

Title Post-harvest ripening of heat-treated Manila mangoes exposed to exogenous ethylene
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Citation Book of Abstracts, 2004 IFT (Institute of Food Technologists) Annual Meeting and Food Expo, 13-16 July 2004, Las Vegas, Nevada, USA. 321 pages.
Keyword mango; heat treatment; ethylene

Abstract

The state of Veracruz is the most important producer of Manila mangoes in Mexico. The market of fresh fruit has expressed concerns about the homogenous ripening of the fruit. We have reported preliminary work on the application of exogenous ethylene to enhance the post-harvest ripening of this variety. However, more work is needed to cover the possible handling options for this fruit. This work was undertaken to generate the technical knowledge which may be used to develop handling practices for Manila mangoes that were heat-treated, exposed to atmospheres containing ethylene and stored. Manila mangoes were obtained in physiologically mature stage from a local grower. A control group was separated and the rest of the fruit was subjected to the USDA-approved hydrothermal treatment (46.1 °C, 65 min). Heat-treated and control mangoes were stored at 12, 18 or 25 °C) for 2 days. Half of these fruits were exposed to an atmosphere containing 750 µL ethylene/L for 6 h at 25 °C, then placed for 5 days at 6, 12 or 25 °C. Determinations of textural firmness, pH values, soluble solids, sugar, color, ACC concentration, ACC oxidase activity and respiration rate were made every 2 days. Best results in composition and appearance were observed in mangoes treated with ethylene and stored at 18 °C. These fruits had better color development, pulp softening and highest contents of soluble solids and sucrose. Respiration rate of these fruits indicated no chilling stress compared to mangoes that were maintained at 12 °C, which developed less typical colors due to lower carotenoid synthesis and other mild symptoms of chilling injury. Ethylene treated fruit achieved homogenous ripening in shorter time with good visual appearance and composition. These data should provide useful guidelines for better handling of fresh Manila mangoes.