

Title Evaluation of some conventional biocides and nano silver particles on vase life and physiological properties of cherry brandy rose vase solution

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Abstract

Microbe proliferation in vase solution causes water relation disruption and consequently vase life reduction in cut flowers. Beside vase life reduction, physiological characteristics of cut flowers are also influenced by water relation of cut flowers and toxicity of applied biocides. In order to study the biocidal effect of nano silver particles and some conventional biocides, Cherry Brandy roses were treated in a completely randomized design with: citric acid (at 300, 600 or 900 mg l⁻¹), aluminum sulphate (at 100, 200 or 300 mg l⁻¹), hydroxyquinoline citrate (at 200, 300 or 400 mg l⁻¹), calcium hypochlorite (at 400, 600 or 800 mg l⁻¹), sodium hypochlorite (at 400, 600 or 800 mg l⁻¹), colloid of nano silver particles (1, 2.5 and 5 %), tap water, or sterilized distilled water (control). Nano silver particles treatment resulted in the longest vase life, after which aluminum sulphate and citric acid were placed. Aluminum sulphate 100 mg l⁻¹ had the highest leaf chlorophyll content throughout the experiment after which nano silver 5% was placed. Citric acid treatments had the highest stomatal conductance, while sodium hypochlorite treatments had the least. Leaf chlorophyll florescence reduced throughout the experiment. The least chlorophyll florescence reduction was seen in aluminum sulphate and nano silver treatment group. The most chlorophyll florescence reduction was seen in calcium hypochlorite, sodium hypochlorite and hydroxyquinoline citrate treatments. Considering different aspects of biocide application, nano silver particles and aluminum sulphate had the least adverse effect on physiological properties of Cherry Brandy roses, while having the highest vase life and therefore are considered the best treatment groups respectively.