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Food source of cockle, Anadara ovalis, mud clam, Polymesoda expansa and oyster, Isognomom sp. as indicate by fatty acid markers, in the Setiu Wetland, Terengganu / Siti Fatimah Hashim.

PERPUSTAKAAN SULTANAH NUR ZAHIRAH
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Lihat sebelah

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PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

FOOD SOURCE OF COCKLE, *Anadara ovalis*, MUD CLAM, *Polymesoda expansa* AND OYSTER, *Isognomom sp.* AS INDICATE BY FATTY ACID MARKERS, IN THE SETIU WETLAND, TERENGGANU.

By:

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**Research report submitted in partial fulfillment of
the requirements for the degree of
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**JABATAN SAINS MARIN
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU**

**PENGAKUAN DAN PENGESAHAN
LAPORAN PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

FOOD SOURCE OF COCKLE, ANADARA OVALIS, MUD CLAM, POLYMESODA
EXPANSA AND OYSTER, ISOGNOMOM SP. AS INDICATE BY FATTYACID
MARKERS, IN THE SETIU WETLAND, TERENGGANU

oleh SITI FATIMAH BINTI HASHIM, No. Matrik UK 9381

telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini 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 ABBREVIATION

ω	=	Omega
$\mu\text{g g}^{-1}$	=	microgram per gram
TM	=	trade mark
$^{\circ}\text{C}$	=	Celcius degree
$^{\circ}$	=	degree
μl	=	microliter
ml	=	millimeter
m	=	meter
g g^{-1}	=	gram per gram
M	=	mole
V	=	volume
%	=	Percentage
C	=	Carbon
>	=	greater than
<	=	less than
P	=	Probability
BF_3	=	Boron triflouride
FA	=	Fatty acid
FAME	=	Fatty acid methyl ester
SAFA	=	Saturated fatty acid
MUFA	=	Monounsaturated fatty acid
PUFA	=	Polyunsaturated fatty acid
SD	=	Standard deviation
rpm	=	round per minute
TLC	=	Thin layer chromatography
GC	=	Gas Chromatoghraphy
df	=	difference
ANOVA	=	analysis of variance

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Abstract

The study of fatty acids as the markers aims to investigate the food sources and determine the composition of fatty acids of *Anadara ovalis*, *Polymesoda expansa* and *Isognomom* sp. and in the Setiu Wetland. The sampling was done at the beginning of monsoon season. *Isognomom* sp. has the highest concentration of total lipid with the mean concentration is 0.2221 g g^{-1} dry wt and fatty acid with mean concentration $10.37 \mu\text{g g}^{-1}$ compare to other species. There are no significant difference in the total lipid concentration between *A. ovalis* and *P. expansa* ($P > 0.05$) with mean concentration 0.089 g g^{-1} and 0.097 g g^{-1} . There are five classes of fatty acids found in the tissues of bivalves as saturated fatty acids (SAFAs), monounsaturated fatty acids (MUFAs), polyunsaturated fatty acids (PUFAs), $\omega 3$ (omega 3) and $\omega 6$ (omega 6). There are 20 fatty acid was detected in *Isognomom* sp., 21 in *A. ovalis* and 22 in *P. expansa*. The saturated fatty acid (SAFAs) has the highest concentration of fatty acids in tissues, sediments and suspended materials ($14.5536 \mu\text{g g}^{-1}$, $4.1209 \mu\text{g g}^{-1}$ and $95.7265 \mu\text{g g}^{-1}$) compare to other form of fatty acid. The food sources that were indicated by fatty acids of bivalves that have studied are bacteria, mangrove detritus, macroalgae and microalgae. The fatty acids that indicate as bacteria sources (MUFAs) have the highest concentration ($2.4630 \mu\text{g g}^{-1}$) which is in *Isognomom* sp. compare with other sources. Therefore, bacteria are the main food sources for commercial bivalves species in the Setiu Wetland.