



Effect of Bio-Fertilizers on Quality and Quantity Characteristic of Dragon's Head (*Lallemantia iberica*) Under High Water Stress.

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Dragon's head (*Lallemantia iberica* Fish. Et Mey., Labiate family) is one of the important annual medicinal plants that are valuable sources in Iranian natural resources whose understanding and scientific cultivation can play an important role in people's health [2]. The rhizosphere microbes play an important role in improving medicinal values of medicinal plants. The role of microbes in plant growth, nutrient availability, drought resistance, yield and quality of medicinal compounds is demonstrated in medicinal plants. A wide variety of bacteria and fungi diversity including AM fungi is recognised in the rhizosphere of medicinal plants that have high significance in plant nutrient acquisition and secondary metabolite alteration. The inoculation of PGPR and/or AM fungi is a sustainable technology to enhance the quantity and quality of the medicinal plant compounds [1]. In order to evaluate the effect of biofertilizer on the plant height, biological yield, percentage and yield of essential oil in Dragon's head under severe water stress condition (Irrigation after 160 mm of evaporation from pan class A), an experiment as complete randomized block design was conducted with four treatments and three replications in 2015 and 2016 years at the Agriculture Research Field of Shahid Beheshti college of Urmia. Treatments include *Glomus verruciform*, *Glomus intraradices*, biological phosphorus (Barvar 2) and control. Seed inoculation with biofertilizer Barvar 2 led to an increase in plant height and eventually biological yield. Results showed that maximum plant height (27 cm) and biological yield (2439 kg/ha) were obtained from application of Barvar 2. The means comparison showed that the highest percentage of essential oil was observed in 2015 (0.23 %) and in 2016 (0.15 %) by application of *Glomus verruciform* and *Glomus intraradices*, respectively. Maximum yield of essential oil (1.26 kg/ha) was obtained by application of biological phosphorus (Barvar 2). On the other hand, under severe water stress condition application of Barvar 2 and/or mycorrhizae were recommended, due to produce maximum plant height, biological yield, percentage and yield of essential oil.

Keywords: Biological phosphorus, Essential oil, *Lallemantia*, Mycorrhizae

References

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