

WOUND HEALING ACTIVITY OF THE METHANOLIC EXTRACT
OF *Melaleuca cajuputi* LEAVES ON
Lates calcarifer

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FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

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**WOUND HEALING ACTIVITY OF THE METHANOLIC EXTRACT OF
Melaleuca cajuputi LEAVES ON *Lates calcarifer***

By

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**Research Report submitted in partial fulfilment of
the requirement for the Degree of
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**DEPARTMENT OF MARINE SCIENCE
FACULTY OF MARITIME STUDIES AND MARINE
SCIENCE**

DECLARATION AND VERIFICATION REPORT

FINAL YEAR RESEARCH PROJECT

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

Wound Healing Activity of the Methanolic Extract of *Melaleuca cajuputi*
Leaves on *Lates calcarifer*

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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 Bachelor of Science (Marine Biology), Faculty of Maritime Studies and Marine Science, University Malaysia Terengganu.

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LIST OF ABBREVIATION

°C	- degree Celcius
%	- Percent
rpm	- Rotation per minute
kPa	- kilo Pascal
96h LC ₅₀	- 96 hours 50% Lethal Concentration
mg/L	- milligram per Litre
mm	- millimetre
µm	- micron metre
H&E	- Haematoxylin and Eosin
DO	- Dissolved oxygen
h	- hour
x	- times

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ABSTRACT

This study was conducted to determine the 96h LC₅₀ of *Melaleuca cajuputi* extract on *Lates calcarifer* and the value was found to be 102.06mg/L. The methanolic extract of *M. cajuputi* was used to treat 32 wounded fish for 24 hours to investigate the wound healing activity. The result of this study showed that the methanolic extract of *M. cajuputi* leaves can promote wound healing activity in wounded skin of *L. calcarifer* at the concentration of 20mg/L. The methanolic extract showed remarkable wounds healing activity by fasten the proliferation and re-epithelialisation phase by facilitating the proliferation of epithelial cell or by increasing the viability of the epithelial cell. At the concentration of 40mg/L and 60mg/L, the methanolic extract of *M. cajuputi* resulted delayed in wound healing activity. This probably caused by the presence of free radicals oxygen of higher concentration that can lead to obvious tissue damage.

ABSTRAK

Aktiviti Penyembuhan Luka daripada Ekstrak Methanol Daun *Melaleuca cajuputi*
pada *Lates calcarifer*

Kajian telah dijalankan untuk menentukan nilai 96h LC₅₀ ekstrak methanol daun *Melaleuca cajuputi* terhadap *Lates calcarifer* dan nilai yang diperolehi ialah 102.06mg/L. Ekstrak methanol *M. cajuputi* kemudiannya telah digunakan untuk merawat 32 ekor ikan yang telah dilukakan selama 24 jam untuk mengkaji aktiviti pemulihan luka. Keputusan kajian ini telah menunjukkan bahawa ekstrak methanol daun *M. cajuputi* boleh mempercepatkan aktiviti pemulihan ke atas luka pada kulit *L. calcarifer* pada kepekatan 20mg/L. Ekstrak methanol menunjukkan aktiviti pemulihan luka yang jelas dengan mempercepatkan fasa proliferasi dan pengepithelialisasi semula dengan membantu proliferasi sel epithelial atau dengan meningkatkan kebolehan sel epithelial. Pada kepekatan 40mg/L dan 60mg/L, ekstrak methanol *M. cajuputi* menunjukkan penangguhan dalam aktiviti pemulihan luka. Ini kemungkinan disebabkan oleh kehadiran radikal bebas oleh kepekatan yang terlalu tinggi yang boleh membawa kepada kerosakan tisu yang jelas.