

CONTAMINATION BY ORGANOCHLORINE RESIDUES IN GREEN
MUSSEL (*Perna viridis*, L.) FROM COASTAL WATERS OF
PENINSULAR MALAYSIA

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MUSSEL (*Perna viridis*, L.) FROM COASTAL WATERS OF PENINSULAR
MALAYSIA**

by

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**This project report is submitted in partial fulfillment of the requirements for the
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With love for my parents,

Rajan & Nagammah,

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And my beloved siblings,

Jeyam & Kishen.

To my dear course-mates (BESS 95/99), thanks for all the wonderful experiences and the memories will forever remain cherished in my mind. I would also like to express my heartfelt thanks to my beloved roommates, Piah and Gee, for all the laughter and moral support. Last but not least, especially to Sarah, Viola and Devan, thank you for tolerating my craziness and I'll always cherish the beautiful friendships that we have built.

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B. Sc. (Botany) 95-99

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Abstract

Organochlorine residue contaminants have been investigated in common mussels (*Perna viridis*, L.) from four locations along the coast of Peninsular Malaysia. A total of nine species of chlorinated pesticides were detected; HCB, mirex, heptachlor, aldrin, heptachlor epoxide, 2,4'-DDE, 4,4'-DDE, 4,4'-DDD and γ -BHC. Total concentrations ranged between 3.93 ng/g and 18.16 ng/g wet weight. HCB, mirex, aldrin and γ -BHC were detected at three locations, 2,4'-DDE at two locations, while heptachlor, heptachlor epoxide, 4,4'-DDD and 4,4'-DDE were detected at one location each. HCB had the lowest concentration with a mean of 0.33 ± 0.06 ng/g wet weight whereas mirex had the highest concentration with a mean of 5.77 ± 4.78 ng/g wet weight. Percentage of lipid content ranged between 1.98 % and 4.60 %. A positive correlation between lipid content and pesticide concentration was obtained. There was a strong relationship between fat content and HCB, γ -BHC, DDT and mirex with correlation coefficients of 0.9567, 0.8958, 0.8308 and 0.7600 respectively. All locations were found to be contaminated with chlorinated pesticides, however the concentrations were low and within acceptable limits.

Abstrak

Pencemaran pestisid berklorin telah dikaji dalam kupang (*Perna viridis*, L.) daripada empat lokasi di sepanjang perairan Semenanjung Malaysia. Sejumlah sembilan spesies pestisid berklorin telah dikenalpasti; HCB, mirex, heptaklor, heptaklor epoksida, 2,4'-DDE, 4,4'-DDE, 4,4'-DDD dan γ -BHC. Jumlah kepekatan semua spesies daripada setiap lokasi didapati dalam julat 3.93 ng/g – 18.16 ng/g berat basah. HCB, mirex, aldrin dan γ -BHC telah berjaya dikesan di tiga lokasi, manakala 2,4'-DDE dikesan di dua lokasi, sementara heptaklor, heptaklor epoksida, 4,4'-DDE dan 4,4'-DDD dikesan di satu lokasi tiap-tiap satunya. Kepekatan HCB merupakan yang terendah sekali pada nilai min 0.33 ± 0.06 ng/g berat basah sementara mirex mempunyai kepekatan yang tertinggi dengan min 5.77 ± 4.78 ng/g berat basah. Peratus kandungan lipid berjulat di antara 1.98 % - 4.60 %. Kandungan lipid menunjukkan hubungan yang positif dengan kepekatan pestisid berklorin. Hubungan yang kuat didapati diantara kandungan lipid dan kepekatan HCB, γ -BHC, DDT dan mirex dengan koefisien korelasi bernilai 0.9567, 0.8958, 0.8308 dan 0.7600 masing-masing. Kesemua lokasi didapati telah dicemari oleh pestisid berklorin tetapi pada kepekatan yang rendah dan dalam lingkungan had yang boleh diterima.