Title Effect of citric acid incorporated with chitosan-based coating to control pericarp browning in fresh longan fruit

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Abstract

The application of citric acid incorporated with chitosan-based coating to control pericarp browning of fresh longan fruit was studied. Fresh longan fruit was dipped in solutions of 1, 3 and 5% citric acid mixed in chitosan. Results indicated that pericarp browning during storage was related to weight loss and the change of pericarp pH. Dipping in 1% citric acid mixed in chitosan significantly delayed pericarp browning better than other treatments at storage for 5, 12 and 14 d at room temperature, 10 and 5°C. This treatment not only reduced weight loss, but also delayed increase of pericarp pH during storage. Whereas, higher concentration of citric acid mixed in chitosan or mixed in water showed damage on outer surface of the fruit and also rapidly increased weight loss and pericarp browning. Dipping the fruit in citric acid mixed in water had also affected the quality changes of the fruit pulp such as pH, TA and TSS/TA during the first week of storage at 5°C. Whereas no change was observed on the pulp of the fruit treated with citric acid mixed in chitosan. Finally, after storage at 5°C for 20 d, treatments with citric acid mixed in chitosan showed high eating quality, low disease incidence and no difference in ethyl alcohol content in the pulp compared to those treated with citric acid mixed in water.