

Effects of sodium chloride and calcium chloride on growth, gel content and concentration of some nutrients in *Aloe vera* under greenhouse conditions

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Abstract

Aloe vera is one of the medicinal plants, resistant to drought and high temperatures, that its gel has many applications in pharmaceutical, health and food industry. This experiment was conducted to determine the effects of salinity stress, caused by sodium chloride (NaCl) and calcium chloride (CaCl₂), on leaf weight, gel content and ratio of some nutrients in *Aloe vera*, in Research Greenhouse of Shahrekord University, in 2012. This experiment was based on a randomized complete blocks design with 16 treatments and three replications. Treatments included four levels of NaCl concentration (0 (control), 30, 60 and 90 mM), three levels of CaCl₂ (5, 10, 20 mM) and combinations of the two salts. Based on the results, effect of salinity on wet and dry weight of leaf and gel, percentage of sodium, calcium, magnesium, potassium, and K/Na and Ca/Na ratio was significant. Increasing the concentration of NaCl, CaCl₂ or their combination, reduced the percentage of magnesium, calcium, potassium, wet and dry weight of gel content and leaf yield. Results of this study showed that *Aloe vera* is not much tolerant to salt stress and its cultivation is not recommended in soils with EC value of more than 7 dS/m. Overall, under similar EC, the toxicity of NaCl is more than CaCl₂ and attention to potassium and calcium nutrition is important under salinity stress.

Keywords: *aloe Vera*, Salt stress, Gel, Mineral nutrients.

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