

DISTRIBUTION OF HYDROPHILIC AND LIPOPHILIC ANTICARBOHS
IN SURFACE WATER OF MEDIAN RIVER, TIREN-GAMU

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**DISTRIBUTION OF ALIPHATIC AND AROMATIC HYDROCARBONS IN
SURFACE WATER OF KERTIH RIVER, TERENGGANU.**

By

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LIST OF ABBREVIATIONS

%	Percentage
°C	Degree Celsius
μ	micro
g	gram
L	liter
sec	second
AH	Aliphatic hydrocarbon
Amt	Amount
CPI	Carbon Preference Index
DCM	Dichloromethane
dil	dilution
DOE	Department of Environmental
GC	Gas Chromatography
GC-FID	Gas Chromatography Flame Ionization Detector
GC-MS	Gas Chromatography Mass Spectrometry
HCl	Hydrochloric acid
inj	injection
IS	internal standard
MWQM	Manual Water Quality Monitoring
Na ₂ SO ₄	Anhydrous sodium sulphate
PAHs	Polycyclic Aromatic Hydrocarbons

RF	Response Factor
std	Standard
TAH	Total Aliphatic Hydrocarbon
UCM	Unresolved complex index
Vol	Volume

ABSTRACT

This study was done to determine the distribution of hydrocarbons (aliphatic and aromatic) in the surface water of Kertih River, Kemaman, Terengganu. This present study showed that the total identified aliphatic hydrocarbons in surface water varied from 12.85 to 301.03 $\mu\text{g/L}$ for the three sampling times. The first sampling, July 2004 showed a concentration total identified aliphatic hydrocarbons ranged from 26.12 to 132.24 $\mu\text{g/L}$, second sampling period, September 2004 with ranged of 18.40 to 301.03 $\mu\text{g/L}$ and the third sampling, December 2004 was between 12.85 to 39.29 $\mu\text{g/L}$. The concentrations of PAHs in water samples from Kertih River were observed between a ranged of 2.64 to 32.19 $\mu\text{g/L}$ for the three periods of sampling. During the first sampling period, July 2004, the identified PAHs had showed the concentration range from 7.39 to 21.77 $\mu\text{g/L}$, second sampling period with range of between 11.65 to 32.19 $\mu\text{g/L}$ and the last sampling period showed range concentrations between 2.64 to 10.67 $\mu\text{g/L}$. Among three samplings, it's presented the identified aliphatic hydrocarbon compounds ranging from C_{21} to C_{32} except second sampling. PAHs in the Kertih River were 54%, showing the high molecular weight PAHs were abundant in the water samples. The main source of hydrocarbon occurrence in Kertih River may from petrochemical industries and anthropogenic sources and this evidence is supported by the CPI values, presence of UCM during the second sampling period and indication of certain species.

**Taburan Hidrokarbon (Alifatik & Aromatik) Di Permukaan Air Sungai Kertih,
Kemaman, Terengganu.**

ABSTRAK

Kajian ini adalah untuk menentukan taburan hidrokarbon (alifatik dan aromatik) dalam permukaan air di Sungai Kertih, Kemaman, Terengganu. Kajian ini telah menunjukkan jumlah kepekatan hidrokarbon alifatik yang dikenalpasti adalah berjulat 12.85 hingga 301.03 $\mu\text{g/L}$ dalam ketiga-tiga persampelan. Persampelan pertama, Julai 2004 telah menunjukkan jumlah kepekatan hidrokarbon alifatik yang dikenalpasti adalah berjulat 26.12 hingga 132.24 $\mu\text{g/L}$, persampelan kedua pada September berjulat 18.40 hingga 301.03 $\mu\text{g/L}$ dan persampelan ketiga pada December 2004 adalah berjulat 12.85 hingga 39.29 $\mu\text{g/L}$. Pada persampelan pertama, julat jumlah kepekatan hidrokarbon aromatik yang dikenalpasti adalah di antara 7.39 hingga 21.77 $\mu\text{g/L}$, manakala ia berjulat 11.65 hingga 32.19 $\mu\text{g/L}$ bagi persampelan kedua dan persampelan terakhir adalah berjulat 2.64 hingga 10.67 $\mu\text{g/L}$. Ketiga-tiga persampelan telah menunjukkan kewujudan spesies hidrokarbon alifatik dari C_{21} hingga C_{32} yang dikenalpasti kecuali persampelan kedua. PAHs yang berjisim berat molekul yang tinggi sebanyak 54 % menunjuk kewujudan di dalam Sungai Kertih. Sumber utama hidrokarbon adalah mungkin berpunca dari kilang petrokimia dan sumber antropogenik dan ini disokong dengan nilai CPI, kewujudan UCM pada persampelan kedua serta kewujudan spesies yang tertentu.