DISCRIMINATION OF FIVE SELECTED MANGROVE SPECIES USING SPECTRAL REFLECTANCE DATA AT TOK BALI' KELANTAN AND SETIU, TERENGGANU

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By

Noorfadhilah binti Khairi

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Faculty of Science and Technology
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA
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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: DISCRIMINATION OF FIVE SELECTED MANGROVE SPECIES USING SPECTRAL REFLECTANCE DATA AT TOK BALI, KELANTAN AND SETIU, TERENGGANU oleh Noorfadhilah binti Khairi no. matrik: UK 7751 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi 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: 16.5.06

.....

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

Tarikh: 21.5.06

.....

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: 21/5/06

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ABSTRACT

This study was conducted at Tok Bali, Kelantan and Setiu, Terengganu. The aims of this study were to determine the spectral properties and to identify the significant wavelength in discriminating among five selected mangrove species at different location. Knowledge on these differences of wavelength was useful for species identification. Five mangrove species have been selected and they were *Rhizophora apiculata*, *Brugiuera cylindrica*, *Avicennia alba*, *Heritiera littoralis* and *Hibiscus tiliaceus*. At NIR region, the mean of spectral reflectance of five selected mangrove species at Tok Bali showed that the highest reflectance was recorded by *Rhizophora apiculata* with 84% of reflectance and the lowest was recorded by *Avicennia alba* with 69% of reflectance. Meanwhile at Setiu, the highest reflectance was showed by *Heritiera littoralis* with 81% of reflectance and the lowest was *Bruguiera cylindrica* with 73% of reflectance. Spectral reflectance of five selected mangrove species were statistically tested using canonical stepwise discriminant analysis of SPSS program. Fifteen wavelengths were produced in discriminating among five selected mangrove species at both locations. Student t-test showed that there were no significant differences between spectral reflectance of mangrove species at Tok Bali and Setiu (P=0.345, P=0.778, P=0.753 and P= 0.513 bigger than 0.05). The spectral reflectance also influenced by several factors such as cloud cover changes, atmospheric condition, leaf internal structure and chlorophyll content.

PEMBEZAAN LIMA SPESIES TUMBUHAN PAYA LAUT TERPILIH MENGGUNAKAN DATA PEMBALIKAN SPEKTRAL DI TOK BALI, KELANTAN DAN SETIU, TERENGGANU

ABSTRAK

Kajian ini telah dijalankan di Tok Bali, Kelantan dan Setiu, Terengganu. Tujuan kajian ini adalah untuk menetukan sifat spektral dan mengenalpasti jarak gelombang yang signifikan bagi membezakan di antara kelima-lima spesies tumbuhan paya laut di kawasan yang berlainan. Pengetahuan berkaitan dengan pembezaan jarak gelombang ini sangat berguna untuk pengenalan spesies tumbuhan. Lima spesies tumbuhan paya laut telah dipilih iaitu *Rhizophora apiculata*, *Brugiuera cylindrica*, *Avicennia alba*, *Heritiera littoralis* dan *Hibiscus tiliaceus*. Pada spektrum infra-merah, purata pembalikan spektral bagi kelima-lima spesies di Tok Bali menunjukkan pembalikan tertinggi adalah *Rhizophora apiculata* dengan 84% dan yang terendah adalah *Avicennia alba* dengan 69%. Manakala di Setiu, *Heritiera littoralis* sebanyak 81% dan yang terendah adalah *Bruguiera cylindrica* dengan 73%. Pembalikan spektral tumbuhan paya laut ini diuji secara statistik dengan menggunakan analisis Canonical stepwise discriminant analysis dalam program SPSS. 15 jarak gelombang dihasilkan untuk membezakan kelima-lima spesies di kedua-dua kawasan. Student t-test membuktikan tiada perbezaan yang ketara di antara pembalikan spektral di Tok Bali dan Setiu (P=0.345, P=0.778, P=0.753 dan P= 0.513 lebih besar daripada 0.05). Pembalikan spektral dipengaruhi oleh beberapa faktor antaranya ialah perubahan litupan awan, keadaan atmosfera, struktur dalaman daun dan kandungan klorofil.