A STUDY ON BEHAVIOR OF BAMBOO CHARCOAL IN OIL ABSORPTION

[illegible]

FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITI MALAYSIA TERENGGANU
2010

A STUDY ON BEHAVIOR OF BAMBOO CHARCOAL IN OIL ABSORPTION

By
Nik Nor Azunaini Bt Amran

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

FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITI MALAYSIA TERENGGANU
2010

JABATAN SAINS FIZIK
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN PENYELIDIKAN SFZ 4399A/B

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: A Study on Behavior of Bamboo Charcoal in Oil Absorption oleh Nik Nor Azunaini Bt Amran ,no. matrik: UK 15468 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Fizik sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Gunaan (Fizik Elektronik & Instrumentasi), Fakulti Sains dan Teknologi, UMT.

Disahkan oleh:

.....
Penyelia Utama MOHD FAIRUZ AFFANDI BIN AZIZ
Nama: Pensyarah
Cop Rasmi: Jabatan Sains Fizik
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 20/4/2010

.....
Penyelia Bersama (jika ada) MOHD SOKRAN BIN AHMAD
Nama: Pensyarah
Cop Rasmi Jabatan Sains Fizik
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 20/4/2010

.....
Ketua Jabatan Sains Fizik
Nama: DR. MOHD IKMAR NIZAM BIN MOHAMAD ISA
Cop Rasmi: Head
Department of Physical Sciences
Faculty of Science and Technology
University Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 20/4/10

DECLARATION

I hereby declare that this thesis entitled a Study on Behavior of Bamboo Charcoal in Oil Absorption is the result of my own research except as cited in references.

Signature : .....
Name : Nik Nor Azunaini Bt Amran
Matrix Number : UK 15468
Date : 19th April 2010

ACKNOWLEDGEMENT

First of all, in a humble way I wish to give all the Praise to Allah, the Almighty God for which His Mercy in given me the strength and good health in making this thesis of the research project to be done as in time required. I would love to thank all the people that help me in completing the research project and guidance as well advice during the research project duration.

Next, my deepest word of thnks to my supervisor, Mr Mohd Fairuz Affandi bin Aziz, and co-supervisor, En. Mohd Sontang, for their supports, guidance's, advice and knowledge as well as their time in helping me with my project as well thesis. All the days spend with discussion and brain storming are greatly appreciated. Without them, I would be lost and may have some problems in making the research project as planned.

I also would love to say thanks to the entire lab assistance for their advice and help with the handling of the equipment in the laboratory. At the same time, I would like to thank all my friends for their help, support, interest and valuable hint. I am particularly grateful to Physics Department, Faculty of Science and Technology, Universiti Malaysia Terengganu for all facilities, study leave and financial support.

Finally, I would like to acknowledge my family, whose patience and love enabled me to complete this research. Thank you very much.

A STUDY ON BEHAVIOR OF BAMBOO CHARCOAL IN OIL ABSORPTION

ABSTRACT

A study of potentially of bamboo charcoal in oil absorption is presented. This study examined the relationship between the carbonizing temperature of bamboo charcoal, surface area identified in morphology of bamboo charcoal, minerals contain in bamboo charcoal and potential of oil absorption. With regard to the carbonizing temperature of bamboo charcoal, bamboo material was controllese at temperature of 500°C and 700°C. The potentially of bamboo charcoal in oil absorption were the highest for the bamboo charcoal carbonized at 700°C. The origin of absorption properties also discussed based on the identifying of functional group using Fourier Transform Infrared (FTIR). However, bamboo charcoal was also characterized by Scanning Electron Microscope (SEM) and X-Ray Fluorescene (XRF).

PENYELIDIKAN TENTANG CIRI-CIRI ARANG BULUH TERHADAP PENYERAPAN MINYAK

ABSTRAK

Penyelidikan tentang keupayaan arang buluh dalam penyerapan minyak telah dipersembahkan. Penyelidikan ini telah menentukan hubungan antara arang buluh yang dibakar pada suhu tertentu, luas permukaan yang telah dikenalpasti dalam morfologi arang buluh, kandungan mineral dalam arang buluh dan keupayaan arang buluh dalam menyerap buluh. Arang buluh telah dikawal pada dua suhu berbeza iaitu 500°C dan 700°C. Ciri-ciri penyerapan minyak juga dibincangkan berdasarkan penentuan kumpulan berfungsi menggunakan Sinar Inframerah Transformasi (FTIR). Walau bagaimanapun, arang buluh juga dicirikan menggunakan Mikroskop Electron Pengimbas (SEM) dan Flourescene Sinar-X (XRF).