SPECIATION OF SELECTED HEAVY METALS (COPPER (Cu), LEAD (Pb), ZINC (Zn), MANGANESE (Mn), IRON (Fe) AND ALUMINIUM (Al)) IN COASTAL SEDIMENT OF TERENGGANU

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2005

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Kolej Universiti Sains Dan Teknologi Malaysia (KUSTEM)

1100034592

LP 25 FST 3 2005

1100034592
Speciation of selected heavy metals (copper (cu), lead (pb), Zinc(Zn), Manganese(mn), iron(fe) and aluminium(ai) in coastal sediment off Terengganu / Noorzaliza Roslan.

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Kolej Universiti Sains Dan Teknologi Malaysia (KUSTEM)

SPECIATION OF SELECTED HEAVY METALS (COPPER (Cu), LEAD (Pb), ZINC (Zn), MANGANESE (Mn), IRON (Fe) AND ALUMINIUM (Al)) IN COASTAL SEDIMENT OFF TERENGGANU

By

Noorzaliza binti Roslan

Research Report is submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science (Marine Sciences)

Department of Marine Sciences
Faculty of Science and Technology
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA
2005

This project report should be cited as:

> Noorzaliza, R. 2005. Speciation of selected heavy metals (Copper (Cu), Lead (Pb), Zinc (Zn), Manganese (Mn), Iron (Fe) and Aluminum (Al)) in coastal sediment off Terengganu. Undergraduate thesis, Bachelor of Science in Marine Science, Faculty of Applied Science and Technology, Kolej Universiti Sains dan Teknologi Malaysia, Terengganu. 87p.

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1100034592

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ACKNOWLEDGEMENT

Alhamdulillah. In the name of Allah and the bless of him, I have finished my final year project on metal speciation. Throughout of a year of doing this project, I have faced a lot of problems and challenges that sometimes made me like to gave up.

I want to take this opportunity to express my appreciation to every single person who has helped me out in my final year project research. First of all, I want to thank to miss Benny for always been such a good tutor. Guiding me to the right path in handled the analysis and taught me to use some equipment such as AAS and Microwave digestion. My sincerest gratitude to my supervisor, Prof. Dr. Noor Azhar for his couragement, endless help and guidance in the conduct of this study. Not forget about the lab assistants; En. Raja, En. Sulaiman, En. Kamari and En Kamaron for always assist me especially in supplying all the apparatus and chemical materials that I needed for my analysis. Thank you for your assistance. Friends are needed in our life as their supports gave new strength to face the real world beside our own family members. So, my appreciation goes to my friends; Dila, Kak Ju, Yati, Ina, Mira, Is, Aini and Kak Azie for always been supportive friends, shared information and problems. True friends are hard to find. Thank you very much.

Last but not least, the appreciations are also goes to my family for their encouragement, support, cooperative and great understanding.

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LIST OF ABBREVIATIONS

AAS	Atomic Absorption Spectrophotometer
BDL	Below detection limit
Mn	Manganese
Al	Aluminium
Fe	Iron
Zn	Zinc
Pb	Lead
F1	Exchangeable phase
F2	Bound to carbonate phase
F3	Bound to Fe-Mn oxides phase
F4	Bound to organic matter
F5	Residual
HF	Hydrofluoric acid
HOAc	Acetic acid
$MgCl_2$	Magnesium chloride
Mg/L	Miligram per gram
HNO_3	Nitric acid
H_2SO_4	Sulfuric acid
NaOAc	Natrium acetate

NH_2OHHCl	Hidrosilanum Hydrochloride
NH_4 OAc	Ammonium acetate
NBS	National Bureau of Standard
ppm	Part per million
ppt	Part per trillion
µl	microlitre
µm	micromole
v/v	Volume/Volume
$\mu g g^{-1}$	microgram per gram
$\mu g l^{-1}$	microgram per litre
^{o}C	Degree celcius

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ABSTRACT

SPECIATION OF SELECTED HEAVY METALS (COPPER (Cu), LEAD (Pb), ZINC (Zn), MANGANESE (Mn), IRON (Fe) and ALUMINIUM (Al)) IN COASTAL SEDIMENT OFF TERENGGANU

By,

NOORZALIZA BINTI ROSLAN

A study on speciation of selected heavy metals (Cu, Pb, Zn, Mn, Fe and Al) using the sequential extraction method in sediment were analyzed from 16 stations along Terengganu coast. In this study, the mobilization of metals chemical reaction were investigated with 5 geochemical fractions; exchangeable, carbonate, Fe-Mn hydroxides, organic and residual phases. The extraction data shows most of the selected metals were naturally occurred where 50% of concentrations contain in residue phase except for Mn. Pb was found associated with all extractants, Zn and Mn were found associated with Fe-Mn oxides and residual. Therefore, the South China Sea was not polluted.

ABSTRAK

AGIHAN LOGAM TERPILIH (KUMPRUM (Cu), PLUMBUM (Pb), ZINK (Zn), MANGAN (Mn), BESI (Fe) dan ALUMINIUM (Al)) KE ATAS SEDIMENT DI LUAR PANTAI TERENGGANU

Oleh

NOORZALIZA BINTI ROSLAN

Kajian mengenai logam terpilih (Cu, Pb, Mn, Fe dan Al) dengan menggunakan prosedur agihan logam dalam fraksi kimia pada sedimen di 16 stesen di luar Pantai Terengganu. Dalam kajian ini, pergerakkan logam berat dari segi fraksi kimia dikaji. Enam Fraksi yang terlibat adalah; pertukaran ion mudah, pengikatan kepada karbonat, pengikatan pada bahan organic dan hasil logam. Dari data yang diperolehi, logam berat yang dikaji dalam sediment adalah berasal dari semulajadi dimana 50% kepekatan logam berat berada pada fasa hasil logam kecuali Mn. Pb dijumpai terkandung banyak dalam semua fraksi, Zn dan mangan di dalam fraksi pengikatan kepada Fe-Mn oksida dan hasil logam. Oleh sebab itu, Laut China Selatan adalah tidak tercemar dengan logam yang dikaji.