

ANTIBACTERIAL ACTIVITIES OF FIVE EXCLUSIVE  
MANGROVE SPECIES; *Avicennia alba*, *A. lamata*,  
*Sonneratia orata*, *S. caseolaris*, *Leandrus hispidus* and  
*Heritiera littoralis*

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Antibacterial activities of few exclusive mangrove species :  
Avicennia alba, A. lanata, Sonneratia ovata, S. caseolaris,  
Acanthus ilisifolius and Heritiera littoralis / Muhamad Azuan Salikan

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*Avicennia alba*, *A. lanata*, *Sonneratia ovata*, *S. caseolaris*, *Acanthus ilisifolius* and  
*Heritiera littoralis*

By

Muhamad Azuan Salikan

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**PENGAKUAN DAN PENGESAHAN LAPORAN  
PROJEK PENYELIDIKAN I DAN II  
RESEARCH REPORT VERIFICATION**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **ANTIBACTERIAL ACTIVITIES OF FEW EXCLUSIVE MANGROVE SPECIES; *Avicennia alba*, *A. lanata*, *Sonneratia ovata*, *S. caseolaris*, *Acanthus ilisifolius* and *Heritiera littoralis***. oleh **MUHAMAD AZUAN BIN SALIKAN**, no. matrik: **UK10418** 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, Universiti Malaysia Terengganu.

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## LIST OF ABBREVIATIONS/SYMBOLS

Kg	Kilogram
g	gram
mg	milligram
µg	microgram
cm	centimeter
mm	millimeter
l	liter
ml	milliliter
%	percentage
°C	degree Celsius
CFUml <sup>-1</sup>	colony forming per milliliter
NA	nutrient broth
ANOVA	Analysis of Variance
DMSO	dimethyl sulfoxide

## ABSTRACT

Antibacterial activities of methanol crude extract of six exclusive mangroves species were investigated to determine the antibacterial activity of few exclusive mangroves, the minimal inhibitory concentrations for antibacterial activities and the plant with highest antibacterial activity. These studies were crucial to find new sources of antibacterial and explore new dimension of mangrove in pharmaceutical field. The extracts of *Avicennia alba*, *A. lanata*, *Sonneratia ovata*, *S. caseolaris*, *Acanthus ilisifolius* and *Heritiera littoralis* were tested against seven pathogenic bacterial which are three Gram positive bacteria; *Staphylococcus aureus*, *Bacillus subtilis*, *Micrococcus sp.*, and four Gram negative bacteria; *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and *Vibrio fischeri* by using disk diffusion method. *Sonneratia caseolaris*, *S. ovata* and *Heritiera littoralis* were shows antibacterial activities against *Staphylococcus aureus*, *Micrococcus sp.* and *Bacillus subtilis*. No activities were shown against Gram negative bacteria. Among the mangrove plants, *S. caseolaris* was inhibit the greatest antibacterial activity. The minimal inhibition concentration (MIC) of *S. caseolaris* was 25, 100 and 150µg/ml against *S. aureus*, *B. subtilis* and *Micrococcus sp.*, respectively. This study revealed the *S. caseolaris* is a potential candidate for production of antibiotic against gram positive bacteria. Further study is required to isolate and characterized the respective compounds.