

Title Effect of edible coatings on the quality of fresh blueberries (Duke and Elliott) under commercial storage conditions

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Abstract

The effects of edible coatings, Semperfresh™ (SF), acid-soluble chitosan (ACH), water-soluble chitosan (WCH), calcium caseinate (CC), and sodium alginate (SA) on the fruit quality of fresh blueberries during storage was studied in 2006 and 2008. Fruit were washed in $200 \mu\text{L L}^{-1}$ chlorinated water before applying coatings, packaged in vented or non-vented clam-shell containers, and then stored at $2\text{ }^{\circ}\text{C}$ for 1 week, followed by storage at room temperature ($20\text{ }^{\circ}\text{C}$) for up to 15 d for quality evaluation. The ACH, WCH, and WCH + SA coatings helped reduce the decay rate of ‘Duke’ or ‘Elliott’ fruit during room temperature storage. Results from 2006 showed that SF coating decreased weight loss of ‘Duke’ after 6 d of room temperature storage, CC-coated ‘Elliott’ fruit had delayed fruit ripening as evidenced by higher TA, lower pH, and greater firmness than control during storage, and washing and coating did not significantly affect antioxidant capacity and total phenolics content of ‘Duke’ and ‘Elliott’. Fruit in non-vented containers had reduced weight loss and increased firmness than those in vented containers as demonstrated in 2008 study. Our results suggest that edible coatings have potential for retaining quality of pre-washed, ready-to-eat fresh blueberries under commercial storage conditions, when appropriate coating material, container, and method of applying the coatings are used.