

DISTRIBUTION OF CHLOROPHYLLINE
PHTYOCYANIN IN SEDIMENT ALONG THE
COASTAL ZONE OF BANGKOK BAY
THAILAND

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DISTRIBUTION OF ORGANOCHLORINE PESTICIDES IN SEDIMENT ALONG
THE COASTAL WATER OFF PULAU PERHENTIAN, TERENGGANU

BY
WONG SOON LUENG

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Abstrak

Taburan kepekatan pestisid organoklorin telah dikaji di dalam sedimen di sekitar perairan Pulau Perhentian, Terengganu. Sebanyak 12 lokasi penyampelan telah dikaji untuk menentukan kepekatan dan jenis spesies pestisid organoklorin. Penyampelan dijalankan pada bulan April dan September 2002. Sejumlah 14 jenis spesies pestisid telah dikategorikan kepada 4 kumpulan utama iaitu DDT, BHC, Siklodiene dan lain-lain berdasarkan kepada komponen kimia. Semua lokasi penyampelan didominasi oleh kehadiran kumpulan DDT.

Kepekatan kompaun DDT untuk penyampelan pertama berjulat 50.06 ng.g^{-1} hingga 0.46 ng.g^{-1} , manakala penyampelan kedua mencatatkan kepekatan yang lebih tinggi dengan kepekatan keseluruhan $3261.64 \text{ ng.g}^{-1}$. Siklodiene terdiri daripada heptaklor, aldrin, cis-kordane dan metabolitnya trans-nonaklor, heptaklor eposide dan dieldrin. Penyampelan pertama dan kedua didominasi oleh spesies aldrin dan heptaklor epoxide. γ -BHC hadir dalam kuantiti yang sedikit dan tidak dapat dikesan di beberapa stesen. Lain-lain pestisid yang dikaji ialah HCB dan mirex. Walaubagaimanapun, kekuatannya adalah sangat sedikit dan tiada kehadiran mirex. HCB mencatatkan kepekatan 0.31 ng.g^{-1} pada penyampelan pertama berbanding dengan 5.01 ng.g^{-1} pada penyampelan kedua.

Ujian korelasi menunjukkan tiada hubungan yang rapat di antara kepekatan pestisid dengan jumlah ekstrakan lipid (TEL), jumlah karbon organik dan min saiz sedimen. Ujian statistik ANOVA menunjukkan tiada perbezaan di antara kepekatan pestisid pada kedua-dua kali penyampelan. Walaubagaimanapun, ujian ANOVA juga membuktikan bahawa terdapat perbezaan kepekatan antara stesen pada kedua-dua penyampelan.

Abstract

Distribution of organochlorine pesticides was investigated in the sediment along the coastal waters off Pulau Perhentian, Terengganu. A total of 12 sampling sites were selected and visited twice in April and September 2002. A total of 14 species from 4 major organochlorine pesticides groups namely DDT, BHC, Cyclodiene and others based on their chemical properties were detected. All sampling locations were dominated by the presence of DDT compounds.

The total concentration for the DDT compounds during the April sampling ranged from 50.06 ng.g⁻¹ to 0.46 ng.g⁻¹ while in September sampling was higher at 3261.64 ng.g⁻¹. Cyclodiene consisted of heptachlor, aldrin, *cis*-chlordane and their metabolites were *trans*-nonachlor, heptachlor epoxide and dieldrin. Aldrin and heptachlor epoxide dominated the concentration of this group in April and September sampling respectively. γ -BHC appeared in small quantity and was not detected in some stations during the samplings. Other pesticides analyzed were HCB and mirex. However, concentration of the HCB was significantly low and mirex was not detected during the analysis. April sampling recorded 0.31 ng.g⁻¹ of BHC compared to 5.01 ng.g⁻¹ during the second sampling.

Correlation test revealed that there is negligible relationship between the concentrations of the pesticides with total extractable lipid, total organic carbon and mean size of sediment. On the other hand, ANOVA test showed that there is no difference in pesticides concentration between the two samplings. However, there is difference in concentration among the stations during the sampling.