

Ameliorative effect of gum arabic, oleic acid and/or cinnamon essential oil on chilling injury and quality loss of guava fruit

Rasool Etemadipoor, Abdolmajid Mirzaalian Dastjerdi, Asghar Ramezani and Sakineh Ehteshami

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Abstract

Guava is a perishable fruit and susceptible to low temperatures. In this study, guava fruit were coated with gum Arabic (10 %), oleic acid (1 %) and cinnamon essential oil (1 %). These were used either solely or in combination with each other. Their effects on guava fruit were evaluated during cold storage (at 10 ± 1 °C and 90 % relative humidity) for 28 days. The combination of gum Arabic, oleic acid and cinnamon essential oil (CEO), as an edible coating, significantly delayed the development of browning on guava, as compared to the other treatments. The combined treatment maintained fruit firmness and reduced weight loss. Furthermore, it prevented lipid peroxidation and reduced the electrolyte leakage at the end of storage period. Bioactive compounds such as ascorbic acid, phenolics, flavonoids and antioxidant activity were higher in fruit treated with combined formulation. Also, higher levels of TSS and TSS/TA ratio, along with lower TA, were observed in these fruit. The combination of gum Arabic, oleic acid and CEO effectively ameliorated the changes in quality during cold storage. Combination of gum Arabic, oleic acid and CEO could be a useful edible coating for preventing chilling injury and ameliorating changes in bioactive compounds of guava fruit.