

PRODUCTION OF CHITOSAN FROM MARINE CRAB, *Scylla serrata*

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PRODUCTION OF CHITOSAN FROM MARINE CRAB, *Scylla serrata*

By

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JABATAN SAINS MARIN
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **Production of chitosan from marine crab, *Scylla serrata*** oleh Siti Asmaa' binti Baharudin No. Matrik UK 12059 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini telah dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah **Sarjana Muda Sains (Biologi Marin)**, Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

cm	-	centimeter
g	-	gram
M	-	molarity
min	-	minute
ml	-	mililiter
μm	-	micrometer
R_f	-	retardation factor
R_{glc}	-	glucose retention time
$^{\circ}\text{C}$	-	degree celcius
\$	-	dollar
%	-	percentage
μL	-	microlitre

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ABSTRACT

This study was conducted to determine the production of chitosan from marine crab, *Scylla serrata*. Crab shell need to undergo of demineralization (DM), deproteinization (DP), and deacetylation (DA) process in order to produced chitosan. Purpose of this study was to produce chitin and chitosan from the crab shell, with two different method been compared (reversing method and traditional method. Physicochemical and functional properties effect of sample due to the changes in modification or reversing method, where demineralization initiate the method but not in deproteinization process which commonly practiced in traditional method. The chitosan yield from modification method (DMPA) is higher with 53.7% compared with 53.0% from traditional method (DPMA). The result from physicochemical analysis (moisture and ash content) shown that moisture content in traditional method is lower than modification with 1.3 % to 1.7% respectively. The results from both samples are acceptable. For ash content, the percentage of modification method is lower than traditional method with 78.7% and 85.8% respectively. Chromatography paper and HPLC analysis showed glucose and glucosamine present in sample of chitin and chitosan.

PENGHASILAN CHITOSAN DARIPADA KETAM LAUT, *Scylla serrata*

ABSTRAK

Kajian ini mengenai penghasilan kitosan daripada sampel kulit ketam, *Scylla serrata*. Kulit ketam ini perlu melalui proses dinyahmineral (DM), dinyahprotein (DP), dan dinyah kumpulan asetil (DA) sebelum mejadi kitosan. Tujuan kajian ini dilakukan untuk menghasilkan kitin dan kitosan dari kulit ketam ini. Kedua, untuk membezakan dan memasttikan cara yang terbaik untuk menghasilkan chitosan sama ada teknik tradisional (No dan Meyer, 1995) atau teknik modifikasi “reversing” (Fernandez, 2004). Terdapat kesan kimia fiziko dan bentuk terhadap sampel akibat perubahan proses untuk metodologi tradisional dan proses modifikasi di mana dimulakan dengan proses dinyahmineral bukan dengan proses dinyahprotein seperti metod tradisional. Dalam kajian ini, kitosan yang dihasilkan oleh metod modifikasi (DMPA) lebih banyak dengan 53.7% berbanding 53.0% daripada metod tradisional (DPMA). Keputusan analisis kimia fiziko (kelembapan dan sampel abu) menunjukkan kadar kelembapan metod tradisional lebih rendah berbanding modifikasi 1.3% dan 1.7%. Kadar kelembapan kedua-dua sampel adalah diterima. Bagi sampel abu, juga menunjukkan peratusan yang rendah bagi metod modifikasi berbanding metod modifikasi dengan 78.7% dan 85.8%. Bagi analisis kertas kromatografi dan juga HPLC, menunjukkan sampel kitin dan kitosan mengandungi gula glukosa dan glukosamin.