

Mohammadi, A. and Banihashemi, Z. 2010. Activity of hydrolytic enzymes and antioxidants in mycorrhized pistachio root infected by *Phytophthora drechsleri*. *Phytopathology* 100:S85.

The role of hydrolytic enzymes (chitinase, chitosanase, β -1,3-glucanase), antioxidants (GPX, CAT, SOD) and PAL was evaluated in *Glomus mosseae* (Gm) colonized susceptible (cv. Sarakhs) and tolerant (cvs. Qazvini and Atlantica) pistachio rootstocks in the presence of *Phytophthora drechsleri* (Pd). Increasing activity of hydrolytic enzymes coincided with the increase of Gm colonization. After establishment of mycorrhiza, the enzymatic activity was decreased but was higher than the non-mycorrhizal controls. In mycorrhized seedlings, PAL, GPX and CAT activity increased at the first stages of growth and establishment of Gm and then decreased but SOD activity was unchanged or in some cases had increasing trend. Inoculation of Pd, resulted in higher activity of antioxidants and PAL which began earlier and higher in tolerant than in susceptible rootstocks. In Gm+Pd treatments, PAL and antioxidants activity was unchanged or in some cases increased slightly and then decreased but hydrolytic enzymes activity increased in all rootstocks. In tolerant cultivars, higher and earlier activity of the enzymes was observed than susceptible one. Reduction of Pd population in the mycorrhizosphere resulted in the reduction of hydrolytic enzyme activity. These results indicated that inoculation of Gm in pistachio rootstocks prior to Pd can activate defense related enzymes and protect pistachio seedlings against root rot especially in susceptible rootstocks.