

Effects of endomycorrhizal fungi and drought stress on nutrient acquisition of Walnut (*Juglans regia* L)

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ABSTRACT:

Arbuscular Mycorrhizae (AM) are associated with higher plants by a symbiotic association, and benefit plants in uptake of phosphorus, nitrogen and zinc. Walnut is grouped under the drought sensitive crops. Mycorrhizal fungi is the symbiotic relationship between plant roots and beneficial fungi, conferring the stress tolerance in the host plants. This stress tolerance improved due to Arbuscular Mycorrhizal fungi (AM fungi) colonization can be credited to enhanced mineral nutrition. The effects of Arbuscular Mycorrhizal fungi (AMF) *Glomus mosseae* (Nicol and Gerd) Gerdemann and Trappe, *Glomus etunicatum* Becker and Gerdemann and a combination of two fungi species (*Glomus mix*) inoculation on growth and mineral acquisition of three genotypes of *Juglans regia* L. grown under drought stress condition was studied. Drought stress was applied with holding irrigation for 20 days in the middle of plant growth period. Plants were grown in sandy soil in a greenhouse. The contents of phosphor (P), nitrogen (N) and zinc (Zn) were higher in Mycorrhizal (M) than Non Mycorrhizal (NM) plants control and drought conditions. Generally, it can be said that mycorrhizal plants of *Juglans regia* showed higher tolerance toward drought stress than NM plants and their growth improved by AMF colonization. The results indicated that all the physical parameters were enhanced with applying AM fungus.

Keywords:

Arbuscular mycorrhizal fungi, Nutrient uptake, Drought, *Juglans regia*.