

Abstract

Postharvest chemical treatments designed to enhance the vase life of cut flowering shoots of *Alstroemeria aurantiaca* "Mona Lisa" were tested. Various germicides were assessed, namely benzalkonium chloride (BChl) at 50 mg/L, aluminum sulphate ($Al_2(SO_4)_3$) at 100 mg/L, and 8-hydroxyquinoline citrate (8-HQC) at 80 mg/L. The effect of preservative solutions consisting of 8-HQC and various concentrations and combinations of sucrose and silver thiosulphate (STS) was then evaluated. After this, shoots were pulsed with 8-HQC, 5% sucrose, and 0.25 mM STS for 0, 4, 8, 12 or 24 hours. The potential for ethylene-induced senescence and the reversal of this was then studied by treating the shoots with 2-chloro-ethylphosphonic acid (ethephon) or the solution consisting of 8-HQC, sucrose, and STS. Finally, the response of dry and wet stored shoots to 8-HQC, sucrose and STS was evaluated. Vase life was significantly extended by 8-HQC. This germicide improved water uptake and fresh weight and reduced the bacterial population of the solution. Flowering shoots that were pulsed with a solution containing 8-HQC, 5-10% sucrose, and STS had the best vase life. Pulse treating the shoots with 8-HQC, 5% sucrose, and STS for 4, 8, 12 or 24 hours significantly extended vase life correlating with increased water uptake, fresh weight, and floret diameter. However, the best results were obtained when shoots were pulsed for eight hours. The rates of ethylene and carbon dioxide emission were promoted regardless of pulse duration. The senescence-inducing effect of ethephon was nullified, water uptake and fresh weight improved, and vase life extended when shoots were pulsed for 8 hours with 8-HQC, 5% sucrose and STS. Best results were obtained when shoots were pulsed before being dipped in ethephon.