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Evaluation of the Predatory Mites' Manner against Root-Knot Nematode Using Water Agar Technique

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Abstract : The root-knot nematode, Meloidogyne incognita Kofoid and White (Tylenchida: Heteroderidae), is one of the most important plant-parasitic nematodes attacking large numbers of vegetable and fruit plants in Egypt. Moreover, the soil predatory mites (Protogamasellopsisdenticus (Nasr), Gaeolaelaps longus (Hafez, El-Badry and Nasr) and Cosmolaelapskeni(Hafez, El-Badry and Nasr) are one of the excellent agents for biocontrol, this study was designed to evaluate the predation of the root-knot nematode (M. incognita) using water agar technique. The water agar medium was used as an experimental medium to rear both the mentioned mites and egg masses; these media allowed observe the development and predacious manner. The present study revealed that the predatory mites successfully developed and reproduced their egg masses. The mean life cycle of the tested mites P. denticus, G. longus, and C.keni were 10.33, 12.00, and 9.77 days, respectively. The mean total life span of the female of P. denticus, G. longus, and C. keni on egg-mases of M. incognita were obtained 63.44, 77.55 and 70.11 days, respectively, and the mean total fecundity of predatory mites, P. denticus, G.longus, and C. keni on egg-mases nematode were observed 62.66, 31.61 and 11.83 eggs, respectively. The mean total number of eggs laid by female P. denticus was significantly higher than other predatory mites, G. longus and C. keni. According to the obtained results, the tested predacious mites can be applied to combat the spreading of M. incognita in the agriculture field as a safe and effective biological control.

Keywords : biological control, plant-parasitic nematodes, predaceous mites, water agar
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