

EFFECT OF HIGH CONCENTRATION ON CORROSION
PERFORMANCE OF ALUMINIUM ALLOY INHIBITED BY HENNA

NOOR IDORA BINTI MOHD SUKARNOOR

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
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BY

Noor Idora Binti Mohd Sukarnoor

**Research Report submitted in partial fulfillment of
the requirement for the degree of
Bachelor of Applied Science (Maritime Technology)**

**DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITY MALAYSIA TERENGGANU**

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UNIVERSITI MALAYSIA TERENGGANU**

**DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled:
Effect of High Concentration on Corrosion Performance of Aluminium Alloy Inhibited By Henna by Noor Idora Mohd Sukarnoor, Matric No. UK 17869 have been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as partial fulfillment towards obtaining the **Bachelor Degree of Applied Science (Maritime Technology)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.


Verified by:


.....
Main Supervisor
Name: **Assc. Prof. Dr. Wan Mohd Norsani bin Wan Nik**

Official stamp: **PROF. MADYA DR. WAN MOHD NORSANI WAN NIK**
DEKAN
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU (UMT)


.....
Co-Supervisor
Name: **Ir. Ferry Manuhutu**


Official stamp: **FERRY MANUHUTU**
JABATAN TEKNOLOGI MARITIM
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU


.....
Head Department of Maritime Technology
Name: **Dr. Mohammad Fadhli bin Ahmad**

Official stamp: **PROF. MADYA DR. MOHAMMAD FADHLI AHMAD**
KETUA
JABATAN TEKNOLOGI MARITIM
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

DECLARATION

I hereby declare that this thesis entitles EFFECT OF HIGH CONCENTRATION ON CORROSION PERFORMANCE OF ALUMINIUM ALLOY INHIBITED BY HENNA is the result of my own research except as cited in the references.

Signature : 

Name : **Noor Idora Binti Mohd Sukarnoor**

Matrix Number : **UK 17869**

Date : **31 May 2012**

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ABSTRACT

The aqueous extract of the henna leaves which their specific name is lawsonia (L), is used as a corrosion inhibitor in controlling corrosion rate of aluminium alloy (AA5083). This kind of alloy is widely used in marine application. Due to the toxicity of some corrosion inhibitors, there has been increasing research for green corrosion inhibitor. Natural inhibitor has rich sources of ingredients which have very high inhibition efficiency. However, the effectiveness of inhibition action is depending on the concentration of the inhibitor. The recent finding from other research project verify that the inhibition efficiencies increase as the added of henna leaves concentration. The result from this present study shows the inhibition efficiency increased with the increasing of henna concentration. The highest percentage of inhibition efficiency (*IE %*) gained was 95.5 % at 1000 ppm henna. It can be concluded that the use of henna leaves as a corrosion inhibitor is an accepted practice in order to control the corrosion rate.

KESAN KEPEKATAN TINGGI TERHADAP HASIL TINDAKBALAS PENGARATAN KE ATAS ALUMINIUM ALOI DIHALANG MENGGUNAKAN INAI

ABSTRAK

Ekstrak akueus daun inai atau nama saintifiknya, lawsonia (L), telah digunakan sebagai perencat kakisan dalam mengawal kadar hakisan aloi aluminium (AA5083). Aloi jenis ini banyak digunakan di dalam aplikasi marin. Oleh kerana ketoksikan beberapa perencat kakisan, telah meningkatkan pencarian untuk perencat karat organik. Perencat asli mempunyai sumber-sumber yang kaya dengan bahan-bahan yang mempunyai kecekapan perencatan yang sangat tinggi. Walau bagaimanapun, keberkesanan tindakan perencatan adalah bergantung kepada kepekatan perencat itu. Penemuan daripada kajian yang lain baru-baru ini mengesahkan bahawa kecekapan perencatan bertambah apabila ditambah kepekatan ekstrak. Keputusan daripada kajian pada kali ini mendapati berlakunya pertambahan kecekapan perencatan apabila kepekatan inai ditambah. Nilai peratusan bagi kecekapan perencatan yang tertinggi adalah 95.5 % pada kepekatan inai iaitu 1000 ppm. Secara ringkasnya, penggunaan daun inai sebagai perencat untuk mengawal kadar hakisan adalah satu kaedah yang boleh diterima.