

Ripening characteristics of vapour heat treated 'frangi' papaya (*Carica papaya* L. cv. frangi) as affected by maturity stages and ethylene treatment

ABSTRACT

'Frangi' papaya is a F1 hybrid cultivar produced by Malaysian Agrifood Corporation Bhd in 2006. Since then, 'Frangi' papaya is a new hybrid and its physiology may differ from another cultivars. Several importer countries, such as Japan and China, have made the vapour heat treatment (VHT) an export requirement for disinfestation of fruit flies in Malaysia. The exporting country is also required to carry out ripening treatments with ethylene before export. Therefore, the objective of this work was to determine the effects of maturity stages (4, 5 and 6) and ethylene treatments on ripening characteristics of vapour heat treated papaya during storage at 25 °C. Papaya fruits were treated with VHT systems. After VHT, the fruits were exposed with 100 $\mu\text{L.L}^{-1}$ ethylene gas at 20 °C for 24 h. Non-ethylene treated fruits (control) were kept separately at 20 °C for 24 h. After 24 h, the fruits were removed from the ripening rooms, and stored at 25 °C. The ripening characteristics of fruits that reached maturity stages 4, 5, and 6 were recorded. Results showed that the fruits ripened normally at 25 °C with or without ethylene following VHT with respect to peel and pulp color, edible firmness and soluble solids concentration (SSC). Fruits at maturity stage 5 were considered at the edible stage by taking into account the firmness, SSC, titratable acidity, and ascorbic acid contents. It is recommended that no ethylene treatment is needed to ripen vapour heat treated fruits, since the ethylene treatment did not affect the ripening process of the fruits.

Keyword: *Carica papaya* L. cv. Frangi; Postharvest quarantine treatment; Disinfestations; Fruit quality