Title Effect of ethylene gas on ripening characteristics of vapour heat treated *Carica Papaya* var. Frangi during cold storage

Author Fatimahtul, H.H., Ahmad, S.H., Mahmud, T.M.M, Nasim Shadmani

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Abstract

Papaya for export has to undergo vapor heat treatment (VHT) for quarantine and disinfestations of fruit flies (*Bactrocea tryoni*) eggs and larva. VHT can successfully control fruit flies, but could cause chemical, physical and biological changes in the fruit. A study was carried out to determine ripening characteristics and storage life of vapor heat treated papaya. Fruits were exposed to VHT inside a VHT chamber until 47-48°C, in order to raise the fruit core temperature to 46.5°C. Then, the temperature was maintained for 20 min followed by air cooling (35 min), water cooling (10 min) and fruit drying (5 min). Fruits were repacked into boxes and treated with 100 μL/L ethylene for 24 h while non-ethylene treated fruits acted as control. Postharvest ripening characteristics of fruits were determined after 2, 4, 6 and 8 days of storage at 13°C. The results showed that, after VHT, there were no significant differences in ripening characteristics between fruits that had been treated with ethylene or control. After removal from cold storage, fruits that received the VHT were able to develop yellowish orange colour as they ripened, but the firmness of the fruits was maintained. In addition, the fruits had a slightly bitter taste. These findings suggested that the VHT resulted in the abnormal ripening process of the papaya, in cold storage.