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**The Thesis Submitted for the Degree of Ph.D  
(in the field of Plant Pathology)**

**Effect of Mycorrhizal fungi *Glomus mosseae*,  
*Glomus intradices* and biological agents  
*Pochonia chlamydosporia*, *Purpureocillium  
lilacinum*, *Bacillus subtilis* and *Bacillus cereus*  
on root knot nematode, *Meloidogyne javanica*,  
in three rootstocks of peach**

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Winter2021

## Abstract

Chaharmahal and Bakhtiari province is one of the most important peach producing regions in the country, which is ranked seventh in the country. One of the main causes of drying of fruit trees, including peach trees in orchards, is the infection of trees with soil diseases, especially nematodes. Damage caused by *Meloidogyne* root-knot nematode due to non-observance of agricultural hygiene principles, imposes a high cost on gardeners and carries the risks of increasing the consumption of nematodes. In recent years, the use of biological agents to control the nematode has received more attention. The role of two mycorrhizal fungi *Glomus mosseae* and *Glomus intradices*, two fungi of the genera *Purpureocillium lilacinum* and *Pochonia chlamydosporia* along with *Bacillus subtilis* and *Bacillus cereus*, in increasing growth factors reduction of root knot nematode pathogenicity *M. javanica* was evaluated in GF677 peach growing tripod, local Helnderi peach and local peach× almond brine 3 hybrid. The results showed the positive effect of biocontrol fungi on reducing root-knot nematode damage on all three rootstocks tested. However, the damage to GF677 rootstock in the absence of biocontrol agents was greater than the other rootstock. Although biocontrol fungi were effective on all stages of nematode development, the number of egg masses and number of eggs per egg mass showed a greater decrease in among them, the greatest reducing effect was observed in the presence of *P. chlamydosporia*. Also, the analysis of the results showed a positive effect of the bacteria used in increasing the growth indices of different peach cultivars and reducing the growth parameters of root-knot nematodes. However, the rate of increase was different in different treatments. For example, the highest and lowest rate of branch growth were observed in uncontaminated Helendri cultivar in the presence of *B. subtilis* (43.5) and cultivar GF677 infected with nematodes and without bacteria (8.3), respectively. However, the ability of bacteria to reduce nematode proliferation factors in peach cultivar GF677 is important because this cultivar is sensitive to *M. javanica*.

Key word: Biocontrol, Pathogenesis, Peach, Root knot nematode