Effects of pre-harvest foliar application of different rates and sources of calcium on yield and quality of 'Illona' cut rose flower

Sh. Kiani[1]* and K. Mirza Shahi[2]

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Abstract

Short vase life and low quality of cut rose flowers are the main problems of most rose greenhouses in Iran. Calcium is one of the most important nutrients that plays a major role in vase life of cut rose flowers. In this study, a factorial experiment was conducted based on completely randomized blocks design to elucidate the effects of foliar application of calcium rates and sources on yield and quality of rose flowers cv. Illona. Rose plants were sprayed by three rates of 0, 0.3 and 0.6 g/L calcium in combination with two sources of calcium nitrate ($Ca(NO_3)_2.4H_2O$) and calcium chelate (Ca-EDTA) before the harvest. The experiment was conducted in 3 replications during 2005-2007 in Safi Abad Agricultural Research Center, Dezful. The results revealed that rose yield and flower quality indices at harvest time consisting of flowering stem fresh weight and length and length and diameter of buds were not affected by different rates and sources of calcium. But, vase life of cut rose flowers was increased significantly by 2.7 and 2.9 days in 0.3 and 0.6 g/L treatments, respectively (P<0.01). This was due to increased Ca concentration in the rose leaves and petals. There was no significant difference between the calcium nitrate and calcium chelate in supplying calcium and increasing vase life of cut rose flowers. According to the results of the present study, pre-harvest foliar application of calcium nitrate or calcium chelate at the rate of 0.3 g/L is recommended to improve vase life of cut rose flowers in north Khuzestan under greenhouse conditions.

Keywords: Foliar application, Yield, Calcium, Rose flower (*Rosa hybrida* L.), Vase life.

1. Assist. Prof. of Soil Sci., College of Agric., Shahrekord Univ., Shahrekord, Iran.
2. Scientific Member of Soil and Water Dept., Safi Abad Agric. Res. Center, Dezful, Iran.
*: Corresponding Author, Email: shkiani2002@yahoo.com