

Title Acetyl salicylic acid alleviates chilling injury and maintains nutritive and bioactive compounds and antioxidant activity during postharvest storage of pomegranates

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Abstract

Pomegranates were treated by dipping with acetyl salicylic acid (ASA) at three concentrations (0.1, 0.5 and 1.0 mM) immediately after harvest and then stored under chilling temperature for 14, 28, 42, 56, 70 and 84 days at 2 °C plus a subsequent period of 4 days at 20 °C. Control fruit exhibited more chilling injury (CI) symptoms (manifested by pitting and browning) than treated fruit during storage, accompanied by increased softening, ion leakage and respiration rate. The ASA treatments were also effective in maintaining higher contents of nutritive (sugars and organic acids) and bioactive compounds (total phenolics and anthocyanins) and total antioxidant activity (TAA), in both hydrophilic (H-TAA) and lipophilic (L-TAA) fractions. These results suggest that ASA could have potential postharvest application for reducing CI, maintain quality and improve the health benefits of pomegranate fruit consumption by increasing the antioxidant capacity.