STUDY ON GENETIC VARIABILITY OF *Aquilaria crassna*
USING RAPD-PCR TECHNIQUE

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Lihat sebelah

STUDY ON GENETIC VARIABILITY OF *Anadara ovalis* USING RAPD – PCR TECHNIQUE

By

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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: STUDY ON GENETIC VARIABILITY OF *Anadara ovalis* USING RAPD – PCR TECHNIQUE oleh Nur Hadiyah Binti Abdul Muthalib, no. matrik: UK7518 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 – Sains Biologi, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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%	Percentage
°C	Degree Celsius
1 x	One Time
bp	Base pair
C	Cytosine
cm	Centimeter
dH_20	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	Minute

ng	Nanogram
OD	Optical Density
PCR	Polymerase Chain Reaction
pM	Picomole
ppt	Part per thousand
RAPD	Random amplified Polymorphic DNA
rpm	Rotation per minute
sec	second
TBE	Tris-borate-EDTA Buffer
TE	10 mM 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

"Kerang bulu" (*Anadara ovalis*) which belong to family Arcidae was a filter feeder organism. Random Amplified DNA Polymorphism (RAPD) based on Polymerase Chain Reaction (PCR) technique was chosen in this study to amplify and to detect the genomic DNA among individuals within two populations of *Anadara ovalis* from Pulau Che Him and Pulau Semut. DNA extraction of 12 samples from its adductor muscle was done using a Wizard Genomic DNA Purification Kit (Promega). The DNA purity of cockles, estimated from the ratio between the reading absorbance at 260nm and 280nm ($OD_{260/280}$) using a UV-Biophotometer was ranged from 1.054 to 1.524. The DNA quantity of *Anadara ovalis* was in the range of 65.00 ng/μL to 360.00 ng/μL. A total of twenty primers were screened and 3 primers were selected in this study (OPA 02, OPA 03 and OPA 13). A total of 59 RAPD fragment with 47 polymorphic fragments (79.66%) were scored from the three selected primers for both population. The RAPD fragments were ranged from 2 to 9 loci with the size ranging from 150 bp to 1500 bp. The average similarity index among individual from both populations was 0.492 ± 0.156.

KAJIAN MENGENAI KEPELBAGAIAN GENETIK *Anadara ovalis* DENGAN MENGGUNAKAN TEKNIK RAPD-PCR.

ABSTRAK

"Kerang Bulu" (*Anadara ovalis)* yang berasal dari famili Arcidae merupakan organisma jenis pemakan hasil tapisan. Teknik polimorfisme DNA rawak teramplifikasi (RAPD) yang berdasarkan tindakbalas rantaian polimerase (PCR) digunakan untuk mengamplifikasi dan mengenalpasti genomik DNA *Anadara ovalis* antara individu dalam dua populasi yang berbeza, iaitu dari Pulau Che Him dan Pulau Semut. Genomik DNA untuk 12 sampel diekstrak daripada tisu otot aduktor dengan menggunakan Kit Wizard Purifikasi Genomik DNA (Promega). Julat ketulenan DNA kerang yang diperolehi daripada nisbah bacaan penyerapan pada 260nm dan 280nm ($OD_{260/280}$) dengan menggunakan UV-Biophotometer ialah di antara 1.054 hingga 1.405. Julat kuantiti DNA kerang adalah diantara 65.00 ng/μL hingga 360.00 ng/μL. Dua puluh pencetus telah diuji dan tiga pencetus telah dipilih (OPA02, OPA03, dan OPA13) untuk kajian ini. Sejumlah 59 jalur segmen RAPD dengan 47 jalur polimorfik (79.66%) diperolehi daripada primer terpilih untuk kedua-dua populasi. Jalur-jalur RAPD didapati berjulat antara 2 hingga 9 lokus dengan julat saiznya antara 150 bp hingga 1500 bp. Purata indeks kesamarataan antara individu untuk kedua-dua populasi adalah di antara 0.492 ± 0.156.