

STUDY ON GENETIC VARIABILITY OF ETAK KERA
(*Marcia japonica*) USING RAPD - PCR TECHNIQUE

NORIN RAHAYU BINTI SHAMSUDDIN

FAKULTI SAINS DAN TEKNOLOGI
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA
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RAPD-PCR TECHNIQUE

By

Norin Rahayu binti Shamsuddin

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FAKULTI SAINS DAN TEKNOLOGI
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA**

**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: Study on genetic variability of Etak kera (*Marcia japonica*) using RAPD - PCR technique oleh Norin Rahayu Binti Shamsuddin No. Matrik UK6528 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-Sains Biologi Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

Disahkan oleh:

Penyelia Utama

WAN BAYANI WAN OMAR

Nama:

PENSYARAH

Cop Rasmi:

Jabatan Sains Biologi
Fakulti Sains & Teknologi
Kolej Universiti Sains dan Teknologi Malaysia
21030 Kuala Terengganu, Terengganu.

Tarikh:

6/4/2005

Penyelia Kedua (jika ada)

Nama:

Dr. Zaleha Binti Kassim
Pensyarah

Cop Rasmi

Jabatan Sains Samudera
Fakulti Sains dan Teknologi
Kolej Universiti Sains dan Teknologi Malaysia
21030 Kuala Terengganu.

Tarikh:

6/4/05

Ketua Jabatan Sains Biologi

Nama:

PROF. MADYA DR. NAKISAH BT. MAT AMIN
Ketua

Cop Rasmi:

Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Kolej Universiti Sains dan Teknologi Malaysia

Tarikh: 6/4/2005

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LIST OF ABBREVIATIONS

1x	One Time
A	Adenosine
bp	Base pair
C	Cytosine
cm	Centimeter
dH ₂ O	Distilled water
DNA	Deoxyribonucleic acid
dNTP mix	Deoxyribonucleotides mixture
EDTA	Ethylenediaminetetracetic acid
g	Gram
G	Guanocine
M	Molarity
μg	Microgram
μL	Microlitre
μM	Micromolar
mg	Miligram
mL	Mililitre

mM	Milimolar
min	Minutes
ng	Nanogram
OD	Optical density
PCR	Polymerase Chain Reaction
Pmole	Picomole
Ppt	Part per trillion
RAPD	Random Amplified Polymorphic DNA
rpm	Rotation per minute
sec	Seconds
T	Thymine
TBE	Tris-borate-EDTA buffer
TE	10mM Tris Cl, 1 mM EDTA
Tris-HCL	Tris [Hydroxymethyl] aminomethane hydrochloride
UV	Ultra violet
V	Volt
VDS	Video Documentation System
v/v	volume/volume
w/v	weight/volume

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ABSTRACT

Etak kera (*Marcia japonica*) is one of edible bivalve which not normally known in Malaysia. Random Amplified Polymorphic DNA (RAPD) in association with Polymerase Chain Reaction (PCR) employed in this study to determine the genetic variability and genetic database relationship among individual within and between populations of *M. japonica* from Pulau Che' Him and Pulau Semut, Setiu Wetland, Terengganu. The genomic DNA was isolated by using WizardTM Genomic DNA Purification Kit (Promega). Twenty oligonucleotide primers were screened and three primers were selected to amplify DNA from twelve samples from two populations. A total of 51 RAPD fragments with 28 polymorphic fragments (54.90%) with the size ranging from 250 to 3000 bp were obtained. The similarity index among individuals between populations was 0.6442 ± 0.165 . The polymorphism detected in sample from Pulau Che' Him is 50.00% and from Pulau Semut is 58.62%. It shown the species from two populations are derived from the same ancestor.

KAJIAN KEPELBAGAIAN GENETIK ETAK KERA (*Marcia japonica*) DENGAN MENGGUNAKAN TEKNIK RAPD-PCR

ABSTRAK

Etak kera (*Marcia japonica*) merupakan salah satu spesies kerang yang boleh dimakan tetapi spesies ini kurang dikenali di Malaysia. Kaedah Polimorfisme DNA rawak teramplifikasi (RAPD) bersama dengan tindakbalas berantai Polimerase Chain Reaction (PCR) digunakan untuk menentukan kepelbagaian genetik dan pertalian genetic di antara individu-individu dalam dan antara populasi dari Pulau Che' Him dan Pulau Semut. Setiu Wetland, Terengganu. Pengekstrakan DNA daripada tisu otot dilakukan dengan menggunakan kaedah daripada Kit WizardTM Genomic DNA Purification (Promega). Dua puluh pencetus telah diuji dan tiga pencetus telah dipilih untuk mengamplifikasi DNA daripada dua belas sample yang mewakili dua populasi kerang. Sejumlah 51 jalur segmen RAPD dengan 28 jalur polimorfik (54.90%) dengan julat saiznya 250 hingga 3000 bp telah dikesan dalam sampel-sampel daripada dua populasi. Indeks persamaan diantara individu bagi kedua-dua populasi adalah 0.6442 ± 0.165 . Peratus jalur polimorfik yang didapati dari sampel bagi Pulau Che' Him adalah 50.00% dan dari Pulau Semut adalah 58.62%. kajian menunjukkan spesies berasal dari keturunan yang sama.