

COMPARISON IN SPECTRAL REFLECTANCE OF FIVE  
DATER MEE CREWES AT SETUW NEELAND  
AND MELAYAN BELDA

MOHD AKMAL BIN SOBARI

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KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

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Setiu Wetland and Kelantan Delta / Mohd Akmal Sobari.



**PERPUSTAKAAN**  
KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA  
21030 KUALA TERENGGANU

<b>1100046100</b>		

Lihat sebelah

HAK MILIK  
PERPUSTAKAAN KUSTUMER

COMPARISON IN SPECTRAL REFLECTANCE OF FIVE MANGROVES  
SPECIES AT SETIU WETLAND AND KELANTAN DELTA

By

Mohd Akmal Bin Sobari

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Faculty of Science and Technology  
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FAKULTI SAINS DAN TEKNOLOGI  
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA**

**PENGAKUAN DAN PENGESAHAN LAPORAN  
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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **COMPARISON IN SPECTRAL REFLECTANCE OF FIVE MANGROVES SPECIES AT SETIU WETLAND AND KELANTAN DELTA** oleh Mohd Akmal Bin Sobari, no. matrik UK8433 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah Sarjana Muda Sains Gunaan (Pemuliharaan dan Pengurusan Biodiversiti), Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

Disahkan oleh:

Penyelia Utama  
Nama: **Kasawani Ibrahim**  
Cop Rasmi: **Pensyarah**  
Jabatan Sains Biologi  
Fakulti Sains dan Teknologi  
Kolej Universiti Sains dan Teknologi Malaysia  
21030 Kuala Terengganu.

Tarikh: **4.5.06**

Penyelia Kedua  
Nama: **PROF. MADYA SULONG BIN IBRAHIM**  
Cop Rasmi: **Fellow**  
Institut Oseanografi  
Kolej Universiti Sains dan Teknologi Malaysia  
Mengabang Telipot  
21030 Kuala Terengganu.

Tarikh: **04/05/06**

Ketua Jabatan Sains Biologi  
Nama: **PROF. MADYA DR. NAKISAH BT. MAT AMIN**  
Cop Rasmi: **Ketua**  
Jabatan Sains Biologi  
Fakulti Sains dan Teknologi  
Kolej Universiti Sains dan Teknologi Malaysia  
(KUSTEM)  
21030 Kuala Terengganu.

Tarikh: **4.5.2006**

## TABLE OF CONTENT

	Page
<b>ACKNOWLEDGEMENTS</b>	<b>ii</b>
<b>LIST OF TABLES</b>	<b>iii</b>
<b>LIST OF FIGURES</b>	<b>iv</b>
<b>LIST OF ABBREVIATIONS</b>	<b>v</b>
<b>LIST OF APPENDIES</b>	<b>vi</b>
<b>ABSTRACT</b>	<b>vii</b>
<b>ABSTRAK</b>	<b>viii</b>
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Importance of Study	4
1.3 Objectives of Study	4
<b>CHAPTER 2 LITERATURE REVIEW</b>	<b>5</b>
2.1 Mangrove Definition	5
2.2 Mangrove Distribution	5
2.3 Mangrove Vegetations	6
2.4 Importance of Mangrove	7
2.4.1 Economic values	7
2.4.2 Environmental values	8
2.5 Spectroradiometer	8

2.6	Spectrum Feature	11
2.7	Characteristic of Target Materials	12
2.7.1	Vegetation	12
2.7.2	Rocks, soils and plant litter	13
2.8	Spectral Reflectance of Leaves	13
2.9	Factors Effecting Vegetation Spectrum	16
2.9.1	Vegetation Pigment	16
2.9.2	Leaf Structure	17
<b>CHAPTER 3 METHODOLOGY</b>		<b>20</b>
3.1	Study Areas	20
3.2	Methodology Flowchart	23
3.2.1	Vegetation identification and classification	24
3.2.2	Spectroradiometer calibration	24
3.2.3	Data collections	25
3.2.4	Data analysis	25
3.2.5	Statistical analysis	26
<b>CHAPTER 4 RESULT</b>		<b>28</b>
4.2	Spectral reflectance of five mangroves species	28
4.2.1	<i>Acrostichum speciocum</i>	28
4.2.2	<i>Ceriops decandra</i>	31
4.2.3	<i>Hibiscus tiliaceus</i>	33

4.2.4	<i>Rhizophora apiculata</i>	35
4.2.5	<i>Sonneratia caseolaris</i>	37
4.3	All old Mangroves Species Spectral Reflectance	39
4.3.1	Mangroves spectral reflectance at Setiu Wetland	39
4.3.2	Mangroves spectral reflectance at Kelantan Delta	41
4.4	All Young Mangroves Species Spectral Reflectance	43
4.4.1	Mangroves spectral reflectance at Setiu Wetland	43
4.4.2	Mangroves spectral reflectance at Kelantan Delta	45
4.5	The Mean Reflectance of All Mangrove Species	47
4.6	Statistical Analysis of T-test	49
4.7	Spectral Separability among Mangrove Species	50
<b>CHAPTER 5 DISSCUSION</b>		<b>52</b>
<b>CHAPTER 6 CONCLUSION AND RECOMMENDATIONS</b>		<b>59</b>
6.1	Conclusion	59
6.2	Recommendations	61
<b>REFERENCES</b>		<b>62</b>
<b>APPENDICES</b>		<b>66</b>
<b>CURICULUM VITAE</b>		<b>69</b>



