Abstract

Sesame is one of the oldest and most valuable oilseed crops in the world that has high agricultural and industrial importance. Many fungal agents cause damages and decline of the yield of this plant in which crown rot and wilt disease have much importance for their high pecentage of infection and damages. Variuos methods have been used to reduce the damages of this group of diseases that application of chemical toxincants is the most common, but disadvantageous of these chemicals became obvious for human and the environment surrounding him and for this reason today, finding alternative methods such as the use of biological control agents are taken into consideration. This study was carried out to identify sesame crown rot and wilt diseases agents in South Khorasan province and investigate the effect of mycorrhizal fungus *Glomus intraradices* in control of dominate agents in crop year of 1390-91. Suspected samples carried to the lab and infected tissues were cultured on fungal cultural medium and holded in 25°C. Colonies of fungus were purified using the htphal tip and single spore methods and identified to the genus level according to colony characteristics and microscopic organs using valid identification keys. Then the pathogenicity test was performed using selected isolates. In this study, 2 species of *Macrophomina phaseolina* and *Fusarium proliferatum* were identified as crown rot and wilt of sesame in South Khorasan that *F. proliferatum* as an agent of Fusarium wilt of sesame were isolated for the first time from Iran. 2 speices of *F. pseudoanthophilum* and *F.* cf. *acutatum* were introduced as new isolates of sesame mycoflor and species of *F.* cf. *acutatum* was reported for the first time from Iran. In the second phase, the effect of *G. intraradices* in control of these two agents and also some of the sesame seedling growth factors was studied and measured. For this purpose, a greenhouse experiment in a completely randomized design with 5 replications was designed and implemented. The analysis of variance was performed using SAS software and comparison traits using Duncan took 1 percent. Greenhouse tests showed that the treated soil with mycorrhizal fungus in comparison with pathogenic fungi treat was able to reduce the number of infected plants and also increase some of the growth factors such as sesame seedling fresh weight and height. Persentages of infected plants in control treat infected with the fungi *M. phseolina* and *F. proliferatum* reduced about 47 and 56 percent, respectively.

Keywords: Fungal agents, Crown rot and wilt, Sesame indicum, Mycorrhizae, Biological Control

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Identification of fungal agents of sesame wilt and crown rot in South Khorasan and the effect of Glomus intraradices in control of dominate agents

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