

A STUDY ON BEHAVIOR OF BATTERED
CHILDREN OF DOMESTIC VIOLENCE

CONFIDENTIAL AND PROPRIETARY

FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITY OF AL-QADISIYAH
2010



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A study on behavior of bamboo charcoall in corrosion inhibito
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A STUDY ON BEHAVIOR OF BAMBOO CHARCOALL IN CORROSION
INHIBITION

By
Norliziana binti Abdur Rahman

A thesis submitted in partil fulfilment of
the requirement for the award of the degree of
Bachelor of Applied Science
(Physics, Electronics and Instrumentation)

**DEPARTMENT OF PHYSICAL SCIENCES
FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITI MALAYSIA TERENGGANU
2010**



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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **A STUDY ON BEHAVIOR OF BAMBOO CHARCOAL IN CORROSION INHIBITION** oleh **NORLIZIANA BINTI ABDUR RAHMAN**, no. matrik: **UK 16139** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Fizik sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah Sarjana Muda Sains Gunaan (Fizik Elektronik & Instrumentasi), Fakulti Sains dan Teknologi, UMT.

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DECLARATION

I hereby declare that this thesis entitled **A Study on Behavior of Bamboo Charcoal in Corrosion Inhibition** is the result of my own research except as cited in the references.

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A STUDY ON BEHAVIOR OF BAMBOO CHARCOAL IN CORROSION INHIBITION

ABSTRACT

This research is to investigate the corrosion rate of steel nail at different burning temperature of bamboo charcoal. The corrosion rate of steel nail with and without addition of sodium benzoate in bamboo charcoal is also investigated. Analysis of Scanning Electron Microscopy was carried out to analyze the microstructure and macrostructure pores within bamboo charcoal. The images obtained from the analysis showed that bamboo charcoal had larger pores size with higher burned temperature of bamboo charcoal. The larger pores making the bamboo charcoal become high adsorption capacity. Besides that, analysis of X-ray Fluorescence (XRF) had shown that bamboo charcoal consist of several minerals. In analysis of XRF, bamboo charcoal at different burned temperature was used. Also, electrochemical impedance spectroscopy (EIS) was employed to study the corrosion behavior of steel nail in tap water. The result showed that bamboo charcoal at higher burned temperature of bamboo charcoal and addition sodium benzoate in bamboo charcoal have a lower corrosion rate of steel nails. As a summary, this study showed that bamboo charcoal at 700°C burned temperature and with addition sodium benzoate in bamboo charcoal were efficient in corrosion inhibitor.

KAJIAN SIFAT ARANG BULUH TERHADAP PENGARATAN

ABSTRAK

Kajian ini, mengkaji tentang kadar pengaratan bagi paku keluli pada suhu pembakaran arang buluh yang berlainan. Disamping itu, kajian tentang kadar pengaratan bagi paku keluli tanpa dan dengan penambahan sodium benzoat di dalam arang buluh juga dilakukan. Mikroskop elektron imbasan telah dijalankan untuk menganalisis mikrostruktur dan makrostruktur liang-liang di dalam arang buluh. Keputusan imej-imej yang diperolehi menunjukkan arang buluh mempunyai saiz liang yang besar pada suhu pembakaran arang buluh yang lebih tinggi. Saiz liang yang besar menyebabkan arang buluh mempunyai kuasa penyerapan yang tinggi. Selain itu, analisis pendarflour sinar telah menunjukkan di dalam arang buluh terdapat beberapa mineral. Di dalam sinar X Fluorescence, arang buluh pada suhu pembakaran berbeza telah digunakan. Juga, pengukuran elektrokimia impedans telah digunakan untuk mengkaji sifat pengaratan bagi paku keluli di dalam paip air. Keputusan menunjukkan arang buluh pada suhu pembakaran arang buluh dan penambahan sodium benzoat di dalam arang buluh mempunyai kadar pengaratan yang paling rendah terhadap paku keluli. Secara ringkasnya, kajian ini menunjukkan arang buluh pada suhu 700°C pembakaran arang buluh dan dengan penambahan sodium benzoat di dalam arang buluh merupakan penyekat pengaratan yang efisien.