DISTRIBUTION OF HYDROCARBON IN SEDIMENT OF SUNGAI KUALA TERENGGANU

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Final Research Project Report Declaration and Verification Form

DEPARTMENT OF MARINE SCIENCE
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DECLARATION AND VERIFICATION REPORT
RESEARCH PROJECT I AND II

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LIST OF ABBREVIATIONS/SYMBOLS

DCM	Dichloromethane
TAH	Total Aliphatic Hydrocarbon
PAH	Polycyclic Aromatic Hydrocarbon
µL	Mikroliter
mL	Milliliter
g	Gram
°C	Degree celcius
ppb	Part per billion

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DISTRIBUTION OF HYDROCARBON IN SEDIMENT OF SUNGAI KUALA TERENGGANU, TERENGGANU

ABSTRACT

Hydrocarbon pollution in estuary area has attracts many attention due to it hazardous properties of hydrocarbon. Estuary area is a productive area, thus we must keep it in secure level. Thus monitoring the level of hydrocarbon level in estuary area has become a concern. Some of component of hydrocarbon has demonstrates carcinogenic effect to human body, especially polycyclic aromatic hydrocarbon (PAHs). Purpose of this study is to determine the distribution of total aliphatic hydrocarbon (TAHs) and polycyclic aromatic hydrocarbon (PAHs) at each 9 station and to determine its concentration. Samples were collected using Ponar Grab, back to laboratory it was dried, undergoes soxhlet extraction process, and then it fractionated, lastly samples from each stations were injected into GC-FID. From station 1 to station 9 there are 3 species of TAHs which is n-Pentatriacontane, n-Nonatriacontane, dan n-Tetracontane while 2 species of PAHs which is naphthalene dan acenaphthene are not found in Sungai Kuala Terengganu. For TAHs identification, n-Heneicosane can be found in all 9 stations and its concentration is varies from 1.180ppb to 108.245ppb. For PAHs species that were present at every station is pyrene and Indeno(1,2,3-cd)pyrene. Pyrene is the most abundance species at each station except at station 5 and its concentration varies from 64.604ppb to 8272.39ppb. Indeno(1,2,3-cd)pyrene also can be found at each stations but its concentration is not abundance at each station compared to pyrene, it varies from 3.174ppb to 83.140ppb. In

future, sampling maybe should be done before and after monsoon season to observe whether monsoon affect distribution of hydrocarbon in sediment or not.

TABURAN HIDROKARBON DI DALAM SEDIMEN SUNGAI KUALA TERENGGANU, TERENGGANU

ABSTRAK

Pencemaran hidrokarbon di kawasan muara telah menarik perhatian kerana hidrokarbon membahayakan. Kawasan muara adalah penting kerana ia adalah kawasan yang mempunyai produktiviti yang tinggi, maka kita harus memastikan bahawa muara sentiasa di paras selamat. Justeru itu pemantauan adalah penting. Sebahagian hydrocarbon telah menunjukkan ia akan menyebabkan kanser kepada manusia. Tujuan kajian ini adalah untuk menentukan taburan hidrokarbon di kesemua sembilan stesen kajian dan menentukan kepekatannya. Semua sampel diambil menggunakan Ponar Grab, kembali ke makmal sampel dikeringkan, kemudian ia akam melalui proses pengekstrakkan memalui soxhlet, selepas itu ia dipisahkan dan akhir sekali sampel setial stesen disuntik kedalam GC-FID. Dari stesen 1 sehingga stesen 9, terdapat tiga spesis TAHs iaitu n-Pentatriacontane, n-Nonatriacontane, dan n-Tetracontane mankala dua sepsis PAHs iaitu naphthalene dan acenaphthene yang tidak ditemui. Pengenalpastian dilakukan, menunjukkan n-Heneicosane boleh ditemui di kesemua Sembilan stesen dan kepekatanya berbeza-beza dari nilai 1.180pp sehingga 108.245ppb. Manakala spesis PAHs yang boleh kita temui disetiap lokasi adalah pyrene dan Indeno(1,2,3-cd)pyrene. Pyrene adalah spesis yang mempunyai kepekatan yang paling banyak disetiap lokasi kecuali di stesen 5, kepekatannya berbeza-beza dalam lingkungan 64.604ppb sehingga 8272.39ppb. Indeno(1,2,3-cd)pyrene juga boleh ditemui disetiap lokasi tetapi kepekatannya adalah sedikit berbanding dengan pyrene dan kepekatanya berbeza-beza dalam lingkungan 3.174ppb sehingga 83.140ppb. Pada masa akan datang, kajian dan pengumpulan sampel