

Comparison of nickel- compounds on quality and postharvest of cut carnation

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The impact of nickel-containing compounds on post-harvest life of cut carnation (*Dianthus caryophyllus*) was explored in an experiment on the basis of a RCD with nine treatments and three replications. The experimental treatments included control (distilled water), nickel at two rates of 50 and 100 mg L⁻¹, nickel sulfate, nickel chloride and nickel oxide, all at two rates of 100 and 200 mg L⁻¹, which were applied as continuous treatment with 3% sucrose. It was found that all nickel-containing compounds improved vase life and water uptake and decreased microbial load of vase solution and stem end of cut carnations as compared to control. The longest vase life (10.77 days) was related to 100 mg L⁻¹ nickel with no statistically significant differences with the 100 mg L⁻¹ nickel sulfate (10.32 days) and 100 mg L⁻¹ nickel chloride (10.10 days). Control had the shortest vase life (7.60 days). The highest water uptakes of 1.636 and 1.593 ml g⁻¹ FW were obtained the application of 200 mg L⁻¹ nickel sulfate and 100 mg L⁻¹ nickel, respectively. Control displayed the highest vase solution bacteria (188 Log₁₀ CFU ml⁻¹) and the highest stem end bacteria (111.6 Log₁₀ CFU ml⁻¹). The lowest vase solution bacteria (20.0 Log₁₀ CFU ml⁻¹) and stem end bacteria (10 Log₁₀ CFU ml⁻¹) were related to the treatment of 200 mg L⁻¹ nickel sulfate. With respect to petal protein content, the highest and lowest ones were observed in plants treated with 200 mg L⁻¹ nickel sulfate (4.20%) and in control (2.8%), respectively. The best treatments for petal carotenoid content were 200 mg L⁻¹ nickel sulfate (4.885 µg g⁻¹ FW) and 100 mg L⁻¹ nickel chloride (4.792 µg g⁻¹ FW). The highest petal anthocyanin content (72.41 µg g⁻¹ FW) was related to the application of 100 mg L⁻¹ Ni. Plants treated with 100 mg L⁻¹ nickel chloride, 100 mg L⁻¹ nickel and 100 mg L⁻¹ nickel sulfate exhibited the highest total chlorophyll contents of 9.14, 8.00 and 8.390 mg g⁻¹ FW, respectively. Given the finding that nickel sulfate at the rate of 200 mg L⁻¹ was the best for most studied traits, it is

recommended to be applied as the preservative solution for cut carnations.

Keywords : Keywords: Antibacterial, Vascular blockage, Vase life, Metal salts.

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