

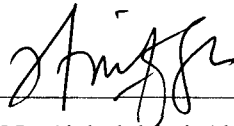
**RESPONSE OF LEAF EXPLANT OF *Curculigo latifolia*  
(HYPOXIDACEAE) TOWARDS DIFFERENT  
HORMONES TREATMENTS IN PLANT TISSUE  
CULTURE**

**NURUL SYAFIRA BINTI BASAR**

**Final Year Project Report Submitted in  
Partial Fulfillment of the Requirements for the  
Degree of Bachelor of Science (Hons.) Biology  
In the Faculty of Applied Sciences  
Universiti Teknologi MARA**

**JULY 2015**

This Final Year Project Report entitled "**Response of Leaf Explant of *Curculigo latifolia* (Hypoxidaceae) towards Different Hormones Treatments in Plant Tissue Culture**" was submitted by Nurul Syafira binti Basar in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by



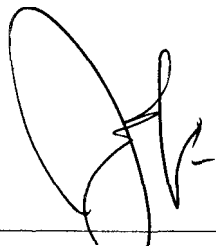
Dr. Nor'ishah binti Abu Shah

Supervisor

B.Sc. (Hons) Biology

Faculty of Applied Sciences

Universiti Teknologi MARA



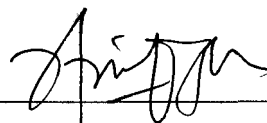
Ilyanie binti HpYaacob

Project Coordinator

B.Sc, (Hons) Biology

Faculty of Applied Sciences

Universiti Teknologi MARA



Dr. Nor'aishah binti Abu Shah

Head of Programme

B.Sc. (Hons) Biology

Faculty of Applied Sciences

Universiti Teknologi MARA

Date: \_\_\_\_\_

## TABLE OF CONTENTS

ACKNOWLEDGEMENT.....	iii
TABLE OF CONTENTS .....	iv
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
LIST OF ABBREVIATIONS .....	viii
ABSTRACT.....	xi
ABSTRAK .....	xii

<b>CHAPTER 1 INTRODUCTION.....</b>	<b>1</b>
1.1. Background of Study .....	1
1.2. Problem Statement .....	3
1.3. Significance of Study.....	4
1.4. Objectives of the Study.....	5

<b>CHAPTER 2 LITERATURE REVIEW.....</b>	<b>6</b>
2.1. Hypoxidaceae.....	6
2.1.1. Characteristics of Hypoxidaceae.....	6
2.1.2. Genus <i>Curculigo</i> .....	7
2.1.3. Botany of <i>Curculigo latifolia</i> Dryand.....	9
2.1.4. Chemical Constituents and Uses of <i>Curculigo latifolia</i> .....	11
2.2. <i>In Vitro</i> Culture Technology.....	14
2.2.1. Tissue Culture of <i>Curculigo latifolia</i> .....	14
2.2.2. Culture Medium .....	15
2.2.3. Plant Growth Regulator.....	18
2.2.4. Callus.....	19
2.2.5. Plant Organogenesis .....	20
2.2.6. Establishment of Aseptic Culture.....	21

<b>CHAPTER 3 METHODOLOGY</b> .....	<b>23</b>
3.1. Materials.....	23
3.1.1 Raw Materials .....	23
3.1.2 Chemical .....	23
3.1.3. Apparatus .....	24
3.2. Methods.....	24
3.2.1. Preparation of 70% Alcohol.....	24
3.2.2. Hormones Stock Solution Preparation.....	25
3.2.3. Media Preparation .....	26
3.2.4. Plant Preparation .....	28
3.2.5. Inoculation of Explant.....	30
3.3. Parameter.....	31
3.3.1. Percentage of the Explant Response (%).....	31
3.3.2. Time taken for Response of Leaf Explant <i>in Vitro</i> (Week).....	31
3.3.3. Types of Response Induce .....	31
3.3.4. Area of explant respond .....	31
3.4. Statistical Analysis .....	32
<b>CHAPTER 4 RESULTS AND DISSCUSSION</b> .....	<b>33</b>
4.1. Establishment of Sterilization Techniques.....	34
4.2. Response of Explants .....	41
<b>CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>47</b>
<b>CITED REFERENCES</b> .....	<b>50</b>
<b>CURRICULUM VITAE</b> .....	<b>57</b>

## ABSTRACT

### **RESPONSE OF LEAF EXPLANT OF *Curculigo latifolia* (HYPOXIDACEAE) TOWARDS DIFFERENT HORMONES TREATMENTS IN PLANT TISSUE CULTURE**

*Curculigo latifolia* (lemba) is an underutilized plant with high value especially medicinal properties. Even though traditionally used for food and natural remedies, it still possessed low market value due to lack of effort in cultivating the sources. Leaf explants were inoculated onto MS basal medium supplemented with combination of 6- Benzylaminopurine (BAP) and Naphthalene acetic acid (NAA) which vary in concentrations. In this study, the ranges on which the different hormones treatments that able to induce the response on *C. latifolia* was observed and determined. Direct root organogenesis were formed from leaf explant grown on Murashige and Skoog (MS) basal medium supplemented with 2.0 mg/L NAA alone and combination of 3.0 mg/L NAA and 0.5 mg/L BAP after four and six week, respectively. The highest number of root per explant were obtained in MS medium supplemented with NAA alone with average 5 roots emerged from one explant. Technique of sterilization was improved when disinfect the explant using 1 % HgCl<sub>2</sub>. Even though aseptic condition and sterilization has been employed, contamination of cultures was still the most pressing problem in this study, whereby the contaminations were not successfully eliminated. Necrosis in culture material indicated the release of phenolic compounds. Further research should be concentrated on completely eliminate the contamination in culture.