

**LEAVES CULTURES OF *Curculigo latifolia* Dryand TOWARDS
DIFFERENT STERILIZATION TECHNIQUES**

NURSYAIRAH BINTI NISHAM

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

JANUARY 2017

The Final Year Project entitled “**Leaves Cultures of *Curculigo latifolia* Dryand Towards Different Sterilization Techniques**” was submitted by Nursyairah Binti Nisham, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

Dr.Nor'aishah Abu Shah
Supervisor
Faculty of Applied Sciences
UiTM Negeri Sembilan
Kampus Kuala Pilah
Pekan Parit Tinggi
72000, Kuala Pilah
Negeri Sembilan.

Ilyanie Hj. Yaacob
Project Coordinator
Faculty of Applied Sciences
UiTM Negeri Sembilan
Kampus Kuala Pilah
Pekan Parit Tinggi
72000, Kuala Pilah
Negeri Sembilan

Dr.Nor'aishah Abu Shah
Head of Biology School
Faculty of Applied Science
UiTM Negeri Sembilan
Kampus Kuala Pilah
Pekan Parit Tinggi
72000, Kuala Pilah
Negeri Sembilan

Date: _____

TABLE OF CONTENTS

| | PAGE |
|--|-------------|
| ACKNOWLEDGEMENT | iii |
| TABLE OF CONTENTS | iv |
| LIST OF TABLES | vi |
| LIST OF FIGURES | vii |
| LIST OF ABBREVIATIONS | viii |
| ABSTRACT | ix |
| ABSTRAK | x |
| | |
| CHAPTER 1: INTRODUCTION | |
| 1.1 Background of Study | 1 |
| 1.2 Problem Statement | 3 |
| 1.3 Significance of the Study | 4 |
| 1.4 Objective of the Study | 4 |
| | |
| CHAPTER 2: LITERATURE REVIEW | |
| 2.1 History, Taxonomy and Biology of <i>Curculigo latifolia</i> Dryand | 5 |
| 2.1.1 Botany | 6 |
| 2.1.2 Potential source of sweet modifying taste | 7 |
| 2.1.3 The significance of <i>Curculigo latifolia</i> | 8 |
| 2.2 Plant Tissue Culture Technique | 9 |
| 2.2.1 Plant material | 10 |
| 2.2.2 Aseptic technique formation | 11 |
| | |
| CHAPTER 3: METHODOLOGY | |
| 3.1 Materials | 12 |
| 3.1.1 Raw materials | 12 |
| 3.1.2 Chemicals | 12 |
| 3.1.3 Apparatus | 13 |
| 3.2 Methods | 13 |
| 3.2.1 Preparation of 70% Alcohol | 14 |
| 3.2.2 Preparation of MS culture medium | 14 |
| 3.2.3 Sterilization of leaf explant | 15 |
| 3.2.4 Explant culture to media | 18 |
| 3.3 Parameter | 19 |
| 3.3.1 Percentage of clean cultures | 19 |
| 3.3.2 Percentage of contamination cultures | 19 |

| | |
|--|----|
| CHAPTER 4: RESULTS AND DISCUSSION | |
| 4.1 Determining the best methods for sterilizing the leaf explants | 20 |
| 4.1.1 Method A | 20 |
| 4.1.2 Method B | 21 |
| 4.1.3 Method C | 22 |
| 4.1.4 Method D | 22 |
| | |
| CHAPTER 5: CONCLUSION AND RECOMMENDATIONS | 27 |
| | |
| CITED REFERENCES | 29 |
| APPENDICES | 35 |
| CURRICULUM VITAE | 36 |

ABSTRACT

LEAVES CULTURES OF *Curculigo latifolia* Dryand TOWARDS DIFFERENT STERILIZATION TECHNIQUES

The fruits of *Curculigo latifolia* is very unique as when eaten with an acid containing food it gives a sweet taste to the taste stimuli due to presence of sweet protein of curculin present in the fruit. Hence, *in vitro* culture was introduced to the plant to mass propagate for study uses as it has many benefits in medical value. However, many scientific studies done on *C. latifolia* where most of the technique from previous studies limited by contamination. The *C. latifolia* plant was surfaced sterilized by 3 different methods of sterilization with 5 replicates for each method to choose the best sterilization method for culturing leaf explant. The leaf explants were obtained from inside the shoot where the new leaf tissue are produced. From three methods tested, sterilization with 70% ethanol for 90s, 20% Clorox for 20min, 7 drops of Tween 20 for 15 min and 1% mercuric chloride for 10 min, come out as the best technique for the sterilization of *C. latifolia*. This technique is a modification technique of Method A that followed from Babaei *et al.* (2013). The technique shows high surviving rate of culture within 2 weeks' time with 73% clean cultures. Whereas, Method B and Method C do not show any clean cultures within 2 weeks' time with 100% contamination. Furthermore, the part of leaf was divided by 3 parts which were P1 that was approximately 4 cm away from the roots with 100% clean cultures compared to P2 that was approximately 2 cm from the roots has 80% clean cultures and P3 was nearest to the root has 40% clean cultures.