

## Extension of post harvest life of fresh papaya under ambient conditions using modified atmosphere packaging technique

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The papaya fruit occupies a prominent position among the fruit crops grown in Sri Lanka. However, marketing of papaya is a great problem because of its poor keeping quality, which leads to around 46% post harvest loss. Effectiveness of MA techniques was tested to extend the post harvest life of fresh papaya. Papaya variety 'Rathne' was used in this experiment after washing with 200 ppm chlorine solution. Suitability of low-density polyethylene, linear low-density polyethylene (LLDPE) and LLDPE/PET packaging materials were tested based on peel-colour development and disease development in stored papaya. Effectiveness of magnesium oxide and potassium permanganate in modifying the in-package gaseous atmosphere and thereby extending the post harvest life was tested by monitoring peel colour development and disease development during storage for 16 days at  $30\pm 2$  °C and  $62\pm 3$  % RH.

Control treatment, which was kept without packaging was turned to full yellow stage at 3 days of storage. After 6 days of storage, papaya packed in LLDPE (0.05 mm)/PET (0.012 mm) bags turned to full yellow stage. Papaya packed in LDPE (0.0375 and 0.075 mm) bags showed the least sums of ranks and remained at colour break to more green stage even at 9 days of storage. Papaya packed in LDPE (0.0375 mm), LLDPE (0.02 mm) and LLDPE (0.05 mm)/PET (0.012 mm) also showed moderate disease indices. At 14 days of storage, papaya packed in LDPE (0.075 mm) bags with MgO and  $\text{KMnO}_4$  showed the least incidence of disease while all other treatments were within the range of less severe to severe in the disease index. Same treatment remained at a more yellow stage in terms of colour break after 14 days of storage, while all other treatments showed ripe to over ripe stage.

Washing of fresh papaya with 200 ppm chlorine solution followed by packing in 0.075 mm LDPE in a 1:1 surface area to weight ratio with 5 g of magnesium oxide and 5 g of potassium permanganate (per 1 kg of fruit) as a carbon dioxide and ethylene scavengers, respectively was successful in extending the post harvest life up to 14 days at  $32\pm 2$  °C and  $65\pm 5$  % RH.

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