

Effects of Multilayer Coating of Chitosan and Polystyrene Sulfonate on Quality of 'Nam Dok Mai No.4' Mango

Authors : N. Hadthamard, P. Chaumpluk, M. Buanong, P. Boonyarittongchai, C. Wongs-Aree

Abstract : Ripe 'Nam Dok Mai' mango (*Mangifera indica* L.) is an important exported fruit of Thailand, but rapidly declined in the quality attributes mainly by infection of anthracnose and stem end rot diseases. Multilayer coating is considered as a developed technique to maintain the postharvest quality of mangoes. The utilization of alternated coating by matching oppositely electrostatic charges between 0.1% chitosan and 0.1% polystyrene sulfonate (PSS) was studied. A number of the coating layers (layer by layer) were applied on mature green 'Nam Dok Mai No.4' mangoes prior to storage at 25 °C, 65-70% relative humidity (RH). There were significant differences in some quality attributes of mangoes coated by 3 layers, 4 layers and 5 layers. In comparison to coated mangoes, uncoated fruits were higher in weight loss, total soluble solids, respiration rate, ethylene production and disease incidence except the titratable acidity. Coating fruit at 3 layers exhibited the ripening delay and reducing disease infection without off flavour. On the other hand, fruit coated with 5 layers comprised the lowest acceptable score, caused by exhibiting disorders from fermentation at the end of storage. As a result, multilayer coating between chitosan and PSS could effectively maintain the postharvest quality of mango, but number of coating layers should be thoroughly considered.

Keywords : multilayer, chitosan, polystyrene sulfonate, Nam Dok Mai No.4

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