

Alleviating negative effects of irrigation-water salinity on growth and vase life of gerbera by foliar spray of calcium chloride and potassium silicate

A. Mohammadi Torkashvand^{1*} and F. Shirghani¹

(Received: May 25-2014 ; Accepted: Aug. 31-2014)

Abstract

The required water for greenhouses in Kishestan, Soume-e-Sara town, Guilan province, Iran, is mainly provided by underground resources that have inappropriate quality. One way to reduce the impact of salinity on plant growth is proper nutrition. This greenhouse research was conducted to evaluate the effect of water salinity and foliar spray of calcium (Ca) and silicon (Si) on growth and vase life of gerbera in a factorial experiment based on completely randomized design with two factors. The first factor was salinity of irrigation water at two levels (0 and 1.5 dS/m) and the second factor was foliar spray at seven levels (without spray, twice Ca spray, four times Ca spray, two times Ca spray + once Si spray, twice Ca spray + twice Si spray, four times Ca spray + once Si spray, and four times Ca spray + twice Si spray), each with three replications. Results showed that four times Ca foliar spray led to an increase in stem height, stem and neck diameter, postharvest life and Ca concentration of shoots. In all spray treatments, number of flowers in zero salinity was more than 1.5 dS/m treatments. In general, in case of using low-quality water (electrical conductivity of 1.5 dS/m), the effects of salinity on dry and fresh weights of gerbera plant and vase life of its flowers can be reduced by foliar application of Ca and Si. Since inappropriate water quality in Rasht Greenhouse Complex, Soume-e-Sara town, is one of the main problems of the farmers, especially in growing the ornamental plants, effects of salinity on plant growth could be alleviated with foliar spray of nutrients, especially Ca and Si. In this respect, four times spray of Ca and also twice spray of Ca + twice spray of Si are recommended.

Keywords: Nutrition, Fertilization, Environmental stresses

1. Dept. of Hort., Faculty of Agric., Islamic Azad Univ., Rasht Branch, Rasht, Iran.

*: Corresponding Author, Email: m.torkashvand54@yahoo.com