

DIGESTIVE ENZYME PROFILES OF FOREGUT AND THEIR
DIFFERENTIAL BETWEEN SEXES OF BLUE SWIMMING
CRAB, *Portunus palagicus* AT GELANG PATAH, JOHOR

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Digestive Enzyme Profiles of Foregut and their Differential between
Sexes of Blue Swimming Crab, *Portunus pelagicus* at Gelang Patah,

Johor

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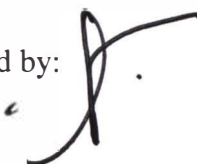
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DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled Digestive Enzyme Profiles of Foregut and their Differential between Sexes of Blue Swimming Crab, *Portunus pelagicus* at Gelang Patah, Johor by Nordiana binti Pilus. Matric No. UK25950 have been examined and all errors identified have been corrected. This report is submitted to the School of Marine Science and Environment as partial fulfillment towards obtaining the Degree of Marine Biology School of Marine Science and Environment, Universiti Malaysia Terengganu.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	vii
LIST OF APPENDICES	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1: INTRODUCTION	
1.1 Background of study	1
1.2 Problem statement	2
1.3 Significance of study	3
1.4 Objectives	3
CHAPTER 2 : LITERATURE REVIEW	
2.1 Taxonomy of blue swimming crab, <i>Portunus pelagicus</i>	4
2.2 Morphological characteristics of <i>P. pelagicus</i>	5
2.3 Distribution of <i>P. pelagicus</i>	9
2.4 Feeding of <i>P. pelagicus</i>	9
2.5 Enzyme	10
2.6 Characteristics of enzyme	10
2.7 Digestive Enzyme Analysis	12

CHAPTER 3 : METHODOLOGY

3.1	Sampling site	13
3.2	Crabs morphometric and sexes	14
3.3	Dietary composition	16
3.3	Enzyme analysis	16
3.3.1	Protein Quantification	16
3.3.2	Amylase Analysis	18
3.3.3	Lipase Analysis	20
3.3.4	Trypsin Analysis	22
3.3.5	Protease Analysis	25
3.4	Statistical analysis	27

CHAPTER 4 : RESULTS

4.1	Dietary composition	28
4.2	Enzyme Analysis	31
4.2.1	Protein concentration	31
4.2.2	Amylase activity	31
4.2.3	Lipase activity	32
4.2.4	Trypsin activity	33
4.2.5	Protease activity	34
4.3	Statistical analysis of comparing the enzymes activities	35

CHAPTER 5 : DISCUSSION

5.1	Dietary composition	36
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5.2	Enzyme activity	38
5.2.1	Amylase activity	38
5.2.2	Lipase activity	39
5.2.3	Trypsin activity	39
5.2.4	Protease activity	40
CHAPTER 6 : CONCLUSION		41
REFERENCES		43
APPENDICES		48
CURRICULUM VITAE		54

LIST OF TABLES

Table		Page
2.1	The characteristics for each ovarian stage	7
3.1	The mixture of protein standard dilution	17

LIST OF FIGURES

Figure		Page
2.1	The images show the male <i>P. pelagicus</i> where the carapace with mottled blue and the V-shaped abdominal flap on its underside is narrow.	6
2.2	The images show the female <i>P. pelagicus</i> where the carapace with mottled brown and the abdominal flap on its underside is broad and rounded.	6
2.3	The circle shows the location of foregut in <i>P. pelagicus</i> .	6
3.1	The location of sampling site, Jetty Pendas at Gelang Patah, Johor.	13
3.2	The images show <i>P. pelagicus</i> been measured its external carapace using Venier calipers.	14
3.3	The image shows <i>P. pelagicus</i> been measured its weight using electronic balance of 0.1gm sensitivity.	15
3.4	The left image with narrow abdominal flap is mature male and the right image with broad abdominal flap is mature female of <i>P. pelagicus</i> .	15
4.1	The images show the dietary items found in foregut of <i>P. pelagicus</i> which is the shell of mollusks (30x magnification).	28
4.2	Parts of crabs appendages that found in foregut of <i>P. pelagicus</i> (30x magnification).	29
4.3	The image of roots or rhizome of seagrass that found in foregut of <i>P. pelagicus</i> (30x magnification).	29

