

## TABLE OF CONTENTS

<b>RATIFICATION PAGE</b>	<b>ii</b>
<b>STATEMENT PAGE</b>	<b>iii</b>
<b>DEDICATION</b>	<b>iv</b>
<b>PREFACE</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF FIGURES</b>	<b>vii</b>
<b>LIST OF TABLES</b>	<b>viii</b>
<b>LIST OF APPENDIX</b>	<b>ix</b>
<b>ABSTRACT</b>	<b>x</b>
<b>INTISARI</b>	<b>xi</b>
<b>CHAPTER I INTRODUCTION</b>	<b>1</b>
I.1 Background	1
I.2 Research Purposes	4
I.3 Research Benefits	4
<b>CHAPTER II LITERATURE REVIEW AND HYPOTHESIS FORMULATION</b>	<b>6</b>
II.1 Literature Review	6
II.1.1 The use of waste palm oil	6
II.1.2 Utilizing waste palm oil (WPO) in biofuel production	9
II.1.3 Lapindo mud	11
II.1.4 Catalyst for hydrotreatment process	12
II.1.5 Amine functional group	15
II.2 Hypothesis Formulation and Research Plan	16
II.2.1 Hypothesis formulation I	16
II.2.2 Hypothesis formulation II	16
II.2.3 Hypothesis formulation III	17
II.2.4 Research planning	17
<b>CHAPTER III RESEARCH METHOD</b>	<b>19</b>
III.1 Materials	19
III.2 Equipments	19
III.3 Research Procedures	19
III.3.1 Impregnation of metal into lapindo mud	19
III.3.2 Synthesis of amine functionalized metal/lapindo	20
III.3.3 Acidity test	20
III.3.4 Catalytic activity test	21
<b>CHAPTER IV RESULT AND DISCUSSION</b>	<b>22</b>
IV.1 Preparation of Lapindo Mud	22
IV.2 Impregnation of Metal into Lapindo Mud	26
IV.3 Synthesis of Amine Functionalized Metal/LL	29
IV.4 Catalytic Activity Test	32
<b>CHAPTER V CONCLUSION AND SUGGESTION</b>	<b>35</b>
V.1 Conclusions	35
V.2 Suggestions	40
<b>REFERENCES</b>	<b>41</b>
<b>APPENDICES</b>	<b>45</b>