

ORGANOCHLORINE
INSECTICIDES IN OYSTER
(*Crassostrea iredalei*), SEDIMENT
AND PARTICULATE OF SETIU
AND TOK BALI LAGOON

ZURINA BINTI MOHD AZHARI

MASTER OF SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

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**Thesis Submitted in Fulfillment of the Requirements for the Degree
of Master of Science in the Faculty of Maritime Studies and Marine
Science
Universiti Malaysia Terengganu**

January 2011

Abstract of thesis presented to the Senate of Universiti Malaysia
Terengganu in fulfillment of the requirements for the degree of Master of
Science

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Abd Rashid, Ph. D**

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Faculty : Maritime Studies and Marine Sciences

A total of 16 species from 3 major organochlorine pesticides (OCPs) groups namely BHCs, cyclodiene and DDTs group were determined in sediment, oyster and particulate matter at Setiu lagoon and Tok Bali lagoon. The distribution of OCPs in the Setiu lagoon and Tok Bali lagoon involved 18 sampling stations. Samplings were conducted during the non-monsoon and monsoon seasons. The sediment and oyster samples were extracted by using soxhlet while particulate matter samples were extracted by using a microwave-assisted extraction and were analyzed by using GC–ECD. Result showed that both sampling site were polluted by cyclodiene group followed by BHCs group and

DDTs group. Sediment samples showed high detection of this residue compare to other samples. The OCPs levels for sediment samples in certain sampling station were exceed the maximum level based on US EPA guidelines indicated that the sampling area was highly polluted. However, the OCPs level in oyster samples were lower than FAO limits set and it was safe for human consumption. The distribution profiles of these contaminants suggesting that a number of sources contributing to these contaminants such as run-off from agricultural sites associated with precipitation during monsoon season. Thus, the occurrence of these residual pesticides in both sampling site can be attributed to the intense agriculture and aquaculture activities around the area.

Abstrak tesis yang dikemukakan kepada Senat Universiti Malaysia Terengganu sebagai memenuhi keperluan untuk Sarjana Master Sains

RACUN SERANGGA ORGANOKLORIN DALAM TIRAM (*Crassostrea iredalei*), SEDIMEN DAN PARTIKEL TERAMPAI DI LAGUN SETIU DAN TOK BALI

ZURINA BINTI MOHD AZHARI

January 2011

Pengerusi : Professor Madya Mohamed Kamil Bin Abd Rashid, Ph. D

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Sejumlah 16 spesies dari 3 kumpulan besar pestisid organoklorin iaitu BHCs, siklodien dan kumpulan DDTs ditentukan dalam sedimen, tiram dan partikel halus dalam air di lagun Setiu dan lagun Tok Bali. Taburan racun serangga organoklorin di lagun Setiu dan lagun Tok Bali melibatkan 18 stesen kajian. Penyampelan dilakukan pada musim bukan monsun dan musim monsun. Sampel sedimen dan tiram diekstrak dengan menggunakan alat soxhlet manakala sampel partikel halus diekstrak dengan menggunakan alat gelombang mikro dan di analisis dengan menggunakan GC-ECD. Keputusan menunjukkan bahawa kedua tempat penyampelan telah dicemari oleh kumpulan siklodien diikuti kumpulan BHC dan kumpulan DDT. Sampel sedimen

menunjukkan pengesanan yang tinggi terhadap sisa ini jika dibandingkan dengan sampel lain. Paras racun serangga organoklorin dalam sampel sedimen di sesetengah stesen penyampelan telah melebihi paras maksimum berdasarkan garis panduan US EPA di mana ini menunjukkan kawasan tersebut telah dicemari. Walaubagaimanapun, paras racun serangga organoklorin dalam sampel tiram adalah di bawah paras yang telah ditetapkan oleh FAO dan ini menunjukkan bahawa sampel tiram tersebut adalah selamat untuk di makan. Profil taburan bahan pencemar ini disebabkan beberapa sumber yang menyumbang kepada pencemaran ini seperti aliran tanah dari kawasan pertanian di samping faktor hujan di musim monsun. Oleh itu, ia juga disebabkan aktiviti pertanian dan akuakultur yang giat dijalankan di sekitar kawasan penyampelan.