Enhancing Salinity Stress Tolerance in *Poncirus trifoliata* L. Using Arbuscular Mycorrhizal Fungi

M. Hadian-Deljou and M. Esna-Ashari*1

Citrus trees are susceptible to salinity. In the present study, the response of trifoliate sour orange (*Poncirus trifoliata* L.) to the salinity stress at the presence of Arbuscular Mycorrhizal Fungi (AMF) was investigated. Forty-day-old seedlings were inoculated with three species of AMF in combinations including *Glomus mosseae* + *Glomus intraradices*, *Glomus mosseae* + *Glomus hoi*, *Glomus intraradices* + *Glomus hoi*, *Glomus mosseae* + *Glomus intraradices* + *Glomus hoi* and no fungi “control”. After 175 days of inoculation, seedlings were exposed to 35 and 70 mM NaCl for 45 days. Mycorrhizal inoculation especially with the combination of *G. mosseae* + *G. hoi* increased the leaves relative water content as well as the amounts of chlorophyll and osmolites. There was a significant reduction in the amounts of malondialdehyde and hydrogen peroxide in the leaves in colonized seedlings compared to the control. The concentrations of Na and Cl in the leaves were higher when salinity increased, while the concentration of N, P, K, Ca and Mg were significantly decreased. On the other hand, inoculation with AMF resulted in a significant increase in the concentrations of N, P, K, Ca, and Mg in colonized seedlings. In general, AMF was able to help the sour orange seedlings against salinity by increasing the leaf nutrient elements and reducing oxidative damage.

**Keywords**: Inoculation, Malondealdehyde, Hydrogen peroxide, Oxidative damage.

1. Ph.D. Student and Professor, respectively. Department of Horticultural Sciences, Faculty of Agriculture, Bu-Ali Sina University, Hamedan, Iran.

* Corresponding author, Email: (m.esnaashari@basu.ac.ir)