

MINERALOGICAL STUDY OF THE TERENGGANU RIVER  
ESTUARINE SEDIMENTS

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**MINERALOGICAL STUDY OF THE TERENGGANU RIVER  
ESTUARINE SEDIMENTS**

By

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*Dedicated to:*

*Haji Rohailan bin Haji Shariff (Ayah)*

*Hajah Norshamsiah binti Haji Shalihin (Mak)*

*Nurul Atiqah binti Haji Rohailan(Adeq)*

*Haji Shalihin and family*

*Haji Shariff and family*



**DEPARTMENT OF MARINE SCIENCE  
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RESEARCH PROJECT I AND II**

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## LIST OF ABBREVIATIONS / SYMBOLS

%	percentage
°C	degree Celcius
Å	Armstrong
$\phi$	phi
L	liter
mL	milliliter
$\mu\text{m}$	micrometer
cm	centimeter
mm	milimeter
g	gram
N	Normality
M	Mol
CuK $\alpha$	Copper Potassium Alpha
NaHCO <sub>3</sub>	Natrium Bicarbonate
H <sub>2</sub> O <sub>2</sub>	Hydrogen Peroxide
HCl	Hydrochloric Acid
>	More than
<	Less than

K	Kaolinite
I	Illite
Qz	Quartz
Gi	Gibbsite
Go	Goethite
Fd	Feldspars
XRD	X- Ray Diffractometer

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## **ABSTRACT**

This study was conducted to determine the mineral contents of the Terengganu River Estuarine sediments. The sediments were collected on board UNIPERTAMA III from fifteen stations along the Terengganu River. The sediments were collected using box corer and were processed for sand and clay fractions separation by sedimentation and decantation. The mineral contents in the sand fraction were determined using a petrographic microscope having an image analyzer while the clays were determined using X- Ray Diffractometer (XRD). Results of the sand fractions showed that quartz is the dominant mineral found in the study area and feldspar in stations 8,9,12 and 15. For the clay mineral, illite is dominant in stations 3,4,5,6,7,8,12,13 and 15 and moderate in stations 2, 9, 10, 11 and 14 while station 1 has very few amount. Kaolinite is dominant in stations 13 and 15, moderate in stations 1,2,3,4,5,8,9,10,11,12, 15, and few in stations 6 and 7. Goethite and Gibbsite were also present in the sediments. Loam is the textural class of the sediments in some of the stations.

## ABSTRAK

Kajian dijalankan adalah untuk mengenalpasti kandungan mineral dalam sedimen di muara Sungai Terengganu. Sedimen diambil dengan menggunakan kapal UNIPERTAMA III . Sejumlah lima belas sample sediment diambil di sepanjang muara Sungai Terengganu. Sedimen diambil dengan menggunakan alat penyampelan sedimen (box corer) dan pengasingan agihan pasir dan liat adalah dengan menggunakan kaedah pemendapan dan penyaringan. Kandungan mineral di dalam pasir ditentukan dengan menggunakan mikroskop petrografik dengan menganalisis imej manakala untuk mineral liat ditentukan dengan menggunakan X- Ray Diffractometer. Keputusan menunjukkan agihan pasir jenis quartz adalah dominan di semua kawasan kajian dan feldspars telah dikenalpasti di stesen 8, 9, 12 dan 15. Untuk mineral liat, didominasi oleh illite di stesen 3, 4, 5, 6, 7, 8, 12, 13 dan 15 dan dalam kandungan sederhana pada stesen 2, 9, 10, 11 dan 14 manakala sedikit pada stesen 1. Kaolinite adalah dominan pada stesen 13 dan 15, sederhana pada stesen 1, 2, 3, 4, 5, 8, 9,10,11,12, 15 dan sedikit pada stesen 6 dan 7. Selain itu, goethite dan gibbsite juga terdapat di dalam sedimen tersebut. Bagi analisis tekstur, kelodak mendominasi keseluruhan kawasan kajian.