

Effect of Silicon on Growth and Ornamental Traits of Salt-stressed *Calendula officinalis* L.)

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A pot experiment was carried out to determine the effect of foliage spraying of silicon (Si) on growth and ornamental characteristics of calendula grown under salt stress and greenhouse conditions. A factorial experiment based on completely randomized design was conducted with 3 levels of Si (0, 50 and 100 mg/L) and 3 levels of NaCl (0, 100 and 200 mM) with 4 replications. At flowering stage, Si was applied with spraying two times in two week intervals. NaCl was also applied as drench (200 ml per pot) in two day intervals. The results showed that salinity decreased the growth, SPAD values, flower number per plant and flower diameter. However, foliar applications of Si resulted in greater root, shoot and total dry weight, plant height and leaf area of calendula plants under salt stress. The highest SPAD values were obtained under 100 mg/l Si application in all NaCl treatments. Salinity decreased number of flower per plant and flower diameter as ornamental characteristics; however Si increased them under salinity stress. Plants treated with 100 mg/l Si had the highest flower diameter at 100 mM of NaCl. Electrolyte leakage increased by salinity, however foliar application of Si significantly reduced electrolyte leakage under salt stress. These results suggest that the negative effects of salinity on the growth and ornamental characteristics of calendula plants can ameliorate by foliar application of Si treatments.

Abstract

Keywords: Electrolyte leakage, Foliar application, Landscape, Salinity, SPAD value.