QUALITY RETENTION OF DRAGON FRUIT (*Hylocereus polyrhizus*) USING DIFFERENT PACKAGING SYSTEMS

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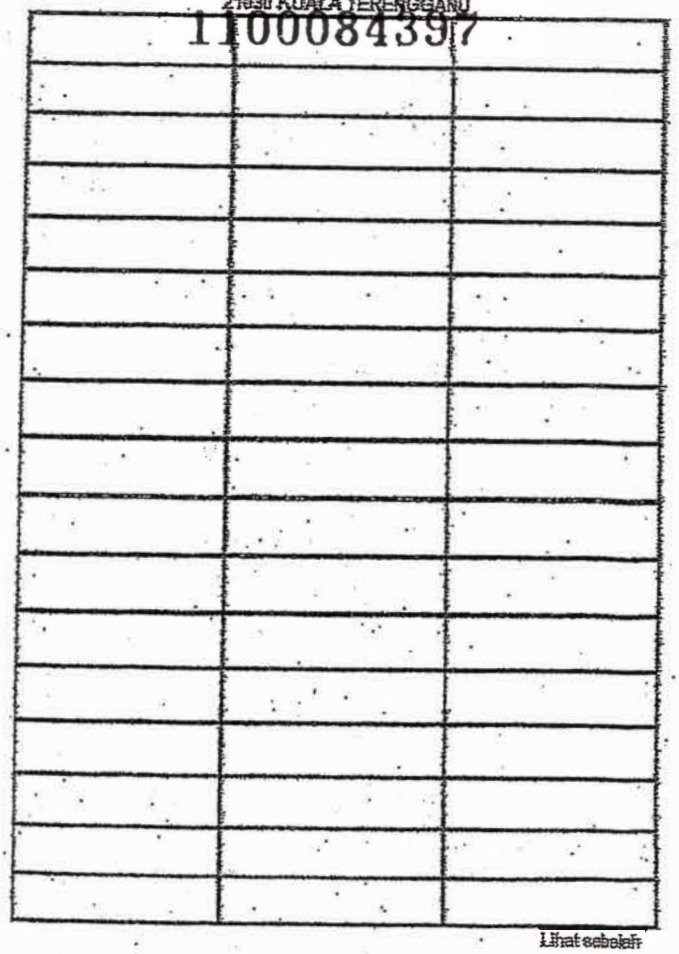

Lihat sebalik

QUALITY RETENTION OF DRAGON FRUIT (*Hylocereus polyrhizus*) USING DIFFERENT PACKAGING SYSTEMS

By
Lau Sze Mei

Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science in Agrotechnology (Post Harvest Technology)

DEPARTMENT OF AGROTECHNOLOGY
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
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ENDORSEMENT

The project report entitled **Quality Retention of Dragon Fruit (*Hylocereus polyrhizus*) using Different Packaging Systems** by **Lau Sze Mei**, Matric No. **UK 15713** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Agrotechnology in partial fulfillment of the requirement of the degree of Bachelor Science of 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 the quotation and summaries which have been duly acknowledged.

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ABSTRACT

Dragon fruits (*Hylocereus polyrhizus*) are high valued and perishable fruits. There is growing demand for dragon fruits from nearby countries such as China, Singapore, Hong Kong and it also has good potential to be exported to Europe countries. Thus, postharvest treatments are needed to reduce deterioration of fruits physical appearance and damages due to disease attacks. This study was conducted to determine the effects of different packaging systems on postharvest quality of dragon fruit stored at temperature of 10±1˚C for 12 days. The commercial maturity (Index 4) of red-fleshed dragon fruits were individually packed in the 0.059 mm thick low-density polyethylene (LDPE) plastic film in non-perforated, perforated and partial vacuum (5 sec) conditions and the unpacked fruits were used as control in this study. Changes in the percentage of weight loss, skin and flesh color, firmness, total soluble solids (TSS), and visual assessments for disease infestation and wrinkles development on fruits were observed during storage. Partial vacuum packed maintained fruits physical appearance better with much reduced disease infestation after 12 days of storage as compared with the unpacked and perforation packed fruits which were rejected by day 9 and day 12 respectively. Besides, partial vacuum packed was also significantly more effective in controlling the fruit weight loss where the percentage of weight loss was the least during 12 days of storage as compared with other treatments. However, other fruits quality characteristics were not affected by the packaging treatments. The unpacked fruits have the lowest firmness on day 12 whereas partial vacuum packed fruits showed no significant reduction in fruit firmness. TSS of fruit was minimally affected. This study indicates that partial vacuum packaging could be recommended as a potential packaging system in reducing postharvest losses of dragon fruit particularly during distribution and marketing for domestic and export markets.

ABSTRAK

Buah naga (*Hylocereus polyrhizus*) merupakan buah yang tinggi nilainya tetapi mudah rosak. Permintaan terhadap buah naga di kalangan negara jiran seperti China, Singapura, Hong Kong semakin tinggi dan buah ini juga berpotensi tinggi untuk dieksport ke negara-negara Eropah lain. Justeru, rawatan lepas tuai diperlukan bagi mengurangkan kerosakan buah dari segi fizikal dan kerosakan yang disebabkan oleh serangan penyakit. Kajian ini telah dijalankan untuk menentukan kesan sistem pembungkusan yang berlainan terhadap kualiti lepas tuai buah naga yang disimpan pada suhu 10±1˚C selama 12 hari. Kajian ini melibatkan pembungkusan buah naga pada tahap kematangan komersial (Indeks 4) secara individu di dalam filem plastik polietilina berketumpatan rendah (LDPE) yang tebalnya 0.059 mm dalam keadaan tidak berlubang, berlubang dan separa vakum (5 saat), manakala buah yang tidak dibungkus bertindak sebagai kawalan. Perubahan peratusan kehilangan berat buah, warna kulit dan isi buah, jumlah pepejal terlarut, ketegaran buah dan penilaian visual untuk serangan penyakit dan pengedutan pada buah telah diuji sepanjang tempoh penyimpanan. Pembungkusan separa vakum dapat mengekalkan penampilan fizikal buah dengan lebih baik dan mengurangkan serangan penyakit sepanjang tempoh penyimpanan berbanding dengan buah kawalan dan buah dalam pembungkusan berlubang dimana buah-buah tersebut telah tidak boleh diterima pada hari ke-9 dan ke-12 masing-masing. Selain itu, pembungkusan separa vakum juga memberi kesan yang ketara dalam mengawal kehilangan berat buah dimana peratus kehilangan berat adalah paling sedikit sepanjang tempoh penyimpanan jika dibandingkan dengan rawatan-rawatan lain. Walau bagaimanapun, rawatan pembungkusan yang berlainan tidak mempengaruhi ciri-ciri kualiti lain dalam buah. Dari segi ketegaran buah, buah kawalan pada hari ke-12 adalah paling rendah manakala pembungkusan separa vakum tidak menunjukkan pengurangan yang ketara. Jumlah pepejal terlarut hanya dipengaruhi secara minima. Kajian ini menunjukkan pembungkusan separa vakum berpotensi tinggi untuk mengurangkan kerugian lepas tuai buah naga yang disebabkan oleh kerosakan dan serangan penyakit terutamanya semasa pengedaran dan pemasaran untuk pasaran tempatan dan pasaran eksport.