

**FUNCTIONAL PROPERTIES OF GREEN MUSSEL (*Perna viridis*) PROTEIN
HYDROLYSATE AS INFLUENCED BY THE DEGREE OF HYDROLYSIS**

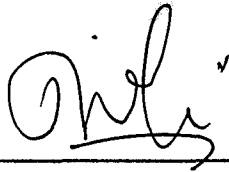
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**Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Food Science and Technology
in the Faculty of Applied Sciences,
Universiti Teknologi MARA**

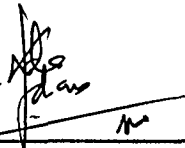
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APPROVAL SHEET

This Final Year Project entitle “**Functional Properties of Green Mussel (*Perna viridis*) Protein Hydrolysate as Influenced by the Degree of Hydrolysis**” was submitted by Wan Nuratika Wan Abdullah, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Food Science and Technology, in the Faculty of Applied Sciences and was approved by



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ABSTRACT

FUNCTIONAL PROPERTIES OF GREEN MUSSEL (*Perna viridis*) PROTEIN HYDROLYSATE AS INFLUENCED BY THE DEGREE OF HYDROLYSIS

Protein hydrolysates from green mussels (*Perna viridis*) were prepared by hydrolyzing the mussels flesh by using alcalase under two different conditions which were at pH 7, E/S (5%) and pH 9, E/S (3%). The degree of hydrolysis of mussel protein hydrolysate was higher when the hydrolysates was produced at pH 9, E/S (3%). The degree of hydrolysis for hydrolysates produced at pH 9, E/S (3%) was 43.81% while the hydrolysates produced at pH 7, E/S (5%) was 28.33%. This hydrolysis process was carried out by using the pH-stat method. Degree of hydrolysis (DH) is an important factor which highly related with the hydrolytic process yield. The degree of hydrolysis obtained for hydrolysates produced at pH 7, E/S (5%) and hydrolysates produced at pH 9, E/S (3%) was used to determine the functional properties of mussel protein hydrolysates such as solubility, emulsifying, foaming, water holding capacity and fat holding capacity. The degree of hydrolysis as well as pH 2 until pH 10 affected the functional properties of mussel protein hydrolysates. Hydrolysates produced at pH 9, E/S (3%), with high degree of hydrolysis, had significantly higher solubilities ($p < 0.05$) than those hydrolysates produced at pH 7, E/S (5%) with lower degree of hydrolysis. Emulsifying activity index of mussel protein hydrolysates decreased with increasing in degree of hydrolysis (DH). Hydrolysates produced at pH 9, E/S (3%) had better emulsion stability index than hydrolysates produced at pH 7, E/S (5%). Hydrolysates produced at pH 7, E/S (5%) with lower degree of hydrolysis, had significantly higher foaming capacity and foam stability than hydrolysates produced at pH 9, E/S (3%). Result showed that hydrolysates produced at pH 9, E/S (3%) had good water holding capacity and good fat holding capacity than hydrolysates produced at pH 7, E/S (5%). The production of mussel protein hydrolysates help in increasing the utilization of mussel species into more marketable form as food ingredient for direct human consumption.