Effect of silver nano particles and 8-hydroxyquinoline citrate on the longer life of cut Gerbera (*Gerbera jamesonii*) 'Sunway' flowers

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Abstract

Gerbera is one of the cut flowers with short vase life. In this research, silver nanoparticles (SNP) (0, 5, 15, and 25 mg L^{-1}) and 8-hydroxyquinoline citrate (8-HQC) (0, 100, 200, and 300 mg L^{-1}) as pulse treatment for 24 h in combination with 6% sucrose were used in order to increase the quality and vase life of cut Gerbera 'Sunway' flowers. The results indicated that the vase life of cut flowers treated with 15 mg L^{-1} SNP plus 200 mg L^{-1} of 8-HQC and 6% sucrose was higher than the other treatments (20.68 days). Fresh weight and water uptake of Gerberas were relatively higher than other treatments, and also, this treatment resulted in less protein degradation and lower malondialdehyde, higher carotenoid pigmentation. Treatment with 200 mg L^{-1} of 8-HQC and 6% sucrose and 15 mg L^{-1} SNP with 6% sucrose separately showed higher SOD activity than other treatments. The use of nanoparticles and 8- HQC in combination with sucrose in the preservative solution showed the best treatment in delaying senescence and increased the life of cut Gerbera flowers compared to other treatments (Distilled water and sucrose solution).