

UNIVERSITI TEKNOLOGI MARA

**RESIDUAL CRUDE PALM OIL
EXTRACTION FROM PALM OIL MILL
EFFLUENT USING SIMPLE HEXANE
LIQUID-LIQUID EXTRACTION
METHOD**

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requirement for the degree of
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APPROVAL SHEET

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ABSTRACT

Palm oil mill effluent (POME) is the waste water discharged from the 3 process sterilization process, crude oil clarification process and cracked mixture separation process. POME is basically made of 95-96% water, 0.6-0.7% oil, 4-5% solids 2-4% suspended solid. The standards discharge limit set by Malaysian Department of Environment for oil and grease content in POME was only 50 mg dm⁻³, but POME at the mill contains up to 4,000 mg dm⁻³ of oil and grease. This study is focusing on To determine the optimum amount of hexane to extract residual CPO left in POME and the relation between ratio of hexane, time interval and mixing speed for hexane to extract CPO from POME. The method used in this study was liquid-liquid extraction. It is called liquid-liquid extraction because hexane liquid is use to extract oil from POME whereas the POME is also in the form of liquid. Liquid-liquid extraction is mainly affected by exposure time, mixing speed and ratio between hexane and POME. So the optimum time, mixing speed and ratio was 20 minutes, 200 rpm and ratio is 3:5 respectively. By using the optimum ratio, time and speed the amount of residual oil that can be extracted is 17.5% or 0.3gram. Based on the statistical analysis it has been found that ratio of hexane to POME and speed has a significant p-value while effect of time indicates that it was not significant.

TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	iv
ABSTRAK	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xii
CHAPTER 1 INTRODUCTON	1
1.1 Background of Study	1
1.2 Problem Statement.	2
1.3 Hypothesis	3
1.3.1 Ratio of POME to Hexane	3
1.3.2 Time taken of Hexane to extract the CPO in POME	3
1.3.3 Mixing speed to extract residual CPO in POME.	4
1.3.4 Interaction between mixing speed, ratio and time taken of Hexane to extract CPO in POME	4
1.3.5 Objective	4
1.4 Significant Of Study	5
1.4.1 Technological benefit	5
1.4.2 Economic benefit.	5
1.4.3 Environmental benefit.	5
CHAPTER 2 LITERATURE REVIEW	6
2.1 Global Production of Palm Oil	6
2.2 Palm Oil Milling Process	7
2.3 POME	7
2.4 Liquid-Liquid Extraction Principle	8
2.5 Hexane	9
CHAPTER 3 METHODOLOGY	11
3.1 Material	11
3.1.1 Hexane	11
3.1.2 Soxhlet extractor	12
3.1.3 Hot plate with stirrer	13
3.2 POME Sampling	14
3.2.1 The stirring process	15
3.2.2 Soxhlet extraction process	16
3.2.3 Hexane recovery	16
3.2.4 Research framework	17
3.3 Data analysis	18