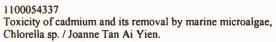
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PERPUSTAKAAN SULTANAH NUK ZAHIRAH UNT

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

### By

### Joanne Tan Ai Yien

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 2007

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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 memperolehi Ijazah Sarjana Muda Sains (Sains Samudera), Fakulti Pengajian Maritim dan Sains Marin, Universiti Terengganu Malaysia.

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### LIST OF ABBREVATIONS/ SYMBOLS

ANOVA Analysis of variance

CdCl<sub>2</sub> Cadmium Chloride

IC<sub>50</sub> The concentration that inhibits

50% of growth.

 $\mu g/g$  Microgram per gram

mg/g Miligram per gram

ml Milliliter

L Liter

Lux SI unit for illuminence

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 IC<sub>50</sub> 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.