CHAPTER 1

INTRODUCTION

1.1 Introduction

The growing fossil fuel consumption in the road transportation and other commercial sectors has explicit impact on environment,

…….

1.2 Problem statement

. …….

.

1.3 Scope of research

…….

1.4 Research hypothesis

Present research work was carried out in accordance with the following specific research hypothesis

i. Natural …….
ii. The …….

1.5 Objectives

This research focuses on the following objectives

i. To design…….

ii. To produce …….

iii. To analyze…….

iv. To optimize …….

1.6 Organization of the thesis

This thesis is structured in five correlated chapters in following order.

Chapter 1 provides introduction to …….

Chapter 2 discusses state of the art literature review in ……..

Chapter 3 describes…….

Chapter 4 interprets the obtained results ……..

Chapter 5 concludes the research and presents summary of research findings.

CHAPTER 2

LITERATURE REVIEW

2.1 Background

Table 2.1: Major feedstocks ……..

Feedstock	Country(s) used for biodiesel production
Animal fat	Mexico, Canada, Ireland
Castor	Brazil
Yellow grease	Canada

Source: xxxxx…….

2.2 Summary of literature review and research gap

The literature review indicates ----------

CHAPTER 3

METHODOLOGY

3.1 Materials

----------.

3.2 xxxxxx

---------- research group.

3.3 Summary of methodology

CHAPTER 4

RESULTS AND DISCUSSION

4.1 ----------

4.1.1 ----------

4.2 Summary of results and discussion

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

a. According ----------

b. ----------

5.2 Recommendations

a. ----------

b. ----------.

REFERENCES

[1] Reddy, A. N. R., Saleh, A. A., Islam, M. D. S., &Hamdan, S. (2015). Methanolysis of Crude Jatropha Oil using Heterogeneous Catalyst from the seashells and Eggshells as Green Biodiesel. *Asean Journal on Science and Technology for Development*, *32*(1), 16–30.http://ajstd.org/~ajstd/index.php/ajstd/article/view/9/8

[2] Reddy, A. N. R., Saleh, A. A., Islam,M. S., Hamdan, S., &Maleque, M. A. (2016). Biodiesel Production from Crude Jatropha Oil using a Highly Active Heterogeneous Nanocatalyst by Optimizing Transesterification Reaction Parameters. *Energy & Fuels*, *30*(1), 334–343. https://doi.org/10.1021/acs.energyfuels.5b01899

[3] Reddy, A. N. R., Saleh, A. A., Islam, M. S., &Hamdan, S. (2017). Active Razor Shell CaO Catalyst Synthesis for Jatropha Methyl Ester Production via Optimized Two-Step Transesterification. *Journal of Chemistry*, *2017*(1), 20. https://doi.org/10.1155/2017/1489218

[4] Reddy, A. N. R., Saleh, A. A., Islam, S., &Hamdan, S. (2017). Optimization of Transesterification Parameters for Optimal Biodiesel Yield from Crude Jatropha Oil Using a Newly Synthesized Seashell Catalyst. *Journal of Engineering Science and Technology*, *12*(10), 10.

[5] Reddy, A. N. R., Saleh, A. A., Islam, S., Hamdan,S., Rahman, M. R.,&Masjuki, H. H.,(2018). Experimental evaluation of fatty acid composition influence on Jatropha biodiesel physicochemical properties.*Journal of Renewable and Sustainable Energy*, 10(1), 20. http://aip.scitation.org/doi/full/10.1063/1.5018743

APPENDICES

Appendix A: Data (if any)

Appendix B: Publications(if any)

[1] Reddy, A. N. R., Saleh, A. A., Islam, M. D. S., &Hamdan, S. (2015). Methanolysis of Crude Jatropha Oil using Heterogeneous Catalyst from the seashells and Eggshells as Green Biodiesel. *Asean Journal on Science and Technology for Development*, *32*(1), 16–30.http://ajstd.org/~ajstd/index.php/ajstd/article/view/9/8

[2] Reddy, A. N. R., Saleh, A. A., Islam,M. S., Hamdan, S., &Maleque, M. A. (2016). Biodiesel Production from Crude Jatropha Oil using a Highly Active Heterogeneous Nanocatalyst by Optimizing Transesterification Reaction Parameters. *Energy & Fuels*, *30*(1), 334–343. https://doi.org/10.1021/acs.energyfuels.5b01899

[3] Reddy, A. N. R., Saleh, A. A., Islam, M. S., &Hamdan, S. (2017). Active Razor Shell CaO Catalyst Synthesis for Jatropha Methyl Ester Production via Optimized Two-Step Transesterification. *Journal of Chemistry*, *2017*(1), 20. https://doi.org/10.1155/2017/1489218

[4] Reddy, A. N. R., Saleh, A. A., Islam, S., &Hamdan, S. (2017). Optimization of Transesterification Parameters for Optimal Biodiesel Yield from Crude Jatropha Oil Using a Newly Synthesized Seashell Catalyst. *Journal of Engineering Science and Technology*, *12*(10), 10.

[5] Reddy, A. N. R., Saleh, A. A., Islam, S., Hamdan,S., Rahman, M. R.,&Masjuki, H. H.,(2018). Experimental evaluation of fatty acid composition influence on Jatropha biodiesel physicochemical properties.*Journal of Renewable and Sustainable Energy*, 10(1), 20. http://aip.scitation.org/doi/full/10.1063/1.5018743