Postharvest treatments with oxalic acid on quality of the early-season sweet cherry cultivar 'Early Lory'

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Abstract

'Early Lory' is an early season sweet cherry cultivar (*Prunus avium* L.) originating from France. This cultivar is medium in size (7-8 g), kidney-shaped, and dark-red with a long stalk. The fruit is very sweet and juicy. The commercial harvest dates are between 22-29 of May and it has medium durability during storage and transportation. Oxalic acid (OA) is a final metabolite in plants and exhibits many physiological functions, the main one being related to the induction of systemic resistance against plant diseases. The objective of this work was to study the effect of OA, applied postharvest at 0, 1, 10 and 100 mM, on quality attributes during 20 days of storage at 2°C. Overall, results demonstrated that OA was very effective in delaying the postharvest ripening process through maintenance of fruit firmness and titratable acidity with no significant effect on total soluble solids and colour changes. The most effective OA concentration for reducing acidity losses was 100 mM while the concentration of 10 mM gave better results in terms of reduced softening. The application of OA at any concentration induced a reduction in respiration rate, which could be responsible for the beneficial effects found in 'Early Lory' sweet cherry and a net extension of shelf life, 10 days for control cherries up to 20 days for OA-treated fruit.