration and reproduction in their larvae with various degrees. In general , the highest number of nematode penetration was recorded in the worms that fed on bean leaves with an averaged 8.33 , 21.33 and 47 IJs/larva at the concentrations of 25 ,50 and 100 IJs / larva, respectively, whereas, the lowest rate of nematode penetration was recorded from the larvae that reared on the jaw's mallow leaves. Meanwhile, the highest averages of nematode reproduction on *S. littoralis* larvae were produced in larvae that reared on the castor leaves (205400 IJs/cadaver), whereas, reproduction of IJs nematode from larvae which fed on peanut leaves showed the lower number than those of other tested host plant leaves.

Keywords: Entomopathogenic nematocides , *Heterorhabditis bacteriophora*, *Spodoptera littoralis*, reproduction, host plant , enetration .

INTRODUCTION

Entomopathogenic nematodes (EPNs) of the genera *Steinernema* and *Heterorhabditis* symbiotically associated with bacteria of the genera *Xenorhabdus* and *Photorhabdus* , respectively , are safe antagonists as commercial bioinsecticide for many economically important insect pests in ornamentals ,vegetable , fruits and turf . Although results from laboratory tests with these nematodes have been promising , results from field evaluated have often been highly variable .Unreliable field efficacy has been an obstacle to expanding the commercial use of such entomopathogenic nematodes (Georgis and Gaugler,1991).

The success of natural enemies ,insect pathogens ,bacteria ,fungi and viruses as a biological control agent on insect pests was affected by different host plants (Bergman and Tingey,1979 ; Ramoska and Todd,1985 ;Duffey and Bloem,1986; Keating and Yendol,1987 and Reichelderfer,1991) .

The effect of host plant on entomopathogenic nematodes as a biological control agent against insect pests were studied by many authors. Jackson and Brooks, (1989) found that the soil inhabiting *Diabrotica* larvae cause direct yield loss by feeding on roots and other underground plant parts and indirect loss by providing entry for pathogenic and secondary microorganismsofica spp. are susceptible to infection by steinernematid and