Effect of 2,4-dimethylamine and endosulfan on Chaetoceros sp.and Nannochloropsis sp. / Shia Kwee Luan.

Lihat sebelah

EFFECT OF 2, 4-DIMETHYLAMINE AND ENDOSULFAN ON *Chaetoceros* sp. AND *Nannochloropsis* sp.

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This project report is submitted in partial fulfillment of the requirement of the degree of Bachelor of Applied Science (Fisheries Science)

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2006

This project report should be cited as:

Shia, K.L. 2006. Effect of 2, 4-dimethylamine and endosulfan on *Chaetoceros* sp. and *Nannochloropsis* sp. Undergraduate thesis, Bachelor of Applied Science (Fisheries Science), Faculty of Agrotechnology and Food Science, Kolej Universiti Sains dan Teknologi Malaysia, Terengganu. 74p.

ACKNOWLEDGMENTS

First of all, I would like to express my greatest gratitude to my supervisor, Dr Hii Yii Siang for his supervision, assistance, comments and guidance that enable this project run smoothly. Sincere thanks also to my second supervisor, Dr. Chuah Tse Seng for his guidance on managing and handling toxicant. Besides, I would like to thank Mr. Sharol and Mr. Yaakob for their cooperation and permission to use the facilities in laboratory as well as in marine hatchery. Appreciation is also extended to my best friends, Lilian, Gan, James, Yap and Yee for helping me in transportation and giving me moral supports. Last but not least, my appreciations go to those who have contributed to success this project.

ABSTRACT

The effect of 2, 4-dimethylamine and endosulfan on *Chaetoceros* sp. and *Nannochloropsis* sp. were assessed in this study. The pesticides show adverse effect on cells density, photosynthetic pigments and oxygen production of the microalgae. The 48 hours EC_{50} values of 2, 4-dimethylamine on *Chaetoceros* sp. and *Nannochloropsis* sp. was 143.22 mg L^{-1} and 211.87 mg L^{-1} respectively, while the 48 hours EC_{50} values of endosulfan on *Chaetoceros* sp. and *Nannochloropsis* sp. was 33.612 µg L^{-1} and 45.807 µg L^{-1} respectively. 2, 4-dimethylamine shows strong inhibitory effect on photosynthetic pigments and subsequently caused lower oxygen production of the microalgae. The 48 hours EC_{50} of endosulfan on the microalgae is comparatively lower than 2, 4-dimethylamine. The effect of endosulfan on the microalgae is mainly the cell wall rather than inhibiting the photosynthetic pigments. It is anticipated that, unregulated usage of pesticides will disturb the primary productivity of an aquatic ecosystem.

ABSTRAK

Kajian ini bertujuan untuk mengaji kesan kedua-dua pestisid 2, 4-dimethylamine dan endosulfan ke atas mikroalga marin *Chaetoceros* sp. dan *Nannochloropsis* sp. Kedua-dua pestisid ini menunjukkan kesan negatif ke atas populasi sel, pigmen-pigmen fotosintetik dan produktiviti oksigen. Nilai EC_{50} 2, 4-dimethylamine dalam tempoh 48 jam adalah 143.22 mg L^{-1} dan 211.87 mg L^{-1} bagi *Chaetoceros* sp. dan *Nannochloropsis* sp. masing-masing. 2, 4-dimethylamine memberi kesan negatif ke atas penghasilan pigmen-pigmen fotosintetik dan seterusnya mengurangkan produktiviti oksigen pada mikroalga tersebut. Di samping itu, nilai EC_{50} ke atas rawatan endosulfan dalam tempoh 48 jam adalah 33.612 µg L^{-1} dan 45.807µg L^{-1} bagi *Chaetoceros* sp. dan *Nannochloropsis* sp. masing-masing. Kedua-dua mikroalga mempunyai nilai EC_{50} yang lebih rendah terhadap endosulfan. Endosulfan memberi kesan negatif terhadap dinding sel mikroalga berbanding dengan pigmen-pigmen fotosintetik. Dengan ini, penggunaan pestisid yang tidak terkawal akan memberi kesan terhadap produktiviti primer di ekosistem akuatik.