DISTRIBUTION OF ALIPHATIC AND AROMATIC HYDROCARBONS IN SURFACE WATER OF KERTEH RIVER, TERENGGANU

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Lihat sebelah

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TABLE OF CONTENTS

		Page
TABLE OF CONTENTS		**iii**
LIST OF TABLES		**vi**
LIST OF FIGURES		**vii**
LIST OF APPENDICES		**xi**
LIST OF ABBREVIATIONS		**xii**
ABSTRACT		**xiv**
ABSTRAK		**xv**
1.0	**INTRODUCTION**	**1**
1.1	Background of Study	1
1.2	Significance of Study	3
1.3	Objectives of Study	3
2.0	**LITERATURE REVIEW**	**4**
2.1	Hydrocarbons	4
2.1.1	Aliphatic Hydrocarbons	6
2.1.1a	Saturated Aliphatic Hydrocarbons	6
2.1.1b	Unsaturated Aliphatic Hydrocarbons	8
2.1.2	Aromatic Hydrocarbons	10

2.2 Sources of Hydrocarbons Entering the River 12

2.2.1 Natural Sources 12

2.2.1a Terrestrial Biological System 12

2.2.1b Forest Fires 13

2.2.2 Anthropogenic Sources 14

2.2.2a Industrial Effluent 14

2.2.2b Runoff 15

2.3 PAH in Water 16

2.4 Instrumentation 19

3.0 METHODOLOGY 22

3.1 Research Location Study 22

3.2 Cleaning of Glassware 28

3.2.1 Chemicals and Reagents 28

3.3 Sampling Technique 29

3.4 Water Sample Analysis 30

3.5 Desulphurization 31

3.5.1 Copper Treatment 31

3.6 Sample Fractionation 32

3.6.1 Alumina and Silica Gel Column 32

3.7 Gas Chromatography Analysis (GC-FID) 33

3.7.1 Identification and Quantification 34

3.8 Standard 34

3.9 Formula of recovery standard 36

4.0 RESULTS AND DISCUSSION 40

4.1 Aliphatic hydrocarbon in surface water 40

4.2 Aromatic hydrocarbon in surface water 58

4.3 Unresolved complex mixture 76

4.4 Relationship between physical and chemical parameter in Surface water 80

4.4.1 The changing of salinity in surface water among three samplings 80

4.4.2 Relationship between pH and salinity among three samplings 82

4.4.3 Relationship between pH and salinity for three samplings 84

5.0 CONCLUSION AND SUGGESTIONS 85

5.1 Conclusions 85

5.2 Suggestion 87

REFERENCES 88

APPENDIX 93

CURRICULUM VITAE 108

LIST OF TABLES

Table		Page
2.1	Physical properties of Alkanes	7
2.2	Physical properties of Alkenes	9
2.3	Structures of Aromatic Hydrocarbons	11
2.4	Physical and Chemical Properties of PAHs	18
3.1	Coordinate of study area	23
3.2	Internal Standard for each hydrocarbon component	35
3.3	External standards for Aliphatic Hydrocarbons	37
3.4	External standards for Aromatic Hydrocarbons	38
4.1	Concentration of total aliphatic hydrocarbon had been identified	41
4.2	CPI value during three sampling periods	53
4.3	Average concentration of AH compounds for 8 stations	55
4.4	Studies of TAH in surface water in Malaysia	57
4.5	Concentration of identified PAH for three time of sampling	58
4.6	The average concentration of PAHs during three samplings	71
4.7	Average concentration of identified PAHs compounds	73
4.8	Studies of PAHs in surface water in Malaysia and others countries	75
4.9	Concentration of UCM of each station	76
4.10	Studies of UCM in the water and sediment of World River	79

LIST OF FIGURES

Figures		Page
2.1	General classification of Hydrocarbons	5
3.1	Sampling station in study area	22
3.2	Picture of Station 1 (S1; Fishing village)	24
3.3	Picture of Station 2 (S2; near to discharge outlet)	24
3.4	Picture of Station 3 (S3; near to mangrove area)	25
3.5	Picture of Station 4 (S4; near to mangrove area)	25
3.6	Picture of Station 5 (S5; near to dumping site)	26
3.7	Picture of Station 6 (S6; near to mangrove area)	26
3.8	Picture of Station 7 (S7; near to discharge outlet)	27
3.9	Picture of Station 8 (S8; near to Kertih airport)	27
3.10	Process Analyzes Hydrocarbons	36
4.1	Concentration of total aliphatic hydrocarbons (TAHs) had been identified	41
4.2	Distribution of total identified AHs in surface water during July 2004	42
4.3	Distribution of total identified AHs in surface water during Sept 2004	42
4.4	Distribution of total identified AHs in surface water during Dec 2004	42
4.5a	Concentration of identified AH compounds at S1 during 3 times of sampling.	45
4.5b	Chromatogram of AH compounds at S1 during 3rd sampling.	45

