CHAPTER 1

INTRODUCTION

## Introduction

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

…….

## Problem statement

. …….

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## Scope of research

…….

## Research hypothesis

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

1. Natural …….
2. The …….

## Objectives

This research focuses on the following objectives

1. To design…….
2. To produce …….
3. To analyze…….
4. To optimize …….

## 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 theas obtained results ……..

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

CHAPTER 2

LITERATURE REVIEW

1.

## Background



**Figure 2.1:** Hubbert’s prediction curve for global crude-oil production over1850-2200(Hubbert, 1956).

 According to

**Table 2.1:** Major feedstocks ……..

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

Source: xxxxx…….

## Summary of literature review and research gap

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

**CHAPTER 3**

METHODOLOGY

1.

## Materials

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## xxxxxx

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

## Summary of methodology

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CHAPTER 4

RESULTS AND DISCUSSION

1.

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## Summary of results and discussion

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CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

1.

## Conclusion

1. According -------------------
2. -------------------

## Recommendations

1. -------------------
2. -------------------.

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