EFFICIENCY OF ECOHERBI ™, A NATURAL HERBICIDE FOR WEED CONTROL ON JACKFRUIT FARM

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FINAL YEAR PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGROTECHNOLOGY (HONS.) HORTICULTURE TECHNOLOGY IN THE FACULTY OF PLANTATION AND AGROTECHNOLOGY
UNIVERSITI TEKNOLOGI MARA

AUGUST 2020

DECLARATION

This Final Year Project is a partial fulfilment of the requirements for a Degree of Bachelor of Science in Agrotechnology (Hons.) Horticulture Technology in the Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

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ABSTRACT

EFFICIENCY OF ECOHERBI ™, A NATURAL HERBICIDE FOR WEED CONTROL ON JACKFRUIT FARM

Current weed control method is highly herbicide dependent with limited herbicide registered in jackfruit. This could lead to evolution of herbicide resistance in weeds plus environmental concerns. EcoHerbi ™, a by-product of methionine production through fermentation process, has herbicidal property due to high content of acetic acid. This study aims to determine the weed species composition and to examine the efficacy of EcoHerbi ™ for weed control on mature jackfruit farm. The experimental plots were established in seven years-old jackfruit farm where each plot measuring 10 m^2 was set up. Weed density, frequency, relative frequency, relative density and important value of each plot were determined using four quadrats sized 1 m^2 each. Five treatments were carried out at the inter rows of jackfruit trees as follows: T1: Untreated, where weeds were not controlled by any treatments, T2: EcoHerbi ™ (full rate), T3: EcoHerbi ™ (half rate), T4: commercial synthetic herbicide of glufosinate at a recommended rate and T5: Acetic acid at 20% concentration (v/v). The efficacy of each treatment was assessed on three dominant weed species based on percentage of weed killed (0 to 100%) at 1, 2, 3 and 4 weeks after treatment. The results indicated that 12 broadleaved weed species and 3 grassy weed species were found in the plots. Three most dominant species were broadleaved weeds of *Ageratum conyzoides*, *Asystasia gangetica*, and grassy weed of *Cynodon dactylon* with respective importance values of 3516, 1639 and 2026. EcoHerbi™ had a lower weed control efficacy ($p<0.05$) than T5. Increasing the application rate of EcoHerbi™ from the half rate to the full rate did not improve the weed control efficacy significantly ($p\geq0.05$). However, T2 had comparable efficacy ($p\geq0.05$) with T4. *A. conyzoides* could recover at three weeks after herbicide treatments whereas *A. gangetica* and *C. dactylon* could recover at two weeks regardless of any herbicide treatments. These results suggested that EcoHerbi™ is a natural contact herbicide which has potential to be applied as post emergence weed killer on jackfruit farm.

TABLE OF CONTENTS

		Page
DECLARATION		**I**
ABSTRACT		**III**
ABSTRAK		**IV**
ACKNOWLEDGEMENT		**V**
TABLE OF CONTENTS		**VI**
LIST OF FIGURES		**VIII**
LIST OF TABLES		**IX**
LIST OF PLATES		**X**
LIST OF SYMBOLS		**XI**
LIST OF ABBREVIATIONS		**XII**
CHAPTER ONE: INTRODUCTION		**1**
1.1	Research Background	1
1.2	Problem Statement	2
1.3	Objectives of Study	2
1.4	Scope of Study	2
1.5	Significant of Study	3
CHAPTER TWO: LITERATURE REVIEW		**4**
2.1	General information of jackfruit	4
2.2	Weed species composition in jackfruit	4
2.3	Weed management in jackfruit	5
2.3.1	Natural mulch	7
2.3.2	Intercropping	7
2.3.3	Herbicide- glufosinate	8
2.3.4	Herbicide-vinegar (Acetic acid)	11
CHAPTER THREE: MATERIAL AND METHODS		**14**
3.1	Site of experiment	14
3.2	Herbicide and chemicals	15

3.3 Method 15
3.3.1 Preparation of experiment plot 15
3.3.2 Determination of weed species composition 16
3.3.3 Application of herbicide at jackfruit farm 16
3.3.4 Physio-chemical properties of soil 17
3.3.5 Biological properties of soil 17
3.3.5.1 Medium agar preparation 18
3.3.5.2 Determination of total bacterial count and Actinomycetes population in soil 18
3.4 Experimental design 19
3.5 Statistical analysis 20
3.5.1 Weed species composition 20

CHAPTER FOUR: RESULTS AND DISCUSSION 22
4.1 Determination of weed species composition 22
4.2 Efficiency of different herbicide treatments on three selected weed species 24
4.2.1 Herbicide efficacy for *Ageratum conyzoides* 27
4.2.2 Herbicide efficacy for *Asystasia gangetica* 28
4.2.3 Herbicide efficacy for *Cynodon dactylon* 30
4.2.4 Soil pH 31
4.2.5 Effect of herbicide treatments on total bacterial count 32
4.2.6 Effect of herbicide treatments on total actinomycetes count 33

CHAPTER FIVE: CONCLUSION 34
5.1 Summary 34
5.2 Recommendations 34

REFERENCES 35
APPENDICES 45
AUTHOR'S PROFILE 64