

Effect of Foliar Application of Silica on some Growth, Biochemical and Reproductive Characteristics and Leaf Elements of Chrysanthemum (*Dendranthema×Grandiflorum* cv. Fellbacher Wein)

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(Received: 19 September 2017 ; Accepted : 10 August 2018)

Abstract

This research was aimed at investigating the effects of foliar application of calcium silicate and sodium silicate on growth and biochemical characteristics and leaf elements of chrysanthemum. This study was conducted as a factorial with completely randomized design and silica source at two levels (calcium silicate and sodium silicate) and concentration of silica at five levels (0 (control), 50, 100, 150 and 200 mg/L) in soil medium, with three replications. At the end of the growth stage, fresh and dry weight of leaf, stem, flower and root, flower diameter, number of flowers, total protein content, soluble sugars and also leaf elements' concentrations such as nitrogen, potassium, phosphorus, zinc, manganese, iron, copper and silicon were measured. Results showed that foliar fertilization of plant with silica caused to increase the fresh and dry weight of leaf, stem, flower and root, flower diameter, number of flowers, total protein content and soluble sugars. Also, concentrations of chrysanthemum leaf elements such as nitrogen, phosphorus, potassium and zinc were increased, but concentrations of iron, manganese and copper were decreased. The concentration of 150 mg/L sodium and calcium silicates was suitable for improving morphological and reproductive characteristics and also for improving adsorption of nitrogen, potassium, manganese, iron and copper. But, for improving the adsorption of zinc and silica, the best concentration of both silicates was 200 mg/L..

Keywords: Calcium silicate, Sodium silicate, Plant height, Flower diameter, Number of flowers.

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