

PREVALENCE OF ANTIBIOTIC RESISTANCE
GENES OF ENTEROCOCCUS BACILLI FROM
ORAL MUCOSAL ASSOCIATED BACTERIA

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PRELIMINARY STUDY ON ANTIBACTERIAL ACTIVITY OF EXTRACELLULAR
PROTEIN FROM CORAL MUCOUS ASSOCIATED BACTERIA

by

SUVIK ASSAW

Research Report submitted in partial fulfillment of
the requirement for the degree of
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RESEARCH REPORT VERIFICATION**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **PRELIMINARY STUDY ON ANTIBACTERIAL ACTIVITY OF CORAL MUCOUS ASSOCIATED BACTERIA** oleh **SUVIK A/L ASSAW**, no. matrik: **UK10516** 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, Universiti Malaysia Terengganu.

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**Do Not Afraid of Going Slowly,
Be Afraid Only of Standing Still.**

-Chinese proverbs-

**Jika seseorang itu sanggup melakukan apa yang
Diajarnya kepada yang lain,
Maka dengan adanya kawalan diri yang baik,
Dia dapat mengawal orang lain.
Sesungguhnya, kawalan diri amatlah sukar.**

This universal principle and the essence of my creation

-Lord of Buddha-

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LIST OF ABBREVIATION

SSW	Sucrose Sea Water media
CAB	Coral Associated Bacteria
MB	Marine Bacteria
MIC	Minimum Inhibitory Concentration
MR	Methyl Red
TC	Target Cell
BSA	Bovine Serum Albumin
°C	Degree Celsius
ml	Milliliter
g/l	Gram per liter
mM	Minimolar
mg	Microgram
mm	Millimeter
nm	Nanometer
μl	Microliter
μg	Microgram
μm	Micrometer

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ABSTRACT

The important of this study is to discover a novel antibiotic for pharmaceutical from marine bacteria. The aim of this study is to determine the antibacterial activity of an extracellular protein produced by coral-mucous associated bacteria activity. Culture coral-mucous associated bacteria from previous study were used as inoculums. The drop test assay and overlaid technique were used to screen antibacterial activity against *Escherichia coli*. From a total of 21 strains, seven of them were shown an antibacterial activity, which were MD008 (*Micrococcus varians*), MD011 (*Cadacea darisae*), MD012 (*Serratia plymuthica*), MD018 (*Citrobacter younge*), MD019 (*Erwinia herbicola*), MD022 (*Klebsiella pneumonia subspecies*) and MD024 (*Aeromonas cariae*). Strain MD018 and MD019 were shown the highest antibacterial activity on day 7 of incubation. Drop test assays, was revealed that extracellular protein from MD019 was responsible for antibacterial activity. Minimum inhibition concentration from MD019 was 10.6µg/ml with 10mm diameter of clear zone. Few marine bacteria source of bioactive component with antibacterial activity.

Pencarian protein ekstrasel untuk aktiviti antibakteria daripada bacteria mukus batu karang

ABSTRAK

Kepentingan kajian ini ialah untuk mencari antibiotik baru dalam perubatan daripada bacteria marin. Tujuan kajian ini adalah untuk mengenalpasti aktiviti protein luaran sel daripada bacteria hidup bersama mukus karang. Bacteria daripada penyelidikan sebelumnya telah dijadikan sebagai inokulum. Ujian titis dan teknik lapisan permukaan telah digunakan dalam penyaringan untuk aktiviti antibakteria terhadap *Escherichia coli*. Daripada dua puluh satu strain bacteria yang disaring, tujuh daripadanya telah menunjukkan aktiviti antibakteria iaitu, MD008 (*Micrococcus varians*), MD011 (*Cadacea darisae*), MD012 (*Serratia plymuthica*), MD018 (*Citrobacter younge*), MD019 (*Erwinia herbicola*), MD022 (*Klebsiella pneumonia subspecies*) and MD024 (*Aeromonas caviae*). MD018 dan MD019 telah menunjukkan aktiviti antibakteria yang tertinggi pada 7 hari pengkulturan. Ujian titisan protein menunjukkan protein luaran sel telah bertanggungjawab terhadap aktiviti antibakteria bagi MD019. Kepekatan perencatan minimum bagi MD019 ialah 10.6µg/ml dengan 10mm diameter keluasan kawasan nyahbakteria. Sebahagian daripada bacteria marin mengeluarkan komponen bioaktif yang berpontesi sebagai antibakteria.