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## LIST OF TABLE

<b>Table</b>	<b>Page</b>
4.1.1 Selected mangrove species at Setiu Wetland and Kelantan Delta.	28
4.5 a The mean reflectance (%) of five mangrove species at Setiu Wetland	48
4.5 b The mean reflectance (%) of five mangrove species at Kelantan Delta	48
4.6 Significant value of t-test statistical analysis of mangrove species between both study areas	49
4.7 a Variable spectral reflectance of mangrove species wavelength at Setiu Wetland	51
4.7 b Variable spectral reflectance of mangrove species wavelength at Kelantan Delta	51

## LIST OF FIGURES

Figures	Page	
2.8	Influence of green leafy material on incoming and reflected radiation	15
2.9.2	Differences spectral reflectance between healthy and stressed of soybean vegetation	20
3.1	Location of study sites in Setiu Wetland and Kelantan Delta	21
3.2	An overall study outlined	24
4.2.1	Average reading of all <i>A. speciosum</i> species spectral reflectance	30
4.2.2	Average reading of all <i>C. decandra</i> species spectral reflectance	32
4.2.3	Average reading of all <i>H. tiliaceus</i> species spectral reflectance	34
4.2.4	Average reading of all <i>R. apiculata</i> species spectral reflectance	36
4.2.5	Average reading of all <i>S. caseolaris</i> species spectral reflectance	38
4.3.1	Average reading of all old mangroves species spectral reflectance	40
4.3.2	Average reading of all old mangroves species spectral reflectance	42
4.4.1	Average reading of all young mangroves species spectral reflectance	44
4.4.2	Average reading of all young mangroves species spectral reflectance	46

## LIST OF ABBREVIATIONS

Chl	-	chlorophyll
dbh	-	diameter at breast height
E	-	east
N	-	north
KUSTEM	-	College University Science and Technology Malaysia
nm	-	nanometer
$\mu\text{m}$	-	micrometer
$^{\circ}\text{C}$	-	degree Celcius
$^{\circ}$	-	degree
”	-	minutes

## LIST OF APPENDICES

<b>Appendix</b>	<b>Page</b>
1. Equipment used	66
2. Selected mangroves species	67

## ABSTRACT

A study of comparison in spectral reflectance of mangroves species was carried out in Setiu Wetland and Kelantan Delta. Five species selected were *Acrostichum speciosum*, *Ceriops decandra*, *Rhizophora apiculata*, *Sonneratia caseolaris* and *Hibiscus tiliaceus*. The result showed that there were differences in the spectral reflectance between young and old tree mangrove species in the visible region and in the near infrared region. Old *Acrostichum Speciosum* recorded the highest reflectance in the visible region and in the near infrared region at Setiu Wetland. 71.3 % was the mean reflectance recorded in the near infrared region at Setiu Wetland and 75.8 % recorded in the Kelantan Delta. Young and old *Rizophora apiculata* trees showed no significant differences between both study areas. From the stepwise discriminant analysis, 15 bands of wavelength produced for each study area that better discriminate the variability among mangrove species in each study area. The best waveband to discriminate the spectral reflectance among selected mangrove species in both study areas was 552 nm.

# PERBANDINGAN PANTULAN SPEKTRAL DI ANTARA LIMA SPECIES POKOK PAYA LAUT DI SETIU WETLAND DAN KELANTAN DELTA

## ABSTRAK

Kajian ini adalah kajian asas untuk melihat perbandingan di antara pantulan spektral di antara spesies pokok paya laut di kawasan Setiu Wetland dan Delta Kelantan. Lima species pokok yang dipilih untuk kajian ini adalah *Acrostichum speciosum*, *Ceriops decandra*, *Rhizophora apiculata*, *Sonneratia caseolaris* dan *Hibiscus tilaceus*. Kajian ini mendapati bahawa terdapat perbezaan pantulan spektral di antara spesies pokok muda dengan spesies pokok tua. Perbezaan dapat dilihat pada kawasan jalur kenampakan dan di kawasan jalur infra merah. Di kedua-dua kawasan kajian, pokok *Acrostichum Speciosum* tua mencatatkan pantulan spektral yang tertinggi di kawasan jalur kenampakan dan di kawasan jalur infra merah. Bacaan purata yang dicatatkan di kawasan jalur infra merah adalah 71.3 % di Setiu Wetland dan 75.8 % di Kelantan Delta. Pokok muda dan tua *Rhizophora apiculata* tidak menunjukkan perbezaan bacaan pembalikan spektral di kedua-dua kawasan kajian. Daripada analisis menggunakan perbezaan stepwise, 15 bacaan panjang gelombang yang dapat membezakan satu spesies pokok dengan satu species pokok bakau yang lain diperolehi bagi setiap kawasan kajian. Bacaan gelombang pada 552 nm adalah yang terbaik untuk membezakan setiap spesies pokok paya laut di kedua-dua kawasan kajian.