CRUDE β-GLUCAN BINDING PROTEIN PROFILING OF HOODED OYSTER (*Saccostrea cucullata*) AND ITS FUNCTIONAL ASSAYS

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This thesis is dedicated:

To my parents

Zakaria bin 1brahim and Zaharah bt Abdullah

For giving me roots and wings

To my siblings

Mohd Khairil Azhan,Mohd Saiful Ridhwan, Siti Hamraa Zarida, Mohd Khairol Anuar and Muhammad Firdaus

For their prayerful inspiration

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Chairperson: Assoc. Prof Dr. Najiah Musa

Faculty: Institute of Tropical Aquaculture

A crude β-glucan binding protein was isolated from wild oyster, *Saccostrea cucullata* obtained at Pantai Pandak, Chendering, Terengganu. This protein is capable of enchancing the prophenoloxidase (proPO) system activation induced by laminarin which indirectly enchance the immune system. Besides, the protein has a molecular mass estimated determined by SDS-PAGE and only 2 protein band determined. Whole plasma was capable to agglutinate various Red Blood Cell (RBC) such as human RBC type A, B, O, as well as chicken, goat and tilapia. Meanwhile, pellet could only agglutinate human RBC types A, B and O. For supernatant, could agglutinate RBC types such as human RBC types A, B, O, chicken and tilapia. The results the enzymatic assay for serine protease, the control and experimental samples were 0.595 ± 0.004726 OD min^{-1} mg $protein^{-1}$ x 10^3 and 0.639 ± 0.003464 OD min^{-1} mg $protein^{-1}$ x 10^3.

Abstrak tesis ini yang dikemukakan kepada Senat Universiti Malaysia Terengganu
Sebagai memenuhi keperluan untuk Ijazah Sarjana Sains

PROFILE β-GLUCAN BINDING PROTEIN DALAM TIRAM (*Saccostrea cucullata*) DAN FUNGSI MENCERAKINKANNYA.

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Beta glucan diasingkan atau dipisahkan dari tiram liar, *Saccostrea cucullta* yang diperolehi di Pantai Pandak, Chendering, Terengganu. Protein ini boleh meningkatkan sistem aktif apabila dirangsang oleh laminarin di mana dapat meningkatkan system imun. Selain itu, protein dalam *Saccostrea cucullata* mempunyai jisim molecular yang ditentukan oleh SDS-PAGE dan hanya 2 protein band dihasilkan. Plasma ada kebolehan untuk agglutinat sel darah merah seperti darah A, darah B, darah O, ayam, kambing dan ikan tilapia. Sementara itu, pellet hanya dapat agglutinat sel darah merah seperti darah A, darah B dan darah O. Untuk supernatant pula, ia agglutinat sel darah merah seperti darah A, darah B, darah O, chicken dan ikan tilapia. Daripada keputusan mencerakinkan enzim untuk serine, sampel kawalan dan eksperimen adalah 0.595 ± 0.004726 OD min^{-1} mg $protein^{-1} \times 10^3$ dan 0.639 ± 0.003464 OD min^{-1} mg $protein^{-1} \times 10^3$.