

Investigation of salt tolerance in early growth of *Dorema ammoniacum* plant

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Abstract

Dorema ammoniacum is a medicinal plant, with plenty of chemical constituents, which has been used extensively in curing diseases. To study the salt tolerance of *Dorema ammoniacum*, its seedlings were put under different salinity treatments under hydroponic conditions. *Dorema ammoniacum* seeds were transferred to cold (4-5 °C) pretreatment for germination for 27 days. The germinated seeds were transported to a culture medium for more growth, and after 7 days, the seedlings were transferred to hydroponic condition with different concentrations of NaCl. The experiment was conducted with 5 treatments and 4 replications, arranged in a completely randomized design. After measuring the length of roots and shoots, the dry and fresh weight of plants under salinity stress were compared. Also, germination percent and rate, content of sodium, potassium and calcium after 15 days, and proline content of roots and shoots at four stages (after 1, 5, 10 and 15 days) were calculated. Results showed that germination of *Dorema ammoniacum* after 27 days started under the temperature of 4-5 °C, and after 4 weeks, the germination was 37.94% and the rate was 0.613 seeds per day. The salt tolerance level of *Dorema ammoniacum* was 200 mM NaCl. The *Dorema ammoniacum* seedlings under salinity treatments had significant difference in shoot and root length, fresh and dry weight of root and shoot, the content of nutritional elements, and proline accumulation, as compared to each other and to control.

Keywords: *Dorema ammoniacum*, Hydroponic, Medicinal plants, Salt tolerance.

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