





EFFECTS OF DIFFERENT PACKAGING FILMS ON THE QUALITY  
RETENTION OF FRESH-CUT GUAVAS (*Psidium guajava* L.)

By  
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This research report is submitted in partial fulfilment of the  
requirements for the degree of  
Bachelor of Science in Agrotechnology (Post-Harvest Technology)

DEPARTMENT OF AGROTECHNOLOGY  
FACULTY OF AGROTECHNOLOGY ANF FOOD SCIENCE  
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## ENDORSEMENT

This project report entitled **Effects of Different Packaging Films on the Quality Retention of Fresh-Cut Guavas (*Psidium guajava* L.)** by Sew Su Yin, Matric No. UK 15543 has been reviewed and corrections have been made according to the recommendations by the examiners. This report is submitted to the Department of Agrotechnology in partial fulfilment of the requirements for the degree of Bachelor of Science in Agrotechnology (Post-Harvest Technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.

  
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## DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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## ABSTRACT

Effects of different packaging films on the quality retention of fresh-cut guavas were studied. Whole guavas (*Psidium guajava* var. Kampuchea) were sliced into uniform boat-shaped sizes of approximately L 90 mm X W 40 mm X T 20 mm and dipped into 1% ascorbic acid to prevent browning of the fruits. The sliced fruits were placed on polystyrene trays and packed in three different types of packaging films namely polypropylene (PP) film, low density polyethylene (LDPE) film and polyvinyl chloride (PVC) stretch film with unpacked samples served as control. Samples were stored at  $5\pm 1^{\circ}\text{C}$  with relative humidity 90% for 15 days. Physico-chemical and sensory qualities of the samples were analyzed at three days interval during storage. The data showed that the guava slices packed in LDPE and PP films had significantly lower percentage weight loss than the control and PVC-packed guava slices. Total soluble solids and firmness of the guava slices packed in plastic films were found to be decreasing during storage. Total colour change increased during storage but there were no significant effects in all packed and unpacked guavas. Sensory analysis conducted showed that the guava slices packed in plastic films had good sensory qualities for up to 12 days of storage whereas control was found to be unacceptable after 3 days. PP-packed guava slices with minimum weight loss showed acceptance score of 3.0 and above in all attributes until day 15. Therefore, it was suggested that PP should be used in replaced of the conventional packaging of fresh-cut guavas using PVC for better quality retention.

## ABSTRAK

Satu kajian telah dijalankan untuk menguji kesan penggunaan pembungkus filem yang berlainan ke atas kualiti potongan segar jambu. Buah jambu (*Psidium guajava* var. Kampuchea) dipotong dalam bentuk bot dengan saiz yang sekata yang lebih kurang panjangnya 90 mm X lebar 40 mm X tebal 20 mm. Potongan buah juga dicelup dalam 1% larutan askorbik asid untuk mengelakkan pemerangan berlaku ke atas buah. Potongan buah yang dicelup disusun ke atas dulang polistirena dan dibungkus dengan filem plastik yang berlainan iaitu filem polipropilena (PP), filem polietilena berketumpatan rendah (LDPE) dan filem boleh regang polivinil klorida (PVC). Potongan buah yang tidak dibungkus dijadikan sebagai kawalan. Semua sampel disimpan pada suhu  $5\pm 1^{\circ}\text{C}$  dengan kelembapan relatif 90% selama 15 hari. Penilaian deria dan fisikokimia dijalankan pada sampel setiap tiga hari sepanjang penyimpanan. Data yang diperolehi menunjukkan bahawa potongan buah yang dibungkus dengan filem LDPE dan PP mempunyai kehilangan berat minima yang ketara jika dibandingkan dengan kawalan dan potongan buah yang dibungkus dengan PVC. Jumlah pepejal terlarut and ketegaran buah yang dibungkus dengan filem plastik didapati semakin menurun sepanjang penyimpanan. Tiada sebarang perbezaan yang ketara antara sampel-sampel pada perubahan warna kulit dan isi. Penilaian deria yang dijalankan menunjukkan bahawa potongan buah yang dibungkus dengan filem plastik mendapat skor yang memuaskan sehingga hari ke-12 manakala potongan buah kawalan sehingga hari ke-3 sahaja. Potongan segar jambu yang dibungkus dengan filem PP menunjukkan skor yang memuaskan dalam semua atribut sepanjang penyimpanan dengan kehilangan berat yang paling minima. Maka, filem PP adalah dicadangkan untuk menggantikan pembungkusan konvensional yang menggunakan PVC sebagai pembungkus potongan segar jambu memandangkan PP mempunyai kesesuaian yang lebih tinggi dan ekonomis.