

**THE DIET OF *Telescopium telescopium* AND *Brotia binodasa* IN THE MANGROVE AREA OF SETIU WETLAND AS ASSESSED BY FATTY ACID BIOMARKER**

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2008**



**THE DIET OF *Telescopium telescopium* and *Brotia binodasa* IN THE  
MANGROVE AREA OF SETIU WETLAND, TERENGGANU AS ASSESSES  
BY FATTY ACID BIOMARKER**

**By**

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**Research Report submitted in partial fulfillment of  
The requirements for the degree of  
Bachelor of Science (Marine Biology)**

**Department of Marine Science  
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UNIVERSITI MALAYSIA TERENGGANU  
2008**

This project should be cited as:

S.M Bisi, 2008. The diet of *Telescopium telescopium* and *Brotia binodasa* in the mangrove area of Setiu wetland as assessed by fatty acid biomarker. Project report of B. Sc. (Marine Biology). Faculty of Maritime Studies and Marine Science. Universiti Malaysia Terengganu. 70p.

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## ACKNOWLEDGEMENTS

I would like to take this opportunity to express my sincere gratitude and appreciation to the following people who had lent their hand in many ways in completing my thesis successfully.

I would especially like to thank Dr. Zainuddin Bachok who is my supervisor for this project and for his guidelines, advice, support, patience and for his constructive criticism in accomplishing this thesis. Also I wish to convey my sincere gratitude to Dr. Ahmad Shamsuddin for his guidance and dedication.

My deepest gratefulness goes to lab assistant of the Oceanography lab, Pn. Kartini, En. Zam, En. Sainol Aimi and Miss Mardiah Hayati who helped me throughout the completion of this project.

This project would not have been possible without the support, love and concern of my family, especially my parents, Che Bisi Hassan and Che Pauziah Zakaria to whom I owe my deepest thanks.

Other than that, I also would like to convey my gratitude and thanks to my beloved one, who had always showered me with courage and support all the way long. And same thanks go to my friends who gave me full support to finish this project.





**JABATAN SAINS MARIN  
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PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

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Oleh SITI MADIHAH BINTI CHE BISI, No.Matrik UK 12813 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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## ABSTRACT

Total lipid, lipid composition and fatty acid composition in the tissues, feces and sediment of *Telescopium telescopium* and *Brotia binodasa* collected from Setiu Wetland during dry season were used to investigate the food sources and diet of these gastropoda. In both months, the mangrove (detritus) in all samples was high as indicated by the mean percentage of PUFAs, 24.96% to 44.73% of total fatty acid. The high contribution of these markers in the gastropoda indicates that the present and important of photosynthesis based food supply mainly was mangrove (detritus). The occurrences of MUFAs with high percentage, which is 22.33% to 38.39% of total fatty acid content in the tissues, feces and sediment of the gastropoda was due to bacteria sources. This result indicates that gastropoda diet is also dependent on the attached bacteria on the partially decomposed leaf detritus suspended at the sediment. The mean percentage of dinoflagellate markers (Docosahexaenoic acids (22:6 $\omega$ 3) together with 22:5 $\omega$ 3, and 18:4 $\omega$ 3) in all samples gastropoda during both months ranged from 2.68% to 9.8%. This indicates that the gastropoda diet also dependent on dinoflagellate sources. The relative contribution by diatom (20:5 $\omega$ 3 and 16:1 $\omega$ 7) markers, which was 0.93% to 4.92% respectively, suggesting considerable diatom sources in the diet of these gastropoda. Quantitative investigation of gut content analysis also indicates that these gastropoda used detritus as its main dietary component, supplemented by diatom and dinoflagellate. The mean percentage of gastropoda markers did not differ significantly between August and October. It shows that gastropoda assimilate the same food sources through these two months for their diet.

**DIET PEMAKANAN *Telescopium telescopium* DAN *Brotia binodasa* DI  
KAWASAN PAYA LAUT, 'SETIU WETLAND' YANG DITAKSIRKAN  
OLEH PENANDA BIOLOGY ASID LEMAK**

**ABSTRAK**

Jumlah lipid, komposisi lipid dan komposisi asid lemak di dalam tisu, najis dan sedimen spesis *Telescopium telescopium* dan *Brotia binodasa* yang diambil dari 'Setiu Wetland' semasa musim kering digunakan untuk mengenalpasti diet pemakanan dan sumber makanan gastropoda tersebut. Dalam kedua-dua bulan (Ogos dan Oktober), endapan detritus di dalam semua sample adalah tinggi dimana ia dibuktikan oleh purata peratus PUFA, 24.96% hingga 44.73% daripada jumlah asid lemak. Kehadiran penanda ini dengan tinggi dalam gastropoda membuktikan kehadiran dan kepentingan sumber makanan berasaskan fotosintesis terutamanya endapan detritus. Kehadiran MUFA dengan peratusan yang tinggi iaitu, 22.33% hingga 38.39% daripada jumlah asid lemak dalam tisu, najis dan sedimen adalah kerana sumber bakteria. Keputusan ini membuktikan pemakanan gastropoda juga bergantung kepada bakteria yang terlekat pada daun yang mereput di atas sedimen. Purata peratus penunjuk dinoflagellat (asid docosahexaenoic (22:6 $\omega$ 3) bersama 22:5 $\omega$ 3, dan 18:4 $\omega$ 3) di dalam semua sample gastropoda untuk kedua-dua bulan dalam lingkungan 2.68% hingga 9.8% membuktikan gastropoda juga bergantung pada sumber dinoflagelat sebagai dietnya. Kehadiran penanda diatom (20:5 $\omega$ 3 and 16:1 $\omega$ 7) secara relative dimana 0.93% hingga 4.92% masing-masing mencadangkan bahawa diatom dianggap sebagai sumber makanan gastropoda ini. Kajian secara kuantitatif ke atas kandungan perut gastropoda ini juga membuktikan gastropoda ini menggunakan endapan detritus sebagai komponen diet yang utama disamping dinoflagelat dan

diatom. Purata peratus penanda pemakanan gastropoda adalah tidak signifikan antara bulan Ogos dan Oktober. Ini menunjukkan gastropoda tersebut mengasimilasi sumber makanan yang sama dalam kedua-dua bulan sebagai dietnya.