

Title Antioxidant concentrations during chilling injury development in peaches
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Abstract

The effects of cold storage on total phenolic, flavonoid and anthocyanin concentrations, and antioxidant activity in relation to chilling injury of 'Harrow Diamond' peaches, were investigated. Fruit were kept at 21 °C for up to 6 d after harvest and storage at 5 °C for 2 or 4 weeks. Increasing storage periods resulted in greater production and an earlier peak of ethylene by the fruit, but there was no effect on respiration rates. Firmness decreased after harvest within 2 d at 21 °C, and within 1 d after removal from storage. Free juice content decreased by 50% in long-stored fruit during the first 2 d after removal, but then it increased during the subsequent shelf life period at 21 °C. Total phenolic and flavonoid concentrations and antioxidant activity decreased during storage, but increased after 2 d during ripening at 21 °C to levels similar to those in non-stored fruit. In contrast, total anthocyanin concentrations increased dramatically during ripening of stored fruit resulting in severe bleeding after prolonged storage, the increase being advanced by storage duration and days of ripening at 21 °C. Our results indicate that phenolics may be involved in metabolic changes associated with mealiness development and subsequent increase in free juice content in the fruit.