OIL EXTRACTION RATE PERFORMANCE STUDY BY REMOVING STALK OF OIL PALM FRESH FRUIT BUNCH (FFB)

MOHAMAD FIRDAUS BIN MOHAMAD JAMUDIN

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DECLARATION

This Final Year Project is a partial fulfillment of the requirement for a degree Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

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Candidate's signature: ..... Date: 10 . 10 . 2015

Name: MOHAMMAD FIRDAUS BIN MOHAMAD JAMUDIN

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agratechnology, Universiti Teknologi MARA.

Signature: .....

Name of supervisor: ALAUI BIN HJ. SULAIMAN

Position: LECTURER

Date: 10-10-2015

TABLE OF CONTENTS

		Page
ACKNOWLEDGEMENT		iii
TABLE OF CONTENTS		iv
LIST OF TABLES		v
LIST OF FIGURES		vi
LIST OF ABBREVIATION		vii
ABSTRACT		viii
ABSTRAK		ix
CHAPTER		
1	**INTRODUCTION**	
	1.1 Background of Study	1
	1.2 Problem Statement	5
	1.3 Significant of Study	6
	1.4 Objective of Study	6
2	**LITERATURE REVIEW**	
	2.1 Taxonomy Classification of Oil Palm	7
	2.2 Production of Palm Oil in Malaysia	7
	2.3 Palm Oil Mill Process	9
	2.4 Bunch Analysis	10
3	**METHODOLOGY**	
	3.1 Location of study	11
	3.2 Materials and Apparatus	12
	3.2.1 Fresh Fruit Bunch (FFB)	12
	3.2.2 Removing Stalk Machine	13
	3.2.3 Soxhlet Extraction Apparatus	13
	3.3 Experimental Procedures	15
	3.3.1 Bunch Sampling	15
	3.3.2 Removing FFB Stalk	16
	3.3.3 Sterilization Process	17
	3.3.4 Bunch Analysis	18
	3.3.5 Soxhlet Extraction	20
	3.3.6 Hexane Recovery	20
	3.4 Experimental Design	21
	3.5 Data Analysis	21
	3.6 Gantt Chart	23
4	**RESULT AND DISCUSSION**	
	4.1 Oil in Bunch Ratio	24
	4.2 Normality of Data	27
	4.3 Statistical Analysis	28
5	**CONCLUSION AND RECOMMENDATION**	30
CITED REFERENCES		32
APPENDICES		34

LIST OF FIGURES

Figure	Caption	Page
1	Palm Oil Mill Processes	3
2	Method and schematic laboratory layout of bunch quality analysis	10
3	Location of Felda Sungai Tengi Palm Oil Mill	11
4	Ripe Bunch	12
5	Drill machine with 1.5 inch drill bit	13
6	Soxhlet extractor	14
7	Selecting the bunch at ramp	15
8	The removed part of bunch	16
9	Process of destalking of FFB	17
10	Bunch placed in the wire cage for the sterilization process	18
11	Process of separating fruitlets and scraping mesocarp	19
12	Extraction using Soxhlet extractor	20
13	Flow chart of experimental procedures	22
14	Oil to bunch ratio at different size of bunch	24
15	Time of destalking operation on different bunch sizes	28

ABSTRACT

Stalk of bunch consist of about 20 percent of the bunch weight and cause some problem in the processing of the oil palm bunches such as absorption of oil and affected the oil in bunch ratio since the amount of oil processed divided by weight of bunch. This study was carried out to study the performance of oil to bunch ratio based on the different sizes of bunch (small, medium, and large) by removing the stalk. In order to increase the oil to bunch ratio, the stalk was removed to reduce the weight of bunch and the oil to bunch ratio of the bunch was examined. Only ripe fresh fruit bunches (FFB) were selected with three ranges of weight; large (more than 15 kg), medium (14.9-10.0 kg), and small (9.9-5.0 kg). The treatments of this study were replicated by three times and Paired T-Test was used as an experimental design of the study to compare the oil in bunch ratio between two treatments. From the study, it was found that the oil in bunch ratio of the stalk removed bunch in all sizes were higher than the oil in bunch ratio of the stalk intact bunch with significant difference of 0.01 at the α-level of 0.05. Small size of stalk removed bunch was highly significant different of the oil in bunch ratio compared to the other sizes with mean 34.573. For the destalking operation, it was found that the large bunch took longer time with 176.67 seconds for removing the stalk compared to the other sizes. The diameter of the stalk was one of the factors influenced the time of destalking operation with large bunch has 7.07cm diameter, followed by medium bunch (6.53cm) and small bunch (5.63cm). It can be concluded the destalking of the bunch can increased the oil in bunch ratio due to the reduced weight of processed bunch.