

PHYSICO-CHEMICAL CHARACTERISTICS OF SHRIMP PASTE
(*BELACAN*) PRODUCED IN SELECTED AREA IN
MALACCA, PENANG AND TERENGGANU

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2008

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PRODUCED IN SELECTED AREA IN MALACCA,
PENANG AND TERENGGANU

By
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FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN
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PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

PHYSICOCHEMICAL CHARACTERISTICS OF SHRIMP PASTE (BELACAN)

PRODUCED IN SELECTED AREA IN MALACCA, PENANG AND TERENGGANU

oleh RAFIDAH BINTI ANUAR, No.Matrik UK 1163

telah diperiksa dan semua pembedahan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan SAINS MAKANAN

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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

Belacan is a traditional fermented shrimp paste produced by fermenting tiny shrimp with salt. *Belacan* or shrimp paste is well established as one of the main condiments in Malaysian cuisine. It is normally used as a flavoring ingredient in most spiced foods especially for seafood dishes. Therefore, *belacan* provides the strong and complicated umami taste. *Belacan* products from three various state of production which is Malacca, Penang and Terengganu were analyzed to determine their physicochemical characteristics and make the comparison. The levels or contents of amino acids profile, salt content, moisture, protein, fat, ash, carbohydrate, pH, texture and color profile in all samples range from 1107.45 to 1733.50 mg/1g, 20.00 % to 25.79 %, 32.11 % to 44.42 %, 25.32 % to 34.88 %, 1.02 % to 3.35 %, 24.08 % to 33.63 %, 0.44 % to 8.42 %, 7.06 to 7.46, 4410.43 to 6688.00 force(g), while for color profile value L* ranged between 31.93 to 55.19, for a* ranged between 2.83 to 7.93 and for b* ranged 9.84 to 13.10, respectively. Of all amino acids determined, glutamic acid dominated in all *belacan* samples that contribute to the umami taste. Also aspartic acid, arginine, leucine and histidine were found to be the predominant amino acids in all *belacan* samples. These results also indicate that *belacan* products content high essential amino acids, which suggested that *belacan* will contribute significantly to the supply of essential amino acids in the diet. However, all *belacan* samples indicate high salt content, so that having limited nutritive value because only small quantities can be consumed at each meal.

ABSTRAK

Belacan merupakan makanan tradisional yang dihasilkan melalui proses penapaian bersama udang halus dan garam. Penggunaan belacan sebagai bahan perasa makanan amat meluas dalam penyediaan hidangan di Malaysia. Belacan sering digunakan sebagai bahan perasa makanan terutamanya bagi hidangan makanan laut. Produk belacan didapati menyumbang kepada rasa umami kepada sesuatu hidangan makanan. Dalam kajian ini, produk belacan daripada tiga negeri pengeluar iaitu Melaka, Pulau Pinang dan Terengganu dianalisa untuk menentukan ciri-ciri fiziko-kimia bagi setiap sampel belacan tersebut dan membuat perbandingan diantara sampel-sampel belacan tersebut. Kandungan dan nilai profil acid amino, kandungan garam, peratus kelembapan, protein, lemak, abu, karbohidrat, nilai pH, tekstur dan profil warna bagi semua sampel belacan adalah diantara julat 1107.45 - 1733.50 mg/1g, 20.00 % - 25.79 %, 32.11 % - 44.42 %, 25.32 % - 34.88 %, 1.02 % - 3.35 %, 24.08 % - 33.63 %, 0.44 % - 8.42 %, 7.06 - 7.46, 4410.43 - 6688.00 kuasa(g), manakala untuk profil warna bagi nilai L* adalah diantara julat 31.93 - 55.19, nilai a* antara julat 2.83 - 7.93 dan akhir sekali untuk nilai b* antara julat 9.84 - 13.10, berturut-turut. Semua sampel belacan menunjukkan nilai yang tinggi bagi acid glutamik berbanding acid-acid amino yang lain maka menyumbang rasa umami kepada semua sampel belacan tersebut. Selain itu, acid aspartik, arginin, leucin dan histidin didapati sebagai penyumbang terbesar acid amino di dalam semua sampel belacan tersebut. Kajian ini juga menunjukkan bahawa produk belacan mempunyai kandungan acid amino perlu yang tinggi, dimana sesuai untuk dicadangkan bahawa belacan boleh dijadikan penyumbang sumber acid amino perlu dalam diet pemakanan harian. Walaubagaimanapun, didapati kandungan garam dalam semua sampel belacan tersebut adalah tinggi, maka dengan ini akan menghadkan nilai nutrisi belacan kerana belacan hanya boleh dimakan dalam kuantiti yang kecil setiap kali hidangan.