

Title Temperature, ethylene and the postharvest performance of cut snapdragons (*Antirrhinum majus*)

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Abstract

The effects of temperature and ethylene on the quality of snapdragon flowers (*Antirrhinum majus* L. cvs. 'Potomac Pink' and 'Rocket') after harvest were investigated. The flowers were stored dry or wet at 6 temperatures ranging from 0 to 12.5 °C for 5 days. Vase life and gravitropic bending were measured at 20 °C after storage. Respiration rates of flowers at 8 different temperatures (0, 2.5, 5, 7.5, 10, 12.5, 15 and 20 °C) were measured continually using a computerized system. The respiration of cut snapdragon flowers increased exponentially as the temperature increased from 0 to 20 °C, with a mean Q_{10} of 2.6. The vase life of flowers of the 'Potomac Pink' cultivar stored dry at 0 °C was 10.8 days, similar to that of freshly harvested controls (10.6 days), and 4.4 days longer than that of flowers stored at 7.5 °C. When spikes were placed horizontally at 20 °C, growth became negatively gravitropic within 20 min. Bending was significantly higher than controls (stored vertically) in all flowers stored horizontally at temperatures above 5 °C. Vase life of flowers stored for 5 days at a range of temperatures then placed in an interior environment was directly correlated with respiration rate at the storage temperature. Wet storage of cut snapdragon flowers reduced the loss of quality at storage temperatures above 5 °C but the vase life of flowers stored in water at 12.5 °C was less than half that of flowers stored dry at 0 °C. Ethylene treatment caused 100% floret abscission which was prevented by pre-treatment either with 1-methylcyclopropene (1-MCP) or with silver thiosulfate (STS), but neither of these inhibitors prevented gravitropic bending.