

Water stress and natural zeolite impacts on phisiomorphological characteristics of moldavian balm (*Dracocephalum moldavica* L.).

Abstract

There is no doubt that certain plants offer valuable medicinal properties. But there are many challenges that local communities face in the harvesting and cultivation of these plants. Moldavian balm (*Dracocephalum moldavica* L.) is an important medicinal plant and there are three pharmaceutical products that originate from in Iran. Water source limitation is one of the important problems in Iran. The scientists suggest that active substance production is the results of environmental stress on plants. Natural zeolits have some properties such as water absorption and emission and nitrate leaching inhibition, which is useful for soil amendment. A pot experiment was conducted in greenhouse with 12 factorial treatments and three replicates. Four levels of Zeolit and three levels of water stress applied during the plant growth. Growth and development factors such as wet and dry weight, leaf area, chlorophyll content, number of leaves, root length and essential oils content were measured. The results showed that zeolit application had not a significant effect on dry weight. Moreover, there were not a significant effect of water stress on leaf area, number of leaves and root length. There was not an interaction between zeolit and water stress on wet and dry weight and also root length but this interaction was significant on leaf area, chlorophyll content, number of leaves and essential oils content. It concluded that medium level of zeolit with the lowest level of water stress recommended for herb and essential oil production of moldavian balm.

Keyword: *Dracocephalum moldavica*; Essential oils; Moldavian balm; Water stress; Zeolite.