

**STUDY ON THE GEOCHEMISTRY AND MINERALOGY OF
MERANG COASTAL SEDIMENTS**

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**STUDY ON THE GEOCHEMISTRY AND MINERALOGY OF MERANG
COASTAL SEDIMENTS**

By

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**Research Report submitted in partial fulfillment of
the requirement for the degree of
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**Department of Marine Science
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**DEPARTMENT OF MARINE SCIENCE
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DECLARATION AND VERIFICATION FORM

FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:

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TABLE OF CONTENTS

Content	Page
ACKNOWLEDGEMENT	iii
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	ix
LIST OF APPENDICES	x
ABSTRACT	xi
CHAPTER 1: INTRODUCTION	1
1.1 Objectives	3
CHAPTER 2: LITERATURE REVIEW	4
2.1 Sediment	4
2.2 Grain size of sediment	5
2.3 Composition of marine sediment	6
2.3.1 Lithogenous sediments	7
2.3.2 Biogeneous sediments	7
2.3.3 Hydrogenous sediments	7
2.4 Mineralogy	8
2.4.1 Quartz	9
2.4.2 Kaolinite	9
2.4.3 Illite	9
2.4.4 Smectite	10
2.4.5 Chlorite	10
2.5 Sedimentological characteristics of sediments	10
2.5.1 Mean	11
2.5.2 Standard deviation	12

2.5.3 Skewness	12
2.5.4 Kurtosis	13
CHAPTER 3: METHODOLOGY	14
3.1 Study area	14
3.2 Collection of samples	16
3.3 Analytical technique	16
3.3.1 SEM-EDS analysis	16
3.3.2 X-ray Powder Diffractometer (XRD)	17
3.3.3 Dry sieving	18
3.3.4 Hydrometer method	18
CHAPTER 4: RESULTS	22
4.1 Sedimentological characteristics	22
4.2 Particle size	25
4.3 Elements and compounds oxide in the study area	27
4.4 X-Ray Diffractometer (XRD)	35
CHAPTER 5: DISCUSSION	41
5.1 Sedimentological characteristics	41
5.2 Particle size	41
5.3 Elements and compounds oxide in the study area	42
5.4 X-Ray Diffractometer (XRD)	43
CHAPTER 6: CONCLUSION	44
CHAPTER 7: REFERENCES	45
APPENDICES	48
CURRICULUM VITAE	57

LIST OF TABLES

TABLE		PAGE
3.1	Coordinates of the study area	15
3.2	Worksheet for Hydrometer analysis	20
4.1	Mean, standard deviation (sorting), skewness and kurtosis values for Merang sampling stations	23
4.2	Textural class of Merang sampling stations	26
4.3	Major elements detected by SEM-EDS	28
4.4	Major oxides detected by SEM-EDS	29

LIST OF FIGURES

FIGURE		PAGE
3.1	Location of stations in the study area	14
3.2	USDA Textural Triangle	21
4.1	Mean value of Merang sampling stations	23
4.2	Sorting value of Merang sampling stations	24
4.3	Skewness value of Merang sampling stations	24
4.4	Kurtosis value of Merang sampling stations	25
4.5	Percentage of textural class of Merang sampling stations	26
4.6 (a)	Major elements detected by SEM-EDS in Station 2	30
4.6 (b)	Major oxides detected by SEM-EDS in Station 2	30
4.7 (a)	Major elements detected by SEM-EDS in Station 6	30
4.7 (b)	Major oxides detected by SEM-EDS in Station 6	30
4.8 (a)	Major elements detected by SEM-EDS in Station 7	31
4.8 (b)	Major oxides detected by SEM-EDS in Station 7	31
4.9 (a)	Major elements detected by SEM-EDS in Station 8	31
4.9 (b)	Major oxides detected by SEM-EDS in Station 8	32
4.10 (a)	Major elements detected by SEM-EDS in Station 10	32
4.10 (b)	Major oxides detected by SEM-EDS in Station 10	32
4.11 (a)	Major elements detected by SEM-EDS in Station 11	33
4.11 (b)	Major oxides detected by SEM-EDS in Station 11	33
4.12 (a)	Major elements detected by SEM-EDS in Station 14	33
4.12 (b)	Major oxides detected by SEM-EDS in Station 14	34
4.13 (a)	Major elements detected by SEM-EDS in Station 15	34

