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Interactions Between the Omnivorous Bug *Orius laevigatus* and the Entomopathogenic Nematode *Steinernema feltiae*, Natural Enemies of the Western Flower Thrips, *Frankliniella occidentalis*

BISHNU KUMARI BHANDARI¹, MOSHE COLL²

¹Leibniz Universität Hannover, Plant Disease and Plant Protection, Germany

²Hebrew University of Jerusalem, Entomology, Israel

Abstract

Studies were carried out to explore the possible interaction between predatory bug *Orius laevigatus* and entomopathogenic nematode *Steinernema feltiae*, natural enemies of western flower thrips, (predation, parasitism and synergisms) in both laboratory and field condition in Israel. Starved adult females *Orius* and fifth instars were placed in petridishes with filter paper soaked with nematode suspension (5000 ml⁻¹ water) and filter paper soaked only with water served as a control treatment. Significantly shorter survival time of *Orius laevigatus* was observed in nematode treatments as compare to control. About 80 % of the *Orius laevigatus* were observed infected with nematode. In the study the new food preference of *Orius* in the presence and absence of nematodes, negative response of predator towards the nematode recorded; the predator clearly avoided the nematode—infected arenas. In the experiments, ability of *Orius* to differentiate nematode infected thrips and healthy one; it was found that *Orius* was unable to preferentially feed on healthy thrips. In the study about impact of the nematodes on western flower thrips population, no significant differences were found in WFT populations in control and nematode treatments. Similarly, there was no significant different in the population of *Orius* in control and nematode treatments. *Orius* and nematode were found to be incompatible to each other in laboratory condition. It seems less possibility of combine use of these natural enemies to control western flower thrips population. No significant impact of the nematode was found to control western flower in the presence of naturally occurring *Orius* in Arava valley, Israel.

Keywords: Predator, Orius, Parasitoid, Steinernema, Western flower thrips