4.4	Some unidentified items which found in the foregut of <i>P. pelagicus</i> (30x magnification).	29
4.5	Foregut contents found in males and females foregut of <i>P. pelagicus</i> .	30
4.6	Protein concentration for each stage of females and males of <i>P. pelagicus</i> .	31
4.7	Amylase activity for each stage of females and males of <i>P. pelagicus</i> .	32
4.8	Lipase activity for each stage of females and males of <i>P. pelagicus</i> .	32
4.9	Trypsin activity for each stage of females and males of <i>P. pelagicus</i> .	33
4.10	Protease activity for each stage of females and males of <i>P. pelagicus</i> .	34

LIST OF ABBREVIATIONS

gm = gram

mg = milligram

μ l = micro litre

μ mol = micromol

ml = millilitre

nmol = nanomol

mU = milli Unit

nm = nanometre

LIST OF APPENDICES

	Page
Appendix 1: Protein activity of <i>P. pelagicus</i> calculation	48
Appendix 2: Amylase activity of <i>P. pelagicus</i> calculation	49
Appendix 3: Lipase activity of <i>P. pelagicus</i> calculation	50
Appendix 4: Trypsin activity of <i>P. pelagicus</i> calculation	51
Appendix 5: Protease activity of <i>P. pelagicus</i> calculation	52
Appendix 6: Statistical test results	53

ABSTRACT

Blue swimming crab, *Portunus pelagicus* consumed variety kind of food as their diet. The study shows that their dietary items are molluscs, crabs and seagrass, including unidentified items that semi-digested. They are categorized as cannibalism because they consumed other crabs where the parts of crab's appendages were found in their foregut. They are omnivore group, as they eat other animal, they also consumed plants. Amylase, protease, and trypsin were detected in all sample and stages, except lipase, indicate that *P. pelagicus* readily digest dietary protein and carbohydrate at all stages. The changes in enzyme activities between stages reflect the changes in natural diet and feeding abilities. High proteolytic activity reflects a diet high in protein as show by matured males (MA). Meanwhile, carbohydrase activity reflects a diet with starch or cellulose that consumed by all stages especially matured males (MA), females with ovarian stage two (S2) and immature males (IM). And the high lipase activity reflects a diet high in fat as shows by female with ovarian stage four (S4).

**PROFIL ENZIM PENCERNA DI DALAM PERUT DAN PERBEZAANNYA
ANTARA JANTINA KETAM RENJONG, *Portunus pelagicus* DI GELANG
PATAH, JOHOR.**

ABSTRAK

Ketam Renjong, *Portunus pelagicus* makan pelbagai jenis makanan sebagai diet mereka. Kajian ini menunjukkan makanan yang diambil oleh *P. pelagicus* adalah moluska, ketam dan rumput laut, termasuklah makanan yang tidak dapat dikenalpasti yang telah diseparuhcernakan. Mereka dikategorikan sebagai kanibal kerana mereka memakan ketam- ketam lain dimana bahagian-bahagian ketam dijumpai di dalam perut mereka. Mereka adalah omnivore, kerana memakan haiwan lain dan juga tumbuhan. Enzim amylase, protease dan trypsin telah dikesan pada kesemua sampel dan peringkat, kecuali enzim lipase, menunjukkan bahawa *P. pelagicus* telah bersedia untuk mencerna makanan berprotein dan karbohidrat pada semua peringkat. Perubahan dalam aktiviti enzim diantara peringkat menunjukkan berlaku perubahan didalam diet semulajadi dan keupayaan pemakanan. Aktiviti proteolitik yang tinggi menunjukkan diet protein yang tinggi seperti yang ditunjukkan oleh jantan matang (MA). Manakala, aktiviti carbohydrase menunjukkan diet dengan pemakanan kanji atau cellulose oleh semua peringkat terutamanya jantan matang (MA), betina dengan ovari peringkat dua (S2) dan jantan belum matang (IM). Dan aktiviti lipase yang tinggi menunjukkan diet lemak yang tinggi seperti yang ditunjukkan oleh betina dengan ovari peringkat empat (S4).