

MAINTAINING THE FIRMNESS OF THERMALLY PROCESSED
WATERMELON (*Citrullus lanatus*) USING CALCIUM
CHLORIDE AND CALCIUM PROPIONATE

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MAINTAIN THE FIRMNESS OF MINIMALLY PROCESSED WATERMELON
(*Citrullus lanatus*) USING CALCIUM CHLORIDE AND CALCIUM PROPIONATE

By
Siti Noradilah binti Omar

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 **MAINTAIN THE FIRMNESS OF MINIMALLY PROCESSED WATERMELON (*Citrullus lanatus*) USING CALCIUM CHLORIDE AND CALCIUM PROPIONATE** by **SITI NORADILAH BINTI OMAR**, Matric No. **UK 15195** 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 fulfillment of the requirement of the degree of Bachelor of Science in Agrotechnology (Post Harvest Technology), Faculty of Agrotechnology and Food Science, University Malaysia Terengganu.




.....
(WAN ZAWIAH BINTI WAN ABDULLAH)

Supervisor

Date: 4/5/2010

DECLARATION

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

Signature : 

Name : Siti Noradilah binti Omar

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Date : 29 April 2010

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ABSTRACT

A minimally processed fruit industry is a very lucrative industry. One of the fruits used in this industry is watermelon. Minimally processed can cause fruits to lose their firmness and thus affecting their quality. The objectives of this study are to determine the suitable treatment to prevent softening in fresh cut watermelon and also to study the storage stability of the fresh cut watermelon. Watermelon was cut into cubes and were dipped in calcium chloride (0.5 % w/v), calcium propionate (0.5 % w/v) and distilled water as control. The samples were then stored for 5 days in LDPE at temperature of $3 \pm 2^{\circ}\text{C}$. The physiochemical analyses evaluated on the samples are firmness, color and total soluble solids (TSS). Treatments showed no significant difference in firmness, color and also TSS. The reduction in firmness was observed and it is caused by insufficient concentration of calcium treatments and also by the changes in cell wall due to ripening and maturation. The color of treated watermelon was retained by calcium treatment while TSS of watermelon was increased at the end of study.

ABSTRAK

Industri pemrosesan buah - buahan secara minimal ialah industry yang mendatangkan keuntungan. Salah satu buah yang digunakan dalam industry ini ialah tembikai. Pemrosesan buah – buahan secara minimal menyebabkan buah kehilangan kesegahan yang akan mempengaruhi kualiti buah tersebut. Objektif kajian ini ialah untuk menentukan rawatan yang sesuai untuk menghalang pelembutan dalam tembikai yang dipotong segar dan untuk mengkaji kestabilan penyimpanan tembikai yang dipotong segar. Tembikai dipotong dalam bentuk kiub dan dicelup di dalam kalsium klorida (0.5 % w/v), kalsium propionat (0.5 % w/v) dan air suling sebagai kawalan. Sampel kemudian disimpan di dalam plastic LDPE selama 5 hari pada suhu 3 ± 2 °C. Analisis fisiokimia dijalankan ke atas sampel ialah kesegahan, warna dan jumlah pepejal terlarut. Rawatan tidak menunjukkan perubahan yang signifikan dalam kesegahan, warna dan jumlah pepejal terlarut. Penurunan dalam kesegahan tembikai disebabkan oleh kepekatan rawatan kalsium yang tidak mencukupi dan perubahan dinding sel yang disebabkan oleh pemasakan dan kematangan buah. Warna tembikai dikekalkan dan jumlah pepejal terlarut di dalam buah meningkat di akhir kajian.