A STUDY ON THE MINERAL CONTENTS OF KEMAMAN RIVER ESTUARINE SEDIMENTS

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Lihat sebelah

A STUDY ON THE MINERAL CONTENTS OF KEMAMAN RIVER ESTUARINE SEDIMENTS

By

Rozana Binti Abdullah

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

Department Of Marine Science
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APPROVAL AND CERTIFICATION FORM
RESEARCH PROJECT I AND II

I certify that the research report entitled:

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LIST OF ABBREVIATIONS / SYMBOLS

%	percentage
°C	degree Celcius
L	liter
mL	milliliter
mm	millimeter
g	gram
Å	Armstrong
Q	Quartz
M	Mica
K	Kaolinite
K	Potassium
F	Feldspar
I	Ilmenite
P	Pirit
K_2O	Potassium oxide
Mg	Magnesium
MgO	Magnesium Oxide
Al	Aluminium
Al_2O_3	Aluminium oxide
Si	Silicon
SiO_2	Silicon oxide

Ca	Calcium
CaO	Calcium oxide
Fe	Iron
Fe_2O_3	iron oxide
SEM	Scanning Eectron Microscope
EDS	Energy X-ray Dispersive Spectroscopy
XRD	X-ray Diffractometer

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ABSTRACT

This study was conducted to determine the mineral contents and sediment types of Kemaman river estuarine sediments. The sediment samples were collected using Ekman Grab from 10 stations at Kemaman river estuarine, Terengganu. Identification of mineral contents in the sediment and its elemental composition were determined using X-ray Powder Diffractometer (XRD) and Scanning electron Microscope-Energy Dispersive X-ray Spectroscopy (SEM-EDS) respectively. The texture of the sediments was determined using hydrometer method. Results in the mineral analysis using XRD and SEM-EDS showed that quartz is the most dominant mineral found in the study area, which indicates that quartz is present in large amount. Besides that, kaolinite, mica and ilmenite are also present frequently, few and possible occurrence respectively at this study area. In addition, trace amount of other mineral such as feldspar, gibbsite and pyrite are also present in trace amount in this study. For SEM-EDS analysis also shows that silicon oxide (SiO_2) also known as quartz is most dominant in the study area, followed by aluminium oxide (Al_2O_3), iron oxide (Fe_2O_3), potassium oxide (K_2O), magnesium oxide (MgO) and calcium oxide (CaO). For texture analysis, indicated that most of the sediments from the texture analysis showed that most of the textural classes in the sediment are sandy loam followed by sandy clay loam, loamy sand and loam. Many factors that are influence the texture of the sediment such as river transport of sediment, river inflow, waves and wind action, meteorological forces and also environment activities.

Kajian Kandungan Mineral di dalam Sedimen di Muara Sungai Kemaman

ABSTRAK

Kajian dijalankan untuk mengenalpasti kandungan mineral dan jenis sedimen dalam sedimen di kawasan muara sungai Kemaman. Sedimen diambil daripada sepuluh stesen di kawasan muara sungai Kemaman dengan menggunakan Ekman Grab. Pengenalpastian untuk analisis mineralogy bagi kandungan mineral dan komposisinya di dalam sedimen ditentukan dengan menggunakan X-ray Powder Diffractometer (XRD) dan Scanning Electron Microscope-Energy Dispersive X-ray Spectroscopy (SEM-EDS). Sementara itu, bagi analysis tekstur sediment untuk jenis sedimen ditentukan dengan menggunakan kaedah hidrometer. Keputusan bagi pecahan tanah liat yang mana dikesan dengan menggunakan XRD dan SEM-EDS menunjukkan kuarza bagi kedua-dua analisis adalah mineral paling dominant yang dijumpai di kawasan kajian di setiap stesen, yang mana menunjukkan kuarza hadir dalam kuantiti paling banyak. Selain itu, kaolinit, mika dan ilmenit juga hadir secara kuantiti sederhana, kurang dan kemungkinan ada masing-masing d kawasan kajian. Sebagai tambahan, mineral lain yang mungkin wujud adalah feldspar, gibsit dan pirit juga didedahkan dalam kajian ini. Untuk SEM-EDS analisis juga menunjukkan silikon oksida (SiO_2) juga dikenali sebagai kuarza adalah paling dominant di kawasan kajian diikuti oleh aluminium oksida (Al_2O_3), ferum oksida (Fe_2O_3), kalium oksida (K_2O), magnesium oksida (MgO) and kalsium oksida (CaO). Untuk analisis tekstur, menunjukkan kebanyakan jenis tekstur sediment adalah sandy loam diikuti sandy clay loam, loamy sand dan loam. Banyak faktor yang mempengaruhi tekstur sediment seperti pengangkutan sediment sungai, aliran sungai, tindakan ombak dan angin, kesan meteorology dan aktiviti persekitaran.