

FOOD SOURCE OF BENTHIC BIVALVE, *Anadara ovalis*  
AS INDICATED BY FATTY ACID MAKERS ON  
INTERTIDAL FLAT OF SETIU WETLAND,  
TERENGGANU

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**FOOD SOURCE OF BENTHIC BIVALVE, *Anadara ovalis* AS INDECATED BY  
FATTY ACID MAKERS ON INTERTIDAL FLAT OF SETIU WETLAND,  
TERENGGANU**

**By**

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

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: Food Source of Benthic Bivalve, *Anadara ovalis* as indicated by Fatty Acid Markers on Intertidal Flat of Setiu Wetland, Terengganu oleh Nurulhuda Johari, No.Matrik UK12848 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Marin sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Biologi Marin), Fakulti Pengajian Maritim dan Sains Marin, Universiti Malaysia Terengganu.

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## LIST OF ABBREVIATIONS

$^{\circ}\text{C}$	-	Degree Celsius
%	-	Percentage
$\omega$	-	Omega
v	-	Volume
$\mu\text{m}$	-	micrometer
mm	-	millimeter
m	-	meter
g	-	gram
$\text{cm}^3$	-	centimeter padu
HCl	-	Hydrogen Chloride
NaOH	-	Sodium Hydroxide
BF <sub>3</sub>	-	Boron Trifluoride

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## ABSTRACT

The fatty acid composition in the tissue of *Anadara ovalis* from Setiu lagoon, Terengganu in September and October was compared with those in sediment and suspended particulate material (SPM) in order to determine the availability of food source in environment. Microalgae (diatom and dinoflagellate) contribute to the main food source of bivalve diet with high mean percentage in tissue during both months (44.75 – 53.83%). High mean percentage of microalgae in sediment suggests that the microalgae likely obtain by bivalve from the sediment resuspended in water column near the bottom surface. Copepod marker (20:1 $\omega$ 9) abundance in the tissue of bivalve contribute to the food source of bivalve beside microalgae. *A. ovalis* live in the intertidal flat nearby mangrove area. The fatty acid 18:1 $\omega$ 9, 18:2 $\omega$ 6 and 18:3 $\omega$ 3 found in the tissue indicate the consumption of mangrove detritus derived from adjacent area. The bacteria (18:1 $\omega$ 7 and odd-branch fatty acid) which attached to mangrove detritus also contribute to the food source of bivalve but only small in number (2.49 – 5.13%). The macroalgae marker (18:2 $\omega$ 6 and 18:3 $\omega$ 3) also present in tissue but small in number. Availability of macroalgae at the mangrove area is limited due to low intensity of light. Therefore, the present of these fatty acids in the tissue of bivalve (2.48-3.75%) could indicate other food source such as the seagrass detritus.



# KAJIAN SUMBER MAKANAN BIVALVIA BENTHIC, *Anadara ovalis* MELALUI PENUNJUK BIOLOGI ASID LEMAK DI KAWASAN PASANG SURUT TANAH LEMBAP SETIU, TERENGGANU

## ABSTRAK

Perbandingan antara komposisi asid lemak di dalam tisu spesis bivalvia, *Anadara ovalis* dari kawasan Setiu lagoon Terengganu pada bulan September dan Oktober dengan asid lemak dari sedimen dan partikel yang terampai dalam air telah dibuat bagi mengetahui kewujudan sumber makanan bagi bivalvia dari persekitarannya. Mikroalga (diatom dan dinoflagella) menyumbang kepada sumber makanan utama bagi bivalvia (44.75-53.83%). Purata peratusan mikroalga yang didapati daripada sedimen menyatakan bahawa sumber mikroalga diperolehi dari sedimen yang terampai. Penunjuk kopepod (20:1 $\omega$ 9) yang didapati dalam tisu juga menyatakan bahawa kopepod turut menyumbang kepada sumber makan bivalvia selain mikroalga. Asid lemak 18:1 $\omega$ 9, 18:2 $\omega$ 6 and 18:3 $\omega$ 3 merupakan penunjuk biologi bagi detritus bakau dipercayai datang dari kawasan paya bakau berhampiran. Bakteria (18:1 $\omega$ 7 and odd-branch fatty acid) didapati melekat pada detritus bakau juga menyumbang kepada sumber makanan bagi bivalvia tetapi dalam jumlah yang kecil (2.49-5.13%). Penunjuk makroalga (18:2 $\omega$ 6 and 18:3 $\omega$ 3) turut didapati dalam tisu bivalvia. Walaubagaimanapun, kehadiran makroalga sangat rendah di kawasan paya bakau kerana faktor keamatan cahaya yang rendah. Jadi kehadiran asid lemak ini di dalam tisu (2.48-3.75%) mencadangkan kehadiran sumber makanan yang lain seperti detritus rumput laut.