CHLOROPHYLL *a* AND PRIMARY PRODUCTIVITY IN SETIU LAGOON, TERENGGANU

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Lihat sebelah

CHLOROPHYLL *a* AND PRIMARY PRODUCTIVITY IN SETIU LAGOON, TERENGGANU

By

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Research Report submitted in partial fulfillment of the requirements of the degree of Bachelor of Science (Marine Sciences)

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PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:
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LIST OF ABBREVIATIONS

%	-	percentage
‰ @ ppt	-	part per thousand
^{0}C	-	degree centigrade
APHA	-	American Public Health Association
BOD	-	biological oxygen demand
CO_2	-	carbon dioxide
Conc.	-	concentrated
DO	-	dissolved oxygen
DOE	-	Department of Environment
G	-	gross photosynthetic rate
GFC	-	glass microfibre filters
GPS	-	Global Positioning System
M	-	molarity
$mg.L^{-1}$	-	milligram per litre
$mg.m^{-3}$	-	milligram per cube
$mgC.m^{-3}.hr^{-1}$	-	milligram carbon per metre cube per hour
N	-	net photosynthetic rate
N	-	normality
nm	-	nanometer
OD	-	optical density
pH	-	potential of hydrogen
R	-	respiration rate
rpm	-	round per minute

stdev	-	standard deviation
TSS	-	total suspended solids
μm	-	micrometer
$\mu Mol.m^{-2}.s^{-1}$	-	micromole per metre cube per second

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ABSTRACT

This study aims to measure photosynthetic rate, chlorophyll *a* and total suspended solids in Setiu lagoon. Three samplings were conducted; 7th October 2003 (non-northeast monsoon), 9th November 2003 (pre-northeast monsoon) and 3rd December 2003 (northeast monsoon). Twelve sampling stations around Setiu lagoon were set for study. Northeast monsoon was found to be the most important factor that influent the water quality in Setiu lagoon. Base on the measured in the study area; low level of net photosynthetic rate was recorded. The mean value of net photosynthetic rate for 2nd and 3rd sampling were 27.19 $mg.C.m^{-3}.hr^{-1}$ and 19.69 $mg.C.m^{-3}:hr^{-1}$ respectively. The light intensity is the major limited factor. Besides, the mean value of chlorophyll *a* level during 1st, 2nd and 3rd sampling were 6.78 $mg.m^{-3}$, 2.17 $mg.m^{-3}$ and 0.54 $mg.m^{-3}$ respectively. It is believed that, greater volume of fresh water input during the monsoon season is the primary factor that caused lower concentration of chlorophyll *a*. During 1st sampling, the mean value for TSS level in Setiu lagoon were 46.59 $mg.L^{-1}$. The mean value of TSS level for 2nd and 3rd sampling were 15.43 $mg.L^{-1}$ and 14.88 $mg.L^{-1}$ respectively. Setiu lagoon is considered as contaminant by domestic waste from human activities.

ABSTRAK

Kajian ini bertujuan untuk mengira kadar fotosinthesis, klorofil *a* dan jumlah pepejal terampai di lagun Setiu. Tiga kali penyampelan telah dijalankan; 7 Oktober 2003 (bukan monsun Timur Laut), 9 November 2003 (pra-monsun Timur Laut) and 3 Disember 2003 (monsun Timur Laut). Dua belas stesen penyampelan di lagun Setiu telah dipilih untuk kajian. Monsun Timur Laut merupakan factor utama yang mempergaruhi kualiti air di Lagun Setiu. Berdasarkan pengiraan di kawasan kajian, kadar fotosintesis bersih yang rendah didapati. Nilai min bagi kadar fotosintesis bersih untuk penyampelan kedua dan ketiga adalah 27.19 $mg.C.m^{-3}.hr^{-1}$ dan 19.69 $mg.C.m^{-3}.hr^{-1}$ masing-masing. Kadar keamatan cahaya merupakan factor penghad yang utama. Selain itu, nilai min bagi klorofil *a* semasa penyampelan pertama, kedua dan ketiga adalah 6.79 $mg.m^{-3}$, 2.17 $mg.m^{-3}$ dan 0.54 $mg.m^{-3}$ masing-masing. Hal ini mungkin disebabkan oleh kemasukkan isipadu air masin yang banyak semasa musim monsun merupakan faktor primer yang menyebabkan kepekatan klorfil *a* rendeh. Semasa penyampelan pertama, nilai min bagi jumlah pepejal terampai di lagun Setiu adalah 46.59 $mg.L^{-1}$. Nilai min bagi jumlah pepejal terampai bagi penyampelan kedua dan ketiga adalah hanya 15.43 $mg.L^{-1}$ dan 14.88 $mg.L^{-1}$ masing-masing. Lagun Setiu dianggap tercemar disebabkan oleh kemasukkan kumbahan domestik dari aktiviti manusia.