

Effect of source and method of silica application on some of the quantitative and physiological characteristics of *Gerbera jamesonii* L.

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Abstract

Gerbera (Gerbera jamesonii L.) is one of the most important cut flowers in the world and nutrient solutions are the most important elements that increase quality and quantity of gerbera flowers. In this study, the effect of adding silicon, as an important mineral, from two sources of potassium silicate and nano silica, was investigated on physiological traits of gerbera flower, cv. Yanara. In this experiment, various concentrations of potassium silicate and nano silica were applied in different treatments including spray of nano silica in two concentrations of 12.5 and 25 mg/L (based on SiO₂), drench of nano silica in two concentrations of 12.5 and 25 mg/L (based on SiO₂), drench of potassium silicate in two concentrations of 25 and 50 mg/L (based on SiO₂) and control (with no treatment), in three replications. The results showed that nano silica in both forms and concentrations decreased fresh weight of the flowers, but increased under-stomatal carbon dioxide. Number of flowers was increased under the 25 mg/L nano silica treatment, compared to control. Although there was no significant difference between treatments in dry weight of flowers and all photosynthetic parameters such as transpiration, photosynthesis, water use efficiency, and stomatal conductance, but in general, nano silica increased number of gerbera flowers; while, potassium silicate could not improve the studied traits.

Keywords: Potassium silicate, Nano silica, Photosynthesis, Fresh weight of flowers.

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