

**EFFECT OF STORAGE ON THE  
PHYSICOCHEMICAL PROPERTIES OF  
PACKED RAW DRIED SEAWEED  
(*Kappaphycus alvarezii*)**



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**UNIVERSITI MALAYSIA SABAH  
2019**

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**UMS**

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**FACULTY OF SCIENCE & NATURAL  
RESOURCES**

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**2019**

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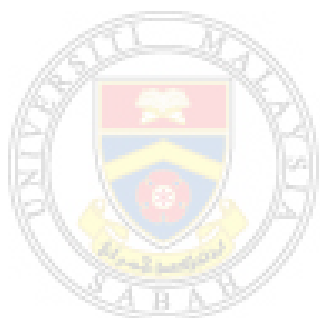
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## CERTIFICATION

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**VIVA DATE** : **10 AUGUST 2018**



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## SUPERVISORY

ASSOC. PROF. DR. SUHAIMI MD YASIR

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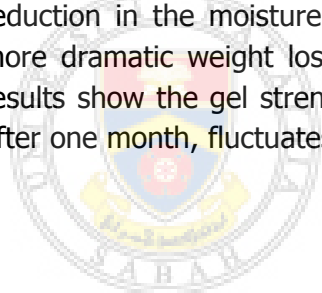
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## ABSTRACT

Semi-refined carrageenan (SRC) is important as hydrocolloid which acts as gelling agent, thickening agent, and a stabilizing agent in food and non-food product. Alkaline treatment is carried out to obtain the SRC from seaweed *Kappaphycus alvarezii*. Previously, storage studies were found that only *Glacilaria sp.* and *Gelidiella sp.* seaweed in wet condition were ever conducted. The objective of this study is to investigate the effect of storage on the quality like gel strength, viscosity and yield of dried seaweed *Kappaphycus alvarezii* to maintain for long period of storage. The various seaweed treatment methods will produce different quality of SRC. Similarly, the storage of dried seaweed is very important to guarantee the quality of SRC will be produced. Polyethylene (PE) used to pack the 300 g of dried seaweed for the purpose of storing in this study. There are two types of packaging that are studied, which is airtight packaging and porous packaging that are placed at different temperatures of 20°C, 25°C and 30°C. Time for sample analysis is performed on the first day as quality control, day 7, 15, 30, 60, 90, and 120. The higher the storage temperature will cause mass of seaweed to decrease due to a reduction in the moisture content of seaweed. Similarly, porous packaging show more dramatic weight loss of seaweed than of airtight packaging. Nearly all the results show the gel strength, moisture content, percentage yield of SRC is stable after one month, fluctuates negligibly.



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## **ABSTRAK**

### **KESAN PENSTORAN TERHADAP SIFAT-SIFAT FISIKOKIMIA RUMPAI LAUT KERING (*Kappaphycus alvarezii*)**

*Karaginan Separa Tulen (SRC) adalah penting sebagai hidrokolloid yang bertindak sebagai agen pengelatan, agen penebalan, dan agen penstabil dalam produk makanan dan bukan makanan. Rawatan alkali dijalankan untuk mendapatkan SRC dari rumput laut *Kappaphycus alvarezii*. Kajian penyimpanan sebelum ini mendapati bahawa hanya *Glacilaria sp.* dan *Gelidiella sp.* iaitu rumput laut dalam keadaan basah yang pernah dilakukan. Objektif kajian ini adalah untuk mengkaji kesan penyimpanan terhadap kualiti rumput laut kering *Kappaphycus alvarezii*. Kaedah rawatan rumput laut akan menghasilkan kualiti SRC yang berbeza. Begitu juga, simpanan rumput kering sangat penting untuk menjamin kualiti SRC yang akan dihasilkan. Polietilena (PE) digunakan untuk membungkus 300 gram rumput laut kering untuk tujuan penyimpanan dalam kajian ini. Terdapat dua jenis pembungkusan yang dipelajari, iaitu pembungkusan kedap udara dan pembungkusan berliang yang diletakkan pada suhu berbeza 20°C, 25°C dan 30°C. Masa untuk analisis sampel dilakukan pada hari pertama sebagai kawalan kualiti, hari 7, 15, 30, 60, 90, dan 120. Semakin tinggi suhu penyimpanan akan menyebabkan berat rumput laut berkurang disebabkan kelembapan dalam kandungan lembapan rumput laut berkurangan. Begitu juga, pembungkusan berliang yang menunjukkan penurunan berat rumput laut secara mendadak berbanding pembungkusan jenis kedap udara. Hampir keseluruhan hasil menunjukkan kekuatan gel, kandungan lembapan, hasil peratusan SRC stabil selepas satu bulan yang hanya berbeza samada meningkat mahupun menurun.*



