

STUDY OF THE EFFECT OF THE ZEPHYRUS
ON THE GROWTH AND YIELD OF
CORN IN THE STATE OF CALIFORNIA,
1910, 1911 AND 1912

BY
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**SCREENING OF GLYPHOSATE, FLUAZIFOP-P-BUTYL OR GLUFOSINATE
SUSCEPTIBLE AND – RESISTANT BIOTYPES OF GOOSEGRASS IN
SELANGOR, JOHOR, KELANTAN AND PAHANG.**

By

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**JABATAN SAINS BIOLOGI
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PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: SCREENING OF GLYPHOSATE, FLUAZIFOP-P-BUTYL OR GLUFOSINATE SUSCEPTIBLE AND - RESISTANT BIOTYPES OF GOOSEGRASS IN SELANGOR, JOHOR, KELANTAN AND PAHANG oleh THANESWARY NAIDU PERIASAMY, no. matrik: UK9044 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah SARJANA MUDA SAINS (SAINS BIOLOGI), Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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TABLE OF CONTENTS

	Pages
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	iii
LIST OF FIGURES	iv
LIST OF ABBREVIATIONS	v
ABSTRACT	vi
ABSTRAK	vii
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Objectives	3
CHAPTER 2 LITERATURE REVIEW	4
2.1 <i>Eleusine indica</i> (L.) Gaertn.	4
2.1.1 Distribution	6
2.1.2 Ecology	6
2.1.3 Control measure	6
2.2 Glyphosate	7
2.2.1 Glyphosate's mode of action	7
2.2.2 Resistance cases	8

2.3	Fluazifop-p-butyl	10
2.4	Glufosinate	13
CHAPTER 3 METHODOLOGY		15
3.1	Seed Collection of Weed Species	15
3.2	Herbicides	15
3.3	Seed Processing and Seed Sowing	17
3.4	Screening for Herbicide Resistance (R) And Susceptible (S) biotypes	17
CHAPTER 4 RESULTS		18
4.1	Population of <i>Eleusine indica</i> From Four Different States	18
4.2	Screening of Herbicide Resistant Biotype	19
4.2.1	Screening of glyphosate resistance Biotype of <i>Eleusine indica</i>	19
4.2.2	Screening of fluazifop-p-butyl Biotype of <i>Eleusine indica</i>	23
4.2.3	Screening of glufosinate Biotype of <i>Eleusine indica</i>	25
CHAPTER 5 DISCUSSION		26
CHAPTER 6 CONCLUSION		35
REFERENCES		36
CURICULUM VITAE		40

LIST OF TABLES

Table		Page
2.1	Classification of <i>Eleusine indica</i> (L.) Gaertn.	4
3.1	List of location where the plant samples were collected.	16
4.1	The rate of survivability of the screened plants treated with glyphosate and fluazifop-p-butyl.	21
4.2	Resistance cases towards glyphosate.	24
4.3	Resistance cases towards fluazifop-p-butyl.	24
4.4	Populations that were not screened for Fluazifop-p-butyl and Glufosinate.	24

LIST OF FIGURES

Figure		Page
2.1	<i>Eleusine indica</i>	5
2.2	Shikimate pathway	11
2.3	Structural formula of Fluazifop-p-butyl	12
2.4	Structural formula of Glufosinate	12
4.1	(a) The resistant populations of goosegrass after sprayed with glyphosate;	20
	(b) The susceptible populations of goosegrass after sprayed with glyphosate.	

LIST OF ABBREVIATIONS

%	-	Percentage
ai.L ⁻¹	-	Active ingredient per liter
ai/ha	-	Active ingredient per hectare
APPs	-	propaquizafop and Clodinafop
cm	-	Centimeter
ED ₅₀	-	Herbicide rate inhibit plant growth by 50%
EPSPS	-	5-enolpyruvylshikimate-3-phosphate
g	-	Gram
kPa	-	Kilo Pascal
mm	-	millimeter
PEP	-	Phosphoenolpyruvate
Pi	-	Inorganic phosphate

ABSTRACT

Eleusine indica is currently considered as world's fifth worst weed which caused problem in agriculture sector in more than 60 countries. In Malaysia, it causes a major threat in the oil palm plantation area. This study aims to screen for the herbicide resistance and susceptible biotypes namely glyphosate, fluazifop-p-butyl or glufosinate in Selangor, Johor, Kelantan and Pahang. In this study 14 different population involving farms and plantation areas were screened. From the 14 populations, four populations were detected to be resistance towards glyphosate, which involves farm of sugar cane, Kuala Selangor, Ciku farm, Selayang, Vegetable farm, Sekinchan, Selangor and oil palm nursery, Layang-layang, Johor with the percentage of survivability of 70.25, 86.6%, 86.4% and 92.3% respectively. Moderate survivability cases towards glyphosate were detected in the populations of mango farm of, Sekinchan, oil palm plantation from Jeram and Sg.Buloh, Naplerang, Selangor and oil palm plantation, Triang with the percentage of survivability of 67.7%, 60.6%, 46.0% and 50.7% respectively. The other populations showed 0% of survivability. Interestingly, the population of oil palm nursery of Layang-layang, Johor had shown to be multiple resistances towards glyphosate and fluazifop-p-butyl, with the survivability of 92.3% and 100% respectively. Meanwhile, in the screening experiment of glufosinate resistance, all the screened population was detected to be susceptible, with the survivability of 0%.

**MENYARING KERINTANGAN TERHADAP GLYPHOSATE,
FLUAZIFOP-P-BUTYL ATAU GLUFOSINATE BAGI POPULASI
GOOSEGRASS SELANGOR, JOHOR, KELANTAN DAN PAHANG.**

ABSTRAK

Eleusine indica merupakan rumput kelima di dunia yang menimbulkan masalah di sektor agrikultur, di lebih daripada 60 negara di seluruh dunia. Di Malaysia, ia merupakan ancaman di ladang kelapa sawit. Objektif kajian ini adalah untuk menyaring populasi yang rintangan terhadap herbisid, glyphosate, fluazifop-p-butyl atau glufosinate di Selangor, Johor, Kelantan dan Pahang. Eksperimen ini telah dijalankan dengan menyaring 14 populasi yang melibatkan kebun dan ladang. Daripada populasi itu, empat populasi adalah rintang terhadap glyphosate, yang melibatkan kebun tebu, Kuala Selangor, kebun ciku, Selayang, kebun sayur, Sekinchan, Selangor dan tapak semaian kelapa sawit, Layang-layang, Johor dengan kemandirian 70.2%, 88.6%, 86.4% dan 92.3%. Kemandiran sederhana terhadap glyphosate telah dikesan pada populasi kebun manga, Sekinchan, ladang kepala sawit, Jeram dan Sg. Buloh, Selangor dan ladang kelapa sawit, Triang, Pahang dengan kemandirian 67.7%, 60.6%, 46.0% dan 50.7%. Populasi lain telah menunjukkan kemandirian 0%. Menariknya populasi Layang-layang, Johor, menunjukkan kerintangan terhadap glyphosate dan fluazifop-p-butyl, iaitu sebanyak 92.3% dan 100%. Dalam eksperimen saringan terhadap glufosinate, kesemua populasi mempunyai kemandirian 0%.