ANTIMICROBIAL PROPERTY AND IDENTIFICATION OF BACTERIA IN THE MUCUS FROM THE CLOACA OF GREEN TURTLES (*Chelonia mydas*)

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Antimicrobial property and identification of bacteria in the mucus from the cloaca of green turtles(Chelonia mydas) / Sanisah Ayeb.

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Lihat Sebelah

ANTIMICROBIAL PROPERTY AND IDENTIFICATION OF BACTERIA IN THE MUCUS FROM THE CLOACA OF GREEN TURTLES (Chelonia mydas)

By

Sanisah binti Ayeb

Research Report submitted in partial fulfillment of
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DECLARATION AND VERIFICATION REPORT

FINAL YEAR RESEARCH PROJECT

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

Antimicrobial property and identification of bacteria in the mucus from the cloaca of green turtles, (*Chelonia mydas*) by **Sanisah binti Ayeb**, Matric No. **UK22271** have been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree of Bachelor of Science (Marine Biology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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May God bless us. Amin.

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LIST OF ABBREVIATIONS

µL : microlitre

µM : Micrometer

bp : Base pairs

DNA : deoxyribonucleic acid

F : Forward

g : grams

h : hour

Kb : Kilo basepair

Kg : Kilogram

L : litre

$MgCL_2$: Magnesium chloride

mL : mililitre

pmol : picomol

R : Reverse

rpm : revolutions per minute

rRNA : ribosomal ribonucleic acid

U : Units

V : Volts

LIST OF APPENDICES

ABSTRACT

This study was conducted in Chagar Hutang, Redang Island. Mucus samples secreted by the green turtle, *Chelonia mydas* during the oviposition process was collected using sterile universal bottles. The sediment samples surrounds the nesting area was also collected. Mucus samples were brought back to the laboratory for screening of antimicrobial properties and also for identification of bacteria present. While the sediment sample was only analyse for the purpose of bacteria identification. Kirby-Bauer method was used to screen the antimicrobial properties in the mucus samples. No inhibition zone was observed meaning that there was no antimicrobial properties in the green turtle cloaca. On the other hand, the identification of bacteria present in the samples was first screened based on their morphological characteristics such as the shape, elevation, margin and also pigmentation. Once identified, the single pure colony was isolated for genotypic identification using the 16S rRNA (primers 63F and 1389R) cloning via Polymerase Chain Reaction. PCR products were then run in 1.5% of agarose gel for the formation of band at 1400Kb. Purified PCR products were sent for sequencing at the First BASE Laboratories Sdn Bhd. Sequences obtained were analyze using Chromas, BioEdit Sequence Alignment Editor and search for sequence similarity using NCBI BLAST. The two different bacteria identified from the mucus samples are *Shewanella haliotis* and *Pseudoalteromonas spongiae.* While the bacteria that identified from the sediment was *Vibrio hepatarius.*

Antimikrobial Aktiviti dan Pengenalpastian Bakteria yang Hadir di Dalam Lendir yang Dirembeskan dari Cloaca oleh Penyu Agar, *Chelonia mydas.*

ABSTRAK

Kajian ini telah dijalankan di Chagar Hutang, Pulau Redang. Sampel lendir yang dirembeskan oleh penyu hijau, Chelonia mydas semasa proses oviposition dan juga sampel tanah disekeliling kawasan penetasan tersebut dikumpulkan menggunakan botol universal steril. Kajian atas kehadiran antimikrob adalah diljalankan hanya untuk sampel lendir sahaja. Kajian ini dijalankan berdasarkan kaedah Kirby-Bauer. Pengenalpastian berkenaan zon perencatan ketumbuhan bakteria terhadap kajian ini memberikan keputusan dimana tiada ciri-ciri antimikrob terdapat dalam sampel lendir yang diambil. Seterusnya, kajian tengtang pengenalpastian terhadap bakteria yang hadir adalah dijalankan keatas sa,pel lendir dan juga sampel tanah. Kaedah pertama adalah dengan mengenalpasti bakteri berdasarkan ciri-ciri morfologi seperti seperti bentuk, ketinggian, margin dan juga warna. Setelah dikenal pasti, bakteria tulen tersebut seterusnya dijalankan kajian pengenalan genotip menggunakan rRNA 16S (primer 63F dan 1389R) pengklonan melalui Polymerase Chain Reaction (PCR). Produk PCR kemudian dijalankan di dalam 1.5% gel agarose untuk pemerhatian pembentukan band di 1400Kb. Produk PCR yang telah disucikan dihantar untuk bacaan jujukan di First BASE Laboratories Sdn Bhd. Jujukan yang diperolehi seterusnya dianalisis menggunakan Chromas, BioEdit Sequence Allignment Editor dan mencari persamaan jujukan menggunakan NCBI BLAST. Dua bakteria berbeza yang telah dikenalpasti daripada sampel lendir adalah *Shewanella haliotis* dan *Pseudoalteromonas spongiae*. Manakala bakteria yang dikenal pasti daripada sampel tanah adalah *Vibrio hepatarius.*