

Abstract

Chitosan-based edible coatings were used to extend the shelf-life and enhance the nutritional value of strawberries (*Fragaria × ananassa*) and red raspberries (*Rubus ideaus*) stored at either 2 °C and 88% relative humidity (RH) for 3 weeks or −23 °C up to 6 months. Three chitosan-based coatings (chitosan, chitosan containing 5% Gluconal[®] CAL, and chitosan containing 0.2% DL- α -tocopheryl acetate) were studied. Results indicated that adding high concentrations of calcium or Vitamin E into chitosan-based coatings did not alter their anti-fungal and moisture barrier functions. The coatings significantly decreased decay incidence and weight loss, and delayed the change in color, pH and titratable acidity of strawberries and red raspberries during cold storage. Coatings also reduced drip loss and helped maintain textural quality of frozen strawberries after thawing. In addition, chitosan-based coatings containing calcium or Vitamin E significantly increased the content of these nutrients in both fresh and frozen fruits. One hundred grams of coated fruits contained about 34–59 mg of calcium, or 1.7–7.7 mg of Vitamin E depending on the type of fruit and the time of storage, while uncoated fruits contained only 19–21 mg of calcium or 0.25–1.15 mg of Vitamin E.