

TOXICITY OF GADOLINUM AND ITS REMOVAL BY
MARINE MICROALGAE, *Chlorella* sp.

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**TOXICITY OF CADMIUM AND ITS REMOVAL BY MARINE
MICROALGAE, *Chlorella sp.***

By

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

**Department of Marine Science
Faculty of Maritime Studies and Marine Science
UNIVERSITY TERENGGANU MALAYSIA
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Toxicity of Cadmium and Its Removal by Marine Microalgae, *Chlorella sp.* oleh **Joanne Tan Ai Yien, No. Matrik UK 10356** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains (Sains Samudera), Fakulti Pengajian Maritim dan Sains Marin, Universiti Terengganu Malaysia.

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LIST OF ABBREVIATIONS/ SYMBOLS

ANOVA	Analysis of variance
CdCl_2	Cadmium Chloride
IC_{50}	The concentration that inhibits 50% of growth.
$\mu\text{g/g}$	Microgram per gram
mg/g	Miligram per gram
ml	Milliliter
L	Liter
Lux	SI unit for illuminance
ppm	Part per million
ppt	Part per thousand
STDEV	Standard Deviation

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ABSTARCT

The toxicity of cadmium on marine microalgae, *Chlorella sp.* and also the ability of *Chlorella sp.* to remove cadmium from the culture solution were studied. The experiment was carried out using batch culture technique in modified f/2 medium. The result showed that *Chlorella sp.* has relatively high tolerance towards the toxicity of cadmium, the 96hr IC₅₀ obtained was 6mg/L. On the other hand, the removal of *Chlorella sp.* were consider as ineffective, although the *Chlorella sp.* cells showed significant uptake of cadmium, this may due to the low initial concentration in the cadmium spiked culture solution. From the morphology study, the cells that were exposed to the cadmium showed certain abnormalities compared to the normal cells, this may due to the disruption of physiological process of the cell by cadmium.