

Abstract

The sweet cherry (*Prunus avium* L. cv Ambrunés) is included in the group of Picotas. This variety is potentially suitable for postharvest mechanical processing due to its particular morphology, greater firmness and the fact that it is harvested without a stem. In order to improve the postharvest shelf-life of this variety, we evaluated the residual effects of heat pre-treatments at 50 °C/2 min, hydro-cooling and normal cooling as a control, on respiratory metabolism and quality of the fruit, including respiration rate, soluble sugars, organic acids, decay and quality parameters, during storage at 0 °C for 5 and 10 days plus 2 and 4 days at 20 °C. In comparison with other sweet cherry varieties, at 20 °C the “Ambrunés” cherries had low respiratory activity suggesting a high potential for postharvest storage. Storage at low temperatures resulted in high respiration rates in fruit transferred to 20 °C, this being greater with increasing time of storage at 0 °C. The heat pre-treatments induced early ripening of the fruit, characterized by rapid consumption of glucose and malic acid, and loss of quality, especially increased softening after 10 days of storage plus 4 days at 20 °C. Hydro-cooling was a positive treatment in delaying senescence and prolonging the shelf-life of the fruit, diminishing the loss of quality. Hydro-cooling also slowed down sugar metabolism, diminishing the consumption of malic acid at 20 °C and maintaining glucose and sorbitol levels during storage at 0 °C.