

UNIVERSITI TEKNOLOGI MARA

**EXTRACTION OF OIL FROM RUBBER SEED BY
USING SOXHLET EXTRACTION**

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ABSTRACT

The extraction of oil from rubber (*Hevea brasillensis*) seed by using solvent extraction is conducted in this study with Soxhlet extraction techniques. The Soxhlet technique is an extraction method to produce high percentage of oil yield and practically easy to use. The effect of rubber seed sizes, effect of solvent type and ratio oil to solvent were examined. Three different sizes of rubber seed is compared based on their extracted oil yield, which is 355, 500 and 700 μm . It is found that rubber seed with 355 μm produced the highest percentage of oil yield of 42.13%, compare to percentage of oil yield for 500 and 700 μm rubber seed which were 37.83% and 18.96% respectively. In these studies, type of solvent which are n-hexane and methanol solvent are compared. The results show that, the percentage of oil yield for the methanol is lower than n-hexane solvent. The effect of mass of rubber seed to solvent ratio are compared between 1:4, 1:5, 1:10 using 500 μm rubber seed and n-hexane as the solvent. The highest yield is obtained for ratio 1:4 with 31.39% yield.

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TABLE OF CONTENT

CONFIRMATION BY PANEL EXAMINERS

AUTHOR'S DECLARATION

ABSTRACT

ACKNOWLEDGEMENT

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE: INTRODUCTION

- 1.1 Research Background
- 1.2 Objectives
- 1.3 Problem Statement
- 1.4 Scope of Study

CHAPTER TWO: LITERATURE REVIEW

- 2.1 Rubber Tree (*Hevea Brasiliensis*)
- 2.2 Malaysian Rubber (*Hevea Brasiliensis*) Seed
- 2.3 Method of Extraction
 - 2.3.1 Soxhlet Extraction Techniques
 - 2.3.2 Mechanical Pressing

CHAPTER 3: RESEARCH METHODOLOGY

- 3.1 Location of Study
- 3.2 Material
- 3.3 Chemical
- 3.4 Methods
 - 3.4.1 Sampling Procedure
 - 3.4.2 Soxhlet Extraction of Rubber Seed Oil
 - 3.4.3 Oil Recovery Using Rotary Evaporator
 - 3.4.4 Rubber Seed Oil Yield
 - 3.4.5 Determination of Oil, Solvent and Rubber Seed Weight

CHAPTER FOUR: RESULTS AND DISCUSSIONS

CHAPTER ONE

INTRODUCTION

1.1 Research Background

For many years, rubber tree (*Hevea brasiliensis*) have been discovered and being well known for its latex production. Nowadays, Malaysia has been one of the top latex producer in the world including plantation, processing and manufacturing for local and foreign customers. Statistically, total of the natural rubber production in 2016 is about 673,513 tones while 930,335 and 1,017,623 tones were being import and exported respectively (Department of Statistic Malaysia,2016). This is clearly shows that the usage of rubber tree in producing latex is undeniably large. It seems like the rubber tree are fully utilized especially in latex production. Besides latex, rubber tree also producing rubber seed and it is usually wasted.



Figure 1.1: Rubber seed with its shell.

This few years back, many studies had been done on the usage of rubber seed since it is abundance and unused in the country. Interestingly, it is found that the rubber seed oil has the potential to be raw material for the biodiesel and replacing the other