

Abstract:

The objective of this study was to evaluate the use of controlled atmospheres (CA) to extend postharvest fruit quality of 'Bing' cherries. Fruits were harvested at an export maturity stage and packed in a 5-kg wooden box with a perforated polyethylene liner. Fruits were stored up to 21 days at 1°C and 95% RH, in controlled atmosphere (10% CO₂ + 10% O₂, 10% CO₂ + 2% O₂, and 0% CO₂ + 2% O₂) and ambient air as the control. Fruit samples were evaluated at harvest, after 21 days in storage (CA or air), 2 days at 8°C in air after removal from CA, and after 2 days of at 20°C. Fruit and stem color, firmness, soluble solids content, and decay incidence were monitored. A sensory evaluation was conducted with a trained panel of 12 members, evaluating the fruit according to flavor quality, flavor intensity, and off-flavors. The 10% CO₂ + 2% O₂ atmosphere resulted in the best fruit quality, with beneficial effects on skin and stem color and absence of off-flavors after the 2 day period at 20 °C. The primary benefits of the use of CA for cherries were on the skin and stem color. Both high CO₂ and low O₂ inhibited skin darkening, while only low O₂ effectively maintained green stem color.