4.6a	Concentration of identified AH compounds at S2 during 3 times of sampling.	46
4.6b	Chromatogram of AH compounds at S2 during 2nd sampling.	46
4.7a	Concentration of identified AH compounds at S3 during 3 times of sampling.	47
4.7b	Chromatogram of AH compounds at S3 during 3rd sampling.	47
4.8a	Concentration of identified AH compounds at S4 during 3 times of sampling.	48
4.8b	Chromatogram of AH compounds at S4 during 3rd sampling	48
4.9a	Concentration of identified AH compounds at S5 during 3 times of sampling.	49
4.9b	Chromatogram of AH compounds at S5 during 1st sampling	49
4.10a	Concentration of identified AH compounds at S6 during 3 times of sampling.	50
4.10b	Chromatogram of AH compounds at S6 during 3rd sampling	50
4.11a	Concentration of identified AH compounds at S7 during 3 times of sampling.	51
4.11b	Chromatogram of AH compounds at S7 during 3rd sampling	51
4.12a	Concentration of identified AH compounds at S8 during 3 times of sampling.	52
4.12b	Chromatogram of AH compounds at S8 during 3rd sampling	52
4.13	Average concentrations of AH compounds for 8 stations.	55
4.14	Distribution of total identified PAH in surface water during July 2004.	59
4.15	Distribution of total identified PAH in surface water during Sept 2004.	59
4.16	Distribution of total identified PAH in surface water during Dec 2004	59
4.17	Total concentration of identified PAH	60

4.18a Concentration of identified PAH compounds at S1 during 3 times of sampling. 63

4.18b Chromatogram of PAH compounds at S1 during 3rd sampling 63

4.19a Concentration of identified PAH compounds at S2 during 3 times of Sampling 64

4.19b Chromatogram of PAH compounds at S2 during 3rd sampling 64

4.20a Concentration of identified PAH compounds at S3 during 3 times of sampling. 65

4.20b Chromatogram of PAH compounds at S3 during 3rd sampling 65

4.21a Concentration of identified PAH compounds at S4 during 3 times of sampling. 66

4.21b Chromatogram of PAH compounds at S4 during 3rd sampling 66

4.22a Concentration of identified PAH compounds at S5 during 3 times of sampling. 67

4.22b Chromatogram of PAH compounds at S5 during 3rd sampling 67

4.23a Concentration of identified PAH compounds at S6 during 3 times of sampling. 68

4.23b Chromatogram of PAH compounds at S6 during 3rd sampling 68

4.24a Concentration of identified PAH compounds at S7 during 3 times of sampling. 69

4.24b Chromatogram of PAH compounds at S7 during 3rd sampling 69

4.25a Concentration of identified PAH compounds at S8 during 3 times of sampling. 70

4.25b Chromatogram of PAH compounds at S8 during 3rd sampling 70

4.26 The average concentration of PAHs for three samplings. 71

4.27 Total concentration of UCM of each station during second sampling which carried out on 20 September 2004. 77

4.28	Chromatogram of GC-FID showed presence of UCM in detection aliphatic species in sample of station 3.	77
4.29	Graph and surfer plot of salinity surface water during 9 July 2004	80
4.30	Graph and surfer plot of salinity surface water during 20 Sept 2004	80
4.31	Graph and surfer plot of salinity surface water during 25 Dec 2004	80
4.32	Changing of salinity and pH with depth among sampling sites during the sampling trips.	81
4.33	Relationship between pH and salinity in surface water during 9 July 2004.	82
4.34	Relationship between pH and salinity in surface water during 20 Sept 2004	82
4.35	Relationship between pH and salinity in surface water during 25 Dec 2004.	83
4.36	Relationship between pH and salinity for three samplings	84

LIST OF APPENDICES

Appendix		Page
I	External Standard for Aliphatic Hydrocarbons (AHs)	93
II	Chromatogram of AH external standard	94
III	External Standard for Aromatic Hydrocarbons (PAHs)	95
IV	Chromatogram of PAH external standard	96
V	Concentrations of identified AHs during 1st sampling (9 July 2004)	97
VI	Concentrations of identified AHs during 2nd sampling (20 September 2004)	98
VII	Concentrations of identified AHs during 3rd sampling (25 December 2004)	99
VIII	Concentrations of identified PAHs during 1st sampling (9 July 2004)	100
IX	Concentrations of identified PAHs during 2nd sampling (20 September 2004)	101
X	Concentrations of identified PAHs during 3rd sampling (25 December 2004)	102
XI	Recovery of AHs and PAHs samples during three sampling times	103
XII	Two-factor ANOVA without Replication for AHs	104
XIII	Two-factor ANOVA without Replication for PAHs	105
XIV	Pictures (solvent extraction, alumina & silica gel column, rotary evaporator and ultrasonic)	106
XV	Picture of GC-FID	107

LIST OF ABBREVIATIONS

%	Percentage
^0C	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_2SO_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 μg/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 μg/L , second sampling period, September 2004 with ranged of 18.40 to 301.03 μg/L and the third sampling, December 2004 was between 12.85 to 39.29 μg/L. The concentrations of PAHs in water samples from Kertih River were observed between a ranged of 2.64 to 32.19 μg/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 μg/L, second sampling period with range of between 11.65 to 32.19 μg/L and the last sampling period showed range concentrations between 2.64 to 10.67 μg/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 Sugai 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 μg/L dalam ketiga-tiga persampelan. Persampelan pertama, Julai 2004 telah menunjukkan jumlah kepekatan hidrokarbon alifatik yang dikenalpasti adalah berjulat 26.12 hingga 132.24 μg/L, persampelan kedua pada September berjulat 18.40 hingga 301.03 μg/L dan persampelan ketiga pada December 2004 adalah berjulat 12.85 hingga 39.29 μg/L. Pada persampelan pertama, julat jumlah kepekatan hidrokarbon aromatik yang dikenalpasti adalah di antara 7.39 hingga 21.77 μg/L, manakala ia berjulat 11.65 hingga 32.19 μg/L bagi persampelan kedua dan persampelan terakhir adalah berjulat 2.64 hingga 10.67 μg/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.