

## **The effects of treatment with polyamines on dry matter and some metabolites in salinity – stressed chamomile and sweet majoram seedlings**

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### **ABSTRACT**

The seeds of two medicinal plants, namely *Chamomilla recutita* (Babong) and *Origanum majorana* (Bardaquoush) were subjected to germination in different NaCl concentrations, polyamines (putrescine, spermidine, spermine.

and to combination of both. The results revealed that the growth alterations induced by NaCl were alleviated by various levels of polyamines. The organic solutes of both plant seedlings exhibited somewhat variable responses to various salinity levels or polyamines treatments and in combination of both treatments. Putrescine in *Ch. recutita* seedlings was more effective in alleviating the stress effects of salinization than spermidine and spermine, while in *O. majorana* seedlings spermidine was more effective. Generally, the degree of stimulation differed according to the .type, concentration of the additive used and the type of the plant tested

**Keywords:** sodium chloride; antioxidants; polyamine-induced senescence; salt-induced oxidative stress; ionic toxicity; osmotic stress; signaling molecules; proline