

UNIVERSITI TEKNOLOGI MARA

**INFLUENCE OF MYCORRHIZA ON
THE PLANT GROWTH AND ROOTS
DEVELOPMENT OF OIL PALM SEEDLING**

**SITI RAHAYU BINTI MUHAMAD
WAHAB**

Final year project report submitted in partial fulfilment of the
requirements for the degree of
**Bachelor of Science (Hons.) Plantation Technology and
Management**

Faculty of Plantation and Agrotechnology

January 2015

CANDIDATE'S DECLARATION

I declare that the work in this Final Year Project was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledge as referenced work. The final year project report has not been submitted to any other academic institution or non academic institution for any other degree or qualification.

In the event that my Final Year Project is found to violet the conditions mention above, I voluntarily waive the right of conferment of my bachelor degree and agree to be subjected to the disciplinary rules and regulation of Universiti Teknologi MARA.

Name of Candidate : **SITI RAHAYU BINTI MUHAMAD
WAHAB**

Candidate's ID No. : 2012484228

Programme : Bachelor of Science (Hons.) Plantation
Technology and Management

Faculty : Plantation and Agrotechnology

Title : Influence of mycorrhiza on the plant
growth and roots development of oil pal
seedling.

Signature of Candidate : _____

Date :

ABSTRACT

The experiment will be conducted under rain shelter of UiTM Jasin Campus with the controlled environment. The oil palm seedlings from (FELDA DXP) were purchased from Hong Seng Nursery as recommended by MPOB. Oil palm seedling in about 3 months old was chosen because an AM fungus is obligate microorganism that need host to perform. So that, 3 month old of oil palm seedling is chose with the present of their roots. Sources of the Mycorrhizal were product of Malaysian Agri Care (MyAgri) which is MYCOgold brand was used in this experiment. The treatments were done with 5 levels, including the control plant. They are inoculants with 0g, 20g, 30g, 40g and 50g of AM. The inoculations were done by inoculating different level of AM with soil before transplanting to the other polybag. The mixture of soil is based on the common soil mixture for planting oil palm. Every level of AM will be repeated 5 times and by using Complete Randomized Design (CRD). The result was obtained 3 month after the inoculation with AM. Observation is based on the diameter of trunk (1 month interval), number of fronds (1 month interval), and plant biomass which are the upper (leaves) and lower (roots) mass was weighed. The nutrients contained were measured by leaves analysis. The infections of the inoculation were observed under microscope. The results gained from this experiment are the positive infection of Mycorrhizal Fungi inoculation with the present of infection of the Mycorrhiza within the root cells of the oil palm seedling after 3 month application of Mycorrhizal Fungi and the optimum level of Mycorrhiza inoculation on oil palm seedling growth.

TABLE OF CONTENT

	<u>Page</u>
CANDIDATE’S DECLARATION	iii
ABSTRACT	iv
ABSTRAK	v
ACKNOWLEDGMENTS	v
TABLE OF CONTENT	vi
LIST OF TABLE	vii
LIST OF FIGURE	viii
LIST OF ABBREVIATIONS	ix
CHAPTER 1 INTRODUCTION	1
1.1 Background of The Study	1
1.2 Problem Statement	2
1.3 Objectives of the Study	2
1.4 Significant Of The Study	2
1.5 Hypothesis	3
CHAPTER 2 LITERATURE REVIEW	4
2.1 Oil Palm	4
2.2 Arbuscular Mycorrhizal (AM)	5
2.3 Inoculation Of Arbuscular Mycorrhizal (Am) And Oil Palm Seedling.	6
CHAPTER 3 METHODOLOGY	11
3.1 Location Of The Study	11
3.2 Seedling Preparation	11
3.4 Experiment designs	17

CHAPTER 4 RESULT	19
4.1 Mycorrhiza Root Inoculation	19
4.2 Vegetative Growths.	20
4.3 Nutrient Analysis	23
CHAPTER 5 DISCUSSION	25
5.1 Mycorrhiza Inoculation	25
5.2 Number of Fronds	25
5.3 Diameter of Trunk	27
5.4 Nutrient Analysis	28
5.5 Upper Mass and Lower Mass	30
CITED REFERENCES	34
APPENDICES	45
CURRICULUM VITAE	51