

## Effect of salicylic acid on seed germination and seedling growth of Moldavian balm (*Dracocephalum moldavica* L.) under salt stress

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**ABSTRACT:**

Seed germination is considered as one of the critical stage in the growth cycle of plants. Salinity reduces germination and seedlings growth, and ultimately, the function of most medicinal plants. The aim of this research was to study the effect of salt stress (NaCl) and salicylic acid on some characteristics of *Dracocephalum moldavica* L. by measuring seed germination and seedling growth at various concentrations of NaCl and salicylic acid in order to improve salt tolerant capacity. Salicylic Acid (SA) plays a major role in regulating various physiological processes such as plant growth, ion absorption, photosynthesis and germination. In order to investigate the effect of pretreatment of SA under the condition of salt stress on features of germination and seedling growth characteristics, a factorial experiment in a complete randomized design with three replications was carried out. Treatments consisted of salicylic acid at five levels (0, 0.5, 1, 1.5, and 2mM) and salinity at six levels (0, 45, 90, 120, 150 and 200mM) were constructed and analyzed. The results showed that salinity stress significantly reduced all germination and growth parameters compared to the control. Application of salicylic acid (1mM) improved germination and growth parameters at all salinity levels compared to the control. The research out comes are positive towards using salicylic acid on salinity stress conditions and proved that, it can be used to increase the efficiency of Moldavian balm in different salinity conditions.

**Keywords:**

Moldavian balm, Seed germination, Growth parameters, Salt stress, Salicylic acid.