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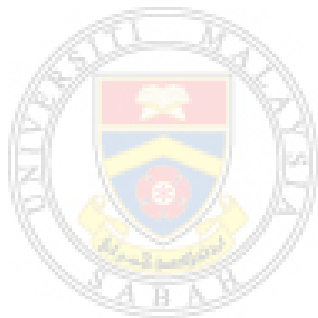
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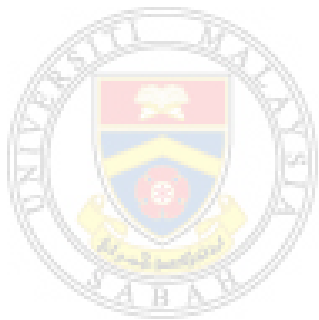


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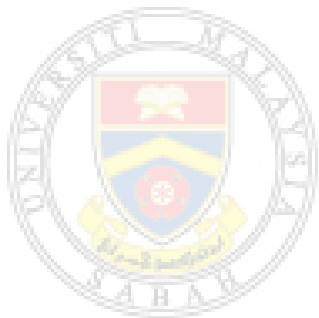
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## LIST OF ABBREVIATIONS

<b>AOAC</b>	-	Association of Analytical Communities
<b>Ca<sup>2+</sup></b>	-	Calcium Ion
<b>cm</b>	-	Centimeter
<b>FTIR</b>	-	Fourier Transform Infrared
<b>g</b>	-	Gram
<b>GPC</b>	-	Gas Permeation Chromatography
<b>HPLC</b>	-	High Performance Liquid Chromatography
<b>K<sup>+</sup></b>	-	Potassium Ion
<b>KCl</b>	-	Potassium Chloride
<b>KOH</b>	-	Potassium Hydroxide
<b>MAP</b>	-	Modified Atmosphere Packaging
<b>Min</b>	-	Minute
<b>mL</b>	-	Mililiter
<b>OH<sup>-</sup></b>	-	Hydroxyl Group
<b>PE</b>	-	Poly Ethylene
<b>PNS</b>	-	Philippines National Standard
<b>RC</b>	-	Refined Carrageenan
<b>rpm</b>	-	Revolution Per Minute
<b>SNI</b>	-	Indonesian National Standard
<b>SO<sub>4</sub><sup>2-</sup></b>	-	Sulphate Group
<b>SRC</b>	-	Semi Refined Carrageenan
<b>w/v</b>	-	Weight Per Volume

## LIST OF SYMBOLS

$\alpha$	-	alpha
$\beta$	-	beta
$\iota$	-	iota
$\kappa$	-	kappa
$\lambda$	-	lambda
$\mu$	-	micro
$^{\circ}\text{C}$	-	degree celcius
$\%$	-	percent

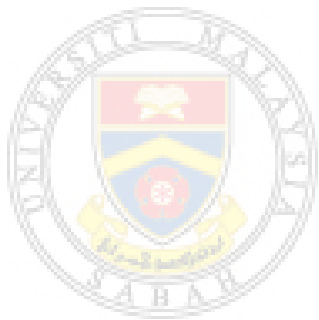


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