

عنوان مقاله:

(Sodium Chloride Effects on Seed Germination, Growth and Ion Concentration in Chamomile (Matricaria Chamomilla

محل انتشار:

دوفصلنامه تحقیقات کشاورزی ایران، دوره 29، شماره 2 (سال: 1389)

تعداد صفحات اصل مقاله: 12

نویسندگان:

S. F. AFZALI - *Departement of Desert Management, College of Agriculture, Shiraz University, Shiraz, I.R. Iran*

H. SHARIATMADARI - *Departement of Soil Science, College of Agriculture, Isfahan University of Technology, Isfahan, I. R. Iran*

M. A. HAJABBASI - *Departement of Soil Science, College of Agriculture, Isfahan University of Technology, Isfahan, I. R. Iran*

خلاصه مقاله:

Matricaria chamomilla is a medicinal plant that is widely cultivated in salt affected soils. This investigation was undertaken to study the effect of NaCl concentration on germination, and the physiological, biochemical and growth characteristics of chamomile. Seed germination and growth were studied at five NaCl concentration levels (0, ۴۰, ۸۰, ۱۲۰ and ۱۹۰ mM NaCl concentration). Increasing the level caused significant reduction in seed germination. Salt concentration up to ۴۰ mM led to higher growth, but more than ۴۰mM of NaCl caused significant growth limitation. Chloride and sodium ions increased significantly in various parts of the plant with salinity. Specifically, chloride ions were predominantly concentrated in the shoots whereas sodium ions were concentrated mostly in the roots. With increasing salinity rate, K and Ca concentrations significantly decreased in the shoot and root of M. chamomilla as compared to the control. There was a consistent decrease in K^+/Na^+ and Ca^{2+}/Na^+ ratios in the shoots and roots of M. chamomilla. Plants maintained considerably higher K^+/Na^+ and Ca^{2+}/Na^+ ratios in the shoots than the roots, and the former ratio was significantly higher than ۱ in a ۴۰mM salinity level. No change in leaf proline concentration was observed up to ۸۰ mM, but a sharp rise at higher salt levels occurred. Overall, based on the results, M. Chamomilla is a tolerant to moderately salt tolerant crop during its growth, and its response to salinity is associated with the maintenance of high K^+/Na^+ and Ca^{2+}/Na^+ ratios in shoots, the accumulation of Na^+ in roots, and proline accumulation in shoots.

کلمات کلیدی:

Chamomile, Germination, Growth, NaCl concentration, Physiology, Proline, Salinity Stress

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1778585>



