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ABSTRACT

MODELLING THE WATER BALANCE AND KEEPING QUALITY OF CUT ANTHURIUMS IN STORAGE

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Experimental trials were conducted to investigate the basic components of water balance (water uptake, transpiration, water accumulation) and their relationship to senescence and vase life in cut anthuriums stored under ambient and refrigerated conditions. For all trials, flowers were harvested three-fourths mature, based on a colour change in about $\frac{3}{4}$ the length of the spadix. Anthuriums were held in distilled water, preservative solution, pulsed in silver nitrate solution and stored under ambient conditions (28°C, rh 80-90%) and in refrigerated storage chambers set at 18°C, 13°C and 8°C (rh 80-90%) for a maximum of 30 days.

Water uptake, transpiration, water accumulation, flower fresh weight, moisture content, pH, anthocyanin content and keeping quality (determined through spathe blueing, spathe gloss, spadix necrosis and abscission) were monitored at 5-day intervals. Respiration was measured using an Infrared Gas Analyzer, and hygrometry was investigated as an alternative method of measuring transpiration.

Both storage of anthuriums in water at 18°C and 13°C and waxing of the anthurium spadix extended shelf life. Silver nitrate pulsing and higher concentrations of Floralife resulted in advanced deterioration. Postharvest life was directly related to flower turgidity, which was dependent on the balance between the rates of uptake and transpiration. The changes in water uptake, transpiration, transpiration:uptake

ratio, fresh weight and moisture content were accurately described by logarithmic, exponential and inverse quadratic models. Hygrometry was found to be a useful alternative method for measuring transpiration rates. Anthuriums showed a rapid decline in respiration rate prior to senescence.

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