THE DIVERSITY AND ABUNDANCE OF PHYTOPLANKTON DURING A TIDAL CYCLE AT JETI TANJUNG KUALA, TUMPAT, KELANTAN

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Lihat sebelah

THE DIVERSITY AND ABUNDANCE OF PHYTOPLANKTON DURING A TIDAL CYCLE AT JETI TANJUNG KUALA, TUMPAT, KELANTAN

By

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Department of Marine Science
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FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
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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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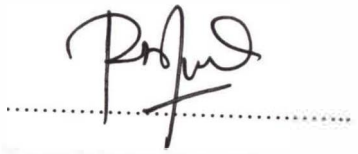

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LIST OF ABBREVIATIONS

<	-	less than
>	-	more than
α	-	alpha
%	-	percent
^0C	-	celcius
$cell.L^{-1}$	-	cell per liter
hr	-	hour
L	-	liter
mL	-	millimeter
m	-	meter
mg/L	-	milligram per liter
No.cell/L	-	Number of cell per liter
µm	-	micrometer
ppt	-	part per thousand
r	-	correlation
R^2	-	R square

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ABSTRACT

Diversity and abundance of phytoplankton at Tanjung Kuala waterway was examined during a tidal cycle in September 2007. Water sample (42L) was collected every hour within 24 hours, and filtered through 20 μm mesh size plankton net. Filtered water sample was concentrated to 200mL and preserved with Lugol's solution. The preserved water sample was concentrated to 10mL subsamples and kept in glass bottles in the laboratory. Identification of phytoplankton to the genus level and cell counting using Lackeys Drop method was done under light microscope. Calculation was done for density (cell.L^{-1}), diversity index and evenness index. From the results, 80 genera were found within 24 hour observation. During high tide 71 genera were found, and 67 genera were found during low tide. Average diversity index during high tide at 3.8565, and low tide at 3.8397. Average evenness index during high tide was 0.8019, while low tide was 0.7972. Density of phytoplankton during high tide was recorded at 2206 cell.L^{-1}, whereas the average density during low tide was 2859 cell.L^{-1}. Bacillariophyta was a major division followed by Dinophyta, Cyanophyta, Cholorophyta and Euglenophyta. *Chaetoceros* and *Rhizosolenia,* were found abundantly at the sampling site during high tide, while the *Peridinium* and *Closterium* increased the density of phytoplankton during low tide drastically. From statistical analysis, there was no correlation between salinity and diversity index of phytoplankton at the sampling site. No significant difference were found between diversity index and evenness index with tidal cycle and day or night

ABSTRAK

Diversiti dan kelimpahan fitoplankton di saliran Tanjung Kuala di kaji di dalam kitaran pasang surut pada September 2007. Sampel air sebanyak 42L di kumpul setiap jam sepanjang tempoh 24 jam. Air yang di kumpul, ditapis mengunakan jaring plankton 20μm di pekatkan kepada 200mL dan di awet dengan menggunakan larutan Lugol. Sampel air yang telah diwet, di pekatkan lagi sehingga10mL dan disimpan di dalam botol kaca di dalam makmal. Pengenalpastian fitoplankton kepada peringkat genus dan pengiraan sel dengan kaedah Lackey Drop Method telah dijalankan dibawah mikroskop kompound. Pengiraan dijalankan bagi ketumpatan (sel per liter), indeks diversiti dan indeks kesamarataan. Daripada keputusan, 80 genera dijumpai sepanjang pemerhatian selama 24 jam. Semasa air pasang, 71 genera telah dijumpai dan 67 genera dijumpai ketika air surut. Purata indeks diversiti ketika air pasang pada 3.8565, dan air surut pada 3.8397. Purata indeks kesamarataan ketika air pasang ialah 0.8019, sementara ketika air surut ialah 0.7972. Purata kepadatan fitoplankton ketika air pasang direkodkan pada 2206 sel.L-1, manakala purata kepadatan ketika air surut ialah 2859 sel.L-1. Bacillariophyta merupakan divisi utama diikuti Dinophyta, Cyanophtya, Chlorophyta dan Euglenophyta. *Chaetoceros* dan *Rhizosolenia*, dijumpai dengan banyak di tapak kajian ketika air pasang. *Peridinium* dan *Closterium* meningkatkan kepadatan fitoplankton secara drastik ketika air surut. Daripada keputusan stastiktikal, didapati tidak ada hubungkait antara kemasinan dan indeks diversiti fitoplankton di tapak kajian. Tiada perbezaan purata signifikan diperolehi antara indek diversity dan index kesamarataan dengan kitaran pasang surut dan siang atau malam.