

DEVELOPMENT OF PASTILLES FROM DIFFERENT PART OF  
DRAGON FRUIT (*Hylocereus polyrhizus*)

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Development of pastilles from different part of dragon fruit  
(Hylocereus polyrhizus) / Nur Syamimi Sulaiman.

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DEVELOPMENT OF PASTILLES FROM DIFFERENT PART OF DRAGON FRUIT  
(*Hylocereus polyrhizus*)

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Research Report submitted in partial fulfillment of the requirements for the degree of  
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FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
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2008



**FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN  
UNIVERSITI MALAYSIA TERENGGANU**

**PENGAKUAN DAN PENGESAHAN LAPORAN  
PROJEK PENYELIDIKAN I DAN II**

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Development of Pastilles from Different Part of Dragon Fruit (*Hylocereus polyrhizus*)

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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

This research was conducted to develop pastilles from different parts of dragon fruit (*Hylocereus polyrhizus*). Chemical analysis, physical analysis and sensory evaluation were carried out to determine the nutrient composition and panelist acceptance towards the product. Three samples of pastille were prepared from flesh and skin parts of red dragon fruit (*Hylocereus polyrhizus*) weighed 450 g; whereby pastille from flesh, pastille from juice, and pastille from skin juice were developed using the same amount of flesh, juice and skin juice in each sample. The chemical analysis for dragon fruit was done between flesh and skin part showed that moisture and ash content was higher in skin while the same value obtained for water activity in both parts. The chemical analysis for pastilles showed that moisture content were ranged from 0.6 to 1.0; crude fiber content in range from 0.4 to 1.6 while same values which was 0.7 were obtained for water activity. 'L' and 'b' value were highest in pastille from skin juice while pastille from flesh had the highest value of 'a'. There was significant difference ( $p < 0.05$ ) found for firmness in each sample. However, no significant difference ( $p > 0.05$ ) was found for springiness in each sample. Results from first session of sensory evaluation which were done by 40 untrained panels showed that pastille from flesh were the most accepted than pastille from juice and skin juice. However, result in second session that involved 2 samples which were pastille from flesh and commercial; the most accepted pastille was pastille from commercial. Overall, pastilles from dragon fruit were well accepted by panelists. As conclusion, chemical analysis showed that fiber content in pastille from flesh was the highest. Pastille from juice has a highest value for firmness texture while pastille from skin juice has a highest value for springiness texture. Besides that, pastille from flesh had been accepted by panelist compared to pastille from juice and skin juice in sensory analysis.



## ABSTRAK

Penyelidikan ini adalah bertujuan untuk menghasilkan pastil buah naga (*Hylocereus polyrhizus*) menggunakan bahagiannya yang berbeza. Analisis kimia, analisis fizikal dan penilaian sensori telah dijalankan untuk mengenalpasti komposisi nutrien dan penerimaan pengguna terhadap produk. Tiga biji sampel telah disediakan daripada bahagian isi dan kulit buah naga merah (*Hylocereus polyrhizus*) seberat 450 g di mana pastil daripada isi, pastil daripada jus dan pastil daripada jus kulit telah dihasilkan menggunakan isi, jus dan jus kulit daripada jumlah yang sama bagi setiap sampel. Analisis kimia yang telah dijalankan di antara bahagian isi dan kulit mendapati bahawa kandungan kelembapan dan abu adalah tinggi di dalam kulit manakala didapati nilai adalah sama bagi aktiviti air di dalam kedua-dua bahagian. Analisis kimia untuk pastil pula menunjukkan bahawa kandungan kelembapan adalah di antara 0.6 sehingga 1.0; kandungan fiber adalah antara 0.4 sehingga 1.6 manakala nilai yang sama iaitu 0.7 telah didapati daripada aktiviti air. Nilai 'L' dan 'b' adalah tertinggi di dalam pastil daripada jus kulit sementara pastil daripada isi mempunyai nilai 'a' yang paling tinggi. Terdapat perbezaan yang nyata ( $p < 0.05$ ) telah ditemui bagi kekentalan semua sampel. Walaubagaimanapun, tiada perbezaan yang nyata ( $p > 0.05$ ) ditemui bagi kekenyalan semua sampel. Keputusan daripada sesi pertama bagi penilaian sensori yang telah dijalankan ke atas 40 orang pengguna tidak terlatih menunjukkan bahawa pastil daripada isi adalah paling diterima berbanding dengan pastil daripada jus dan jus kulit. Walaubagaimanapun, keputusan bagi sesi kedua yang melibatkan 2 sampel iaitu pastil daripada isi dan komersial menunjukkan pastil daripada komersial adalah paling diterima. Secara keseluruhan, pastil daripada buah naga adalah diterima dengan baik oleh pengguna. Sebagai kesimpulannya, analisis kimia menunjukkan kandungan fiber adalah paling tinggi di dalam pastil daripada isi. Pastil daripada jus mempunyai nilai yang paling tinggi bagi tekstur kekentalan sementara pastil daripada jus kulit mempunyai nilai yang paling tinggi untuk tekstur kekenyalan. Selain itu, pastil daripada isi adalah paling diterima oleh pengguna berbanding pastil daripada jus dan jus kulit.

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