

Title Effect of methyl jasmonate vapour treatment and sucrose solutions on vase life and non-structural carbohydrate concentration in petals of cut 'First Red' roses

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Abstract

Effects of exogenously applied methyl jasmonate (MeJA) and sucrose on vase life and non-structural carbohydrate concentration in petals of cut 'First Red' roses were investigated. Roses were placed in plastic containers and received MeJA vapour treatment ($0.1 \mu\text{l MeJA L}^{-1}$) for 24 h at 20°C. Flowers were then placed in individual bottles containing sucrose at 0 or 2% (v/v). Flower petals were detached on d 0, d 5 and d 10 of vase life, and separately snap-frozen in liquid nitrogen and freeze-dried. Non-structural carbohydrates were then extracted and quantified using standard HPLC coupled to evaporative light scattering detection. MeJA vapour treatment enhanced vase life of flower and foliage of 'First Red' roses. 'First Red' rose stems that were treated with MeJA in the absence of sucrose lasted longer compared to roses treated with 2% sucrose in the presence of MeJA (14.0 vs. 12.8 days of vase life). Sucrose and myo-inositol, and to a lesser extent glucose concentrations in petals of cut 'First Red' roses decreased during vase life, even when flowers were supplied with 2% sucrose. Concomitant to this, fructose levels increased during vase life from 78.07 to 266.52 mg g⁻¹ DW, especially when treated with MeJA and 2% sucrose.