

Thesis Title Effect of Sugar and Low Temperature on Storage Life of
Gladiolus

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Abstract

Effect of sugar and low temperature on storage life of gladiolus spikes were investigated using spikes of 6 gladiolus hybrids, i.e., Diablo, Fiesta, Falcon, Golden Age, Major League and Orbiter. The spikes were pulsed in the pulsing solution of 10% sucrose, 150 ppm 8 - hydroxyquinoline sulfate, 300 ppm aluminum sulfate and 30 ppm silver nitrate for 24 hours prior to dry storage at 5, 10, 15°C and room temperature for 2-14 days. Stored spikes were then taken out for keeping quality investigating at two-day intervals. It revealed that all of low temperature treatments gave better spike quality than that of room temperature. Short-term storage, i.e. not exceeding 6 days of storage, at 5, 10 and 15°C gave acceptable spike quality, while long-term storage should be that of 5°C only.

Treatments for improving flower opening were carried out with the spikes of cv. Vega. The spikes were pulsed in 10% sucrose solution prior to 5°C storage of 2-14 days. The spikes were then taken for the treatment every 2 days. It was found that the vase solutions of citric acid at 200, 400 or 500 ppm and those of 2 or 5% of sucrose improved flower opening while the solutions of BA 10 and 20 ppm, NAA of 10 and 20 ppm and control failed.

Changes of sugar contents in the petals of the lowermost and uppermost florets of the Golden Age spikes held in vase solutions of 0, 5, 10 and 15% of sucrose were studied. Analysis of sucrose and reducing sugar content in the petals suggested the relationship of petal sugar content and exogenous sugar application. Petals of non-exogenous sugar treatments showed decreasing sugar content with time while those of exogenous sugar treated showed increase in sucrose and reducing sugar. Spikes received higher concentrations of sugar showed higher sugar content in the petals.