

APPLICATION OF ESSENTIAL OIL AND NONO TECHNOLOGY ON VASE LIFE AND ENZYME ACTIVITY OF CUT ROSE FLOWERS

Pegah Vahidi¹, Mehrdad Jafarpour^{2*}

- 1- Department of Horticulture, College of Agriculture, Garmsar Branch, Islamic Azad University, Garmsar, Iran
 - 2- Department of Horticulture, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
- *Corresponding Author email: jafarpour@khuisf.ac.ir

Abstract

The most important factors in increasing postharvest life of cut flowers are environmental conditions and chemical treatments. Rose (*Rosa hybrida* L.) is one of the most beautiful and important cut flowers. This ornamental species of the Rosaceae family accounted for considerable portion of 100*10⁹ dollars of commerce of flower and ornamentals globally. Because of that, more researches need to be accomplished to increase quality and vase life of this. The materials produced by using nanotechnology science are nanosilver and nanocopper having little environmental danger so nanosilver also is used in food science. Therefore, an experiment was achieved in order to assess the effects of silver nanoparticles, nanocopper, eucalyptus and thyme essence along with sucrose on vase life enhancement of rose cut flowers. In this experiment, interaction effects of nanosilver (2, 4 and 6 ppm), eucalyptus (25, 50 and 100 ppm), nanocopper (2, 4 and 6 ppm) and thyme (50, 100 and 150 ppm) on vase life of rose cut flowers were evaluated. Distilled water and sucrose 3% were used as control. Flowers were excised from maternal stock in bud stage and then transported to laboratory of Islamic Azad University of Khorasgan Branch. Additional leaf and blades were removed from lower part of stem. All cut branches were equalled to 40 cm in long. The measured traits were comprised; relative fresh weight, TSS, attraction rate, enzymes such as catalase and superoxide dismutase as well as membrane stability index. Results showed the effect of higher concentrations of nanosilver along with essences as well as first and second levels of nanocopper caused increasing in soluble sucrose absorption and higher activity of catalase and superoxide dismutase enzymes in rose cut flowers via microbial infection and xylem clogging reduction that result to chlorophyll and anthocyanin destruction reduction and finally vase life enhancement.

Key words: Rose (*Rosa hybrida* L.), enzyme, vase life, TSS, essential oil, sucrose.



The 1st International Conference on New Ideas in Agriculture
Islamic Azad University Khorasgan Branch
26-27 Jan. 2014, Isfahan, Iran