4.13 (b)	Major oxides detected by SEM-EDS in Station 15	34
4.14 (a)	Percentage of elements detected by the SEM-EDS of Merang sampling stations	35
4.14 (b)	Percentage of compounds detected by the SEM-EDS of Merang sampling stations	35
4.15	Minerals present in Station 1	36
4.16	Minerals present in Station 3	37
4.17	Minerals present in Station 4	37
4.18	Minerals present in Station 5	38
4.19	Minerals present in Station 9	38
4.20	Minerals present in Station 12	39
4.21	Minerals present in Station 13	39
4.22	Minerals present in Station 16	40
4.23	Minerals present in Station 17	40

LIST OF ABBREVIATIONS

Al	Aluminium
Ca	Calcium
Cl	Chlorine
Fe	Iron
K	Potassium
Mg	Magnesium
Mn	Manganese
Na	Sodium
O	Oxygen
Si	Silicon
%	percentage
^o C	degree Celsius
ml	milliliter
μm	micrometer
mm	millimeter
g	gram
<	less than
>	more than
SEM	Scanning Electron Microscope
EDS	Energy Dispersive X-ray Spectrometer
XRD	X-ray Power Diffraction

LIST OF APPENDICES

APPENDIX		PAGE
1	List of apparatus, material and instruments used in the research	48
2	The SEM-EDS Machine	50
3	The XRD Machine	51
4	Mean value classification	52
5	Sorting value classification	52
6	Skewness value classification	53
7	Kurtosis value classification	53
8	Spectrum of elements detected by SEM - EDS for Station 2	54
9	Spectrum of elements detected by SEM - EDS for Station 6	54
10	Spectrum of elements detected by SEM - EDS for Station 7	54
11	Spectrum of elements detected by SEM - EDS for Station 8	55
12	Spectrum of elements detected by SEM - EDS for Station 10	55
13	Spectrum of elements detected by SEM - EDS for Station 11	56
14	Spectrum of elements detected by SEM - EDS for Station 14	56
15	Spectrum of elements detected by SEM - EDS for Station 15	56

ABSTRACT

The study was conducted to determine elemental contents, mineral contents and sedimentological characteristics of Merang coastal sediments. The sediments were collected from 17 stations by using Smith McIntyre grab. The sediments were analyzed by using three methods; Scanning Electron Microscope - Energy Dispersive X-Ray Spectroscopy (SEM-EDS) for elemental contents analysis, X-ray Power Diffraction (XRD) for mineral contents and dry sieve method for sedimentological characteristics analysis. The result of SEM-EDS analysis showed that quartz is the dominant mineral in all stations (62.32 %). Besides, the result of XRD peaks also showed that quartz is the dominant mineral in every station. Based on the result of hydrometer analysis, there were two textures of sediment that were identified which are sand and loamy sand. The group of sand texture was mostly found at nearshore area (Stations 2, 6, 7, 8, 10, 11, 14 and 15). However, loamy sand texture was found at offshore area (Stations 1, 3, 4, 5, 9, 12, 13, 16 and 17).

ABSTRAK

Tujuan kajian ini dijalankan adalah untuk mengenalpasti kandungan-kandungan elemen, kandungan-kandungan mineral dan ciri-ciri sedimen dasar laut di perairan Merang. Sedimen-sedimen dikumpul dengan menggunakan *Smith McIntyre grab*. Sedimen-sedimen tersebut dianalisis melalui tiga kaedah: *Scanning Electron Microscope - Energy Dispersive X-Ray Spectroscopy (SEM-EDS)* bagi analisis geokimia, *X-ray Power Diffraction (XRD)* bagi analisis kandungan-kandungan mineral dan kaedah ayakan kering bagi analisis ciri-ciri sedimen dasar laut. Keputusan daripada analisis *SEM-EDS* menunjukkan bahawa *quartz* adalah kompaun yang dominan di keseluruhan stesen (62.32 %). Selain itu, keputusan daripada analisis *XRD* juga menunjukkan bahawa *quartz* adalah mineral yang dominan di setiap stesen. Berdasarkan keputusan daripada analisis hidrometer, terdapat dua tekstur sedimen dasar laut yang dapat dikenalpasti iaitu pasir dan *loamy sand*. Sedimen berpasir dijumpai di kawasan yang berdekatan dengan kawasan pantai (Stesen 2, 6, 7, 8, 10, 11, 14 and 15) manakala sedimen yang terdiri dari tekstur *loamy sand* ditemui di kawasan yang berjauhan dengan kawasan pantai (stesen 1, 3, 4, 5, 9, 12, 13, 16 and 17).