

Title Effects of the time of sucrose treatment on vase life, soluble carbohydrate concentrations and ethylene production in cut sweet pea flowers

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Abstract

Cut sweet pea flowers were put in vase water containing 200 mg l⁻¹ 18-hydroxyquinoline sulfate (HQS), and 100 g l⁻¹ sucrose was added to the solution during the first 24 h (initial treatment), from the 24th h on (late treatment) or throughout the experimental period (continuous treatment). The vase life of the florets in the control (with no sucrose added), initial-, late-, and continuous-treatment groups were 2.8, 6.0, 5.0 and 8.0 days, respectively. Climacteric ethylene production of the florets was the earliest in the control group followed by the late-, initial- and continuous-treatment groups, in this order. The concentrations of glucose, fructose and sucrose at the 2nd day and later were the highest in the continuous-treatment group followed by the initial-treatment, late-treatment and control group, in this order. Thus, the correlation between sugar concentrations in petals and vase life was positive, whereas that between the sugar concentrations and ethylene production was negative. These results suggest that sugar concentration in petals affects the vase life of cut sweet pea flowers through ethylene production.