

Abstract

Sugar beet cyst nematode is, one of the most important pathogens of sugar beet in the world and Iran. In this study, the effect of fungal isolates of *Fusarium solani*, *Verticillium chlamydosporium*, *Trichoderma harzianum* (two isolates) and *Talaromyces flavus* (two isolates) and two bioproducts marigold and trichomix h-v for biological control of this nematode were studied in a completely randomized design with 5 repeat in laboratory and greenhouse. The experiments were conducted in greenhouse, by not sterilized (field soil) to determine the effect of fungal and biological treatments on sugar beet cyst nematode population. Proliferated Fungal isolates on wheat grain medium and bioproducts were mixed with upper half of contaminated field soil to sugar beet cyst nematode soil. After sowing the sugar beet seeds in plastic pots, they were kept in greenhouse, at 25 ± 2 ° C, relative humidity 60-80%, and the alternation of 12 hours of light and 12 hours of darkness for 90 days. After this period experiment evaluation, based on nematode population factors and plants growth factors was performed. Analysis of variance and comparing the averages of studied traits by duncan's (DMRT) multiple range test was performed using SAS 9.1 software. The results showed that there is significant differences ($P=0.01$) in final population between treatments compared with nematode alone treatment. so that *T.harzianum*128, Marigold, *T.harzianum* 93, Trichomix h.v, *F.solani*, *T.flavus* 94, *T.flavus* 134 and *V.chlamydosporium* reduced 65.08, 60.72, 53.08, 47.99, 45.81, 42.17, 41.45 and 20.35 percent of nematode final population respectively. sugar beet plants grown in field soil had significant differences ($P=0.01$), in growth factors of leaf and root length, root fresh and dry weigh and leaf dry weigh, but there was no significant difference in leaf fresh weight factor. two fungi *Fusarium* and *Verticillium* compared to other treatments, caused more growth of sugar beet plants. In vitro only fungal isolates were examined. That, cyst nematodes and fungi were put together on PDA and finally two isolated *T.harzianum*128 and *T.harzianum* 93 could parasitize 97 percent of eggs and larvae of nematode and *T.flavus* 94, *T.flavus* 134, *V.chlamydosporium* and *F.solani*, parasitized 25, 18, 4.33 and 1.66 percent of eggs and larvae of *Heterodera schachtii*, respectively

Keywords: biological control, sugar beet cyst nematode, fungal isolates, bioproducts.



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**Biological control of sugar beet cyst nematode using some
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