PLANKTON AND FATTY ACID COMPOSITION OF DIFFERENT SIZE CLASSES AT MARANG WATERS

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SCHOOL OF MARINE SCIENCE AND ENVIRONMENT
UNIVERSITI MALAYSIA TERENGGANU

2014

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Plankton and fatty acid composition of different size classes at Marang Water / by Nur Syiratul Hidatah Redzuan.

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PLANKTON AND FATTY ACID COMPOSITION OF DIFFERENT SIZE CLASSES AT MARANG WATERS

By

Nur Syiratul Hidayah binti Redzuan

Research Report submitted in partial fulfillment of

the requirements for the degree of

Bachelor of Science (Marine Biology)

School of Marine Science and Environment

UNIVERSITI MALAYSIA TERENGGANU

2014

This project report should be cited as:

Hidayah, R. N. S. 2014. Plankton and Fatty Acid Composition of Different Size Classes at Marang Waters. Undergraduate thesis, Bachelor of Science in Marine Biology, School of Marine Science and Environment, Universiti Malaysia Terengganu, Terengganu, 56p.

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DECLARATION AND VERIFICATION REPORT

FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled Plankton and Fatty Acid Composition of Different Size Classes at Marang Waters by Nur Syiratul Hidayah binti Redzuan Matric No. UK25276 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 Bachelor of Science Marine Biology School of Marine Science and Environment, Universiti Malaysia Terengganu.

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ACKNOWLEDGEMENT

Alhamdulillah. First of all I am really grateful because lastly I have done my thesis which is a part of one condition for me to graduate in my degree in University Malaysia Terengganu. The greatest thanks go to my helpful supervisor, Dr. Roswati Md Amin and Prof. Madya Dr. Zainudin Bachok for all the supervision, support, constructive comments, and encouragement that gave to me and really help in the progression and done my research. I would like to express my deepest gratitude for the cooperation and time that spent for me.

On top of that, I would like to give my greatest thanks to science officer and laboratory assistant of Biodiversity Laboratory, En Md Zan, En Abdul Manaf bin Ahmad, Cik Mardiah Hayati which help me and guide me done my research, sampling, and experiment work. Not to forget for the laboratory assistant in Oceanography Laboratory that helps me during the sampling. They also have given permission to me to use laboratory equipment and the laboratory.

Other than that, a special thanks to my project mates, Raveena a/p Kim Lai and Zulqarnain Musa for the helping and guidance especially during sampling and for their helpful, supported, unforgettable beautiful memories during sampling activities and done the thesis.

Not to forget, the deepest sincere of thanks to my mother and my family because of their understandable, encouragement and good supported to me while I'm doing my research project until I finished my thesis. Greatest thanks to my mother for being on my side when I have difficulties to finish my project.

Last but not least, a special thanks to all my friends, and the entire people who involve direct or indirectly for giving me support, encourage and help to done my research and finishing my final year project. Thank you very much.

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LIST OF ABBREVIATION

SAFA	Saturated fatty acid
MUFA	Monounsaturated fatty acid
PUFA	Polyunsaturated fatty acid
FA	Fatty acid
ALA	Alpha-linolenic acid
ETE	Eicosatrienoic acid
DHA	Docosahexaenoic acid
EPA	Eicosapentaenoic acid
FAME	Fatty acid methyl ester
mg	milligram
ml	milliliter
mm	millimeter
g	gram
BF_3	Boron tri-fluoride
GC	Gas chromatography
rpm	revolution per minute
L	liter
µm	micrometer

ABSTRACT

This research presented the study of plankton and fatty acid composition on coastal water Marang, Terengganu. The field sampling were conducted in two sampling stations, Station 2 and Station 1 which all plankton were collected using 200µm, 80µm and 20µm mesh size of plankton net. The highest density was found at Station 2 which is near to coastal water of Kuala Ibai compare to Station 1 which is 3km near to Kapas Island that has much lower density of plankton. There are about 3 phyla, 7 classes and 44 genera were identified. The highest abundance of phytoplankton is in phylum Bacillariophyta which is the main dominant species are *Rhizosolenia* sp. Another common species found in all mesh size of plankton net is *Ceratium* sp., *Oscillatoria* sp. and *Chaetoceros* sp. Zooplankton comprises of 7 phyla and 14 classes that were identified from both sampling stations. Zooplankton dominated by phylum Arthropoda which is copepod nauplius, the main contributor compared to overall group. For fatty acid concentration, the highest concentration of fatty acid is in monosaturated fatty acid (MUFA) in 15m depth of 200µm mesh size at Station 1. Linolenic acid (C18:3n3) is the one of polyunsaturated fatty acid (PUFA) are most dominant and represented in all mesh sizes of plankton net and both depths. Saturated fatty acid (SAFA) are dominated by is myristic acid (C14:0), palmitic acid (C16:0) and stearic acid (C18:0). Dominant MUFA is myristoleic acid (C14:1), palmitoleic acid (C16:1) and oleic acid (C18: 1n9c). PUFA are dominated by linoleic acid (C18:2n6c), linolenic acid (C18: 3n3) and docosadienoic acid (C22: 2).

Komposisi Plankton dan Asid Lemak pada Saiz Kelas yang Berlainan di Perairan Marang

ABSTRAK

Kajian ini membentangkan kajian plankton dan komposisi asid lemak di perairan pantai Marang, Terengganu. Persampelan bidang dijalankan di dua stesen persampelan , Stesen 2 dan Stesen 1 yang semua plankton telah dikumpulkan menggunakan 200μm , 80μm dan 20μm saiz net plankton bersih. Kepadatan tertinggi didapati di Stesen 2 yang berdekatan dengan Kuala Ibai berbanding dengan Stesen 1 yang jaraknya 3km dari Pulau Kapas yang mempunyai kepadatan plankton yang jauh lebih rendah. Terdapat kira-kira 3 Filum , 7 kelas dan 44 genera telah dikenal pasti. Kepadatan tertinggi fitoplankton adalah dalam filum Bacillariophyta dan spesies dominan utama adalah Rhizosolenia sp. Satu lagi spesies yang sama terdapat dalam semua saiz mesh plankton bersih *Ceratium* sp. , *Oscillatoria* sp. dan *Chaetoceros* sp. Zooplankton terdiri daripada 7 Filum dan 14 kelas yang telah dikenal pasti dari kedua-dua stesen persampelan. Zooplankton didominasi oleh filum Arthropoda iaitu nauplius kopepod , penyumbang utama berbanding dengan kumpulan keseluruhan. Untuk kepekatan asid lemak, kepekatan tertinggi asid lemak adalah asid lemak monosaturated (MUFA) dalam kedalaman 15m saiz 200μm saiz net plankton di Stesen 1 .Asid Linolenik (C18: 3n3) adalah salah satu asid lemak politaktepu (PUFA) adalah yang paling dominan dan dalam semua saiz mesh plankton bersih dan kedua-dua kedalaman. Asid lemak tepu (SAFA) dikuasai oleh asid Myritic (C14 : 0) , asid palmitik (C16 : 0) dan asid stearik (C18: 0). Dominan MUFA adalah asid myristoleic (C14 : 1) , asid palmitoleic (C16 : 1) dan asid oleik (C18: 1n9c). PUFA

dikuasai oleh asid linoleik (C18: 2n6c), asid linolenik (C18: 3n3) dan asid docosadienoic (C22 : 2).