

# RESEARCH PROJECT

## THE PREPARATION OF ACTIVATED CARBON FROM DURIAN SHELLS AND ITS APPLICATION FOR METHYLENE BLUE ADSORPTION



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2006

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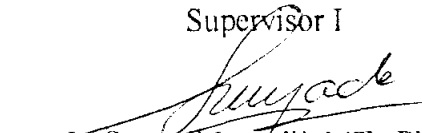
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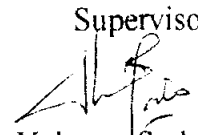
has been approved and accepted as one of requirement for **Bachelor of Engineering** degree in Department of Chemical Engineering, Faculty of Engineering, Widya Mandala Catholic University by following supervisor and has been examined by the committees on December, 14<sup>th</sup> 2006

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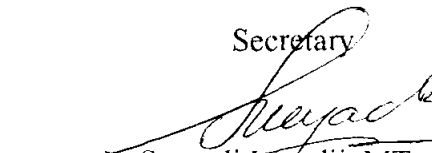
  
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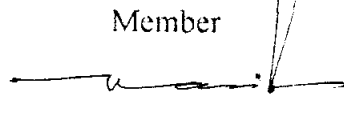
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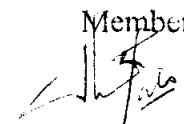
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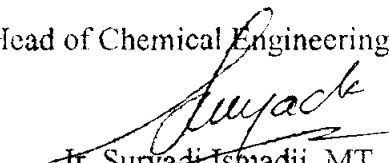
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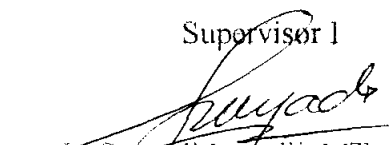
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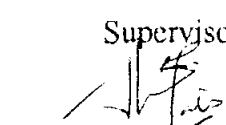
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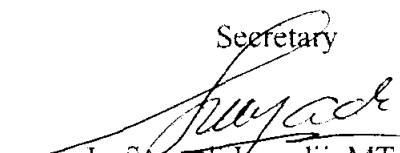
  
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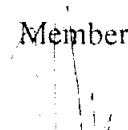
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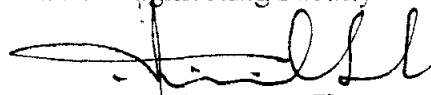
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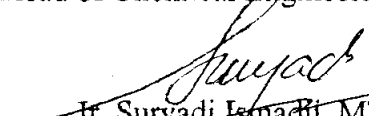
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## ABSTRACT

An activated carbon was prepared from durian shell and used for the removal of methylene blue from aqueous solutions. The activated carbon was prepared using chemical activation method with potassium hydroxide as the activating agent. The activation was conducted at 673.15-773.15 K for 1 h with mass ratio of chemical activating agent to durian shell 0.25-3. Batch kinetics and isotherm studies were conducted to evaluate the adsorption behavior the activated carbon from durian shell. The adsorption experiments were carried out isothermally at three different temperatures. The Langmuir and Freundlich isotherm model were used to describe the equilibria data. The Langmuir model agrees with experimental data well. The Langmuir surface kinetics, pseudo first order, and pseudo second order models were used to evaluate the kinetics data and the rate constant were also determined. The experimental data fitted very well with the langmuir surface kinetics and pseudo first order model.

## DECLARATION SHEET

I declare that this research was my own work and not the others' work, some or all except be written in the text. Wether it is known that this research is the others' work, I aware and accept the consequence that this research cannot be used as a requirements to achieve **Bachelor of Engineering** degree.

Surabaya, January 4<sup>th</sup> 2007



The undergraduate student

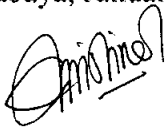
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The authors realize that there maybe some shortages in this report. Therefore, the authors would be pleased to accept critics and recommendations for further revision. At last, the authors hope that this report will be useful especially for those who need some information in this report.



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