DUE TIME ALERT SYSTEM IN OIL PALM TISSUE CULTURE LABORATORY VIA SMS AND EMAIL NOTIFICATION

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MALAYSIA

MAY 2011

ACKNOWLEDGMENT

Praise to Allah Almighty with His blessing I able to complete this project. Firstly, I would like to thank and expressed my greatest gratitude to Cik Noor Hafizah Binti Abdul Aziz as my supervisor for giving me guidance, advice, support and encouragement in order to complete this project.

A deeply appreciation goes to both of my parents for their support, encouragement and prayers. My special thanks tribute to my best friend, Nurul Kamaliah Abdullah for her support and time to listen to my problem. Not forget to Aimi Shairah Abdul Harris for her helping hands.

To Pn Marshima and Abu Samat, deepest gratitude is dedicated to both of you for the great support, encouragement, advice and very useful helps in order for me to understand about the coding and system that required in this project. Last but not least, thanks to Pn Zaiton for providing all the material needed for project testing and analysis.

ABSTRACT

Malaysia Oil Palm Board (MPOB) is a government body that responsible for planning, researching and developing the oil palm industry. The culture room must be isolated from the external environment to maintain the appropriate temperature and the relative humidity and to avoid the entrance of contaminants. Cultivars in MPOB are often taking oil palm tissue culture vessel from laboratory. Sometimes, tissue culture vessel is taken and do not return back to the laboratory at the same day. This situation is not good for the growth of tissue culture. By allowing tissue culture at the inappropriate condition, it may cause tissue culture from contaminated by surrounding environment. Therefore, an alert system is required to remind cultivar and administrator to return the tissue culture vessel into the laboratory on the same day before they leave the office. This project is expected to be implemented in oil palm tissue culture department in order to monitor the tissue culture vessel taking in and out from the laboratory. The application of light detector resistor (LDR) in oil palm tissue culture vessel with alert system is the best solution to overcome problems that occurs in MPOB laboratory. Light detector resistor is used in order to detect the present of vessel tissue culture. For this propose the alert system via SMS and email is developed by using SMS Gateway and email server to monitor the tissue culture vessel in laboratory. Once the period of time is exceeded, the cultivar and administrator will trigger via SMS and email. To accomplish this alert system, several open source software such as mail server, SMS Gateway, WAMP is being used. WAMP stand for Apache, MySQL and PHP in Windows. By developing this alert system, it helps to reduce destruction of oil palm tissue culture and maintain the high quality of oil palm.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Tissue culture is the technique of in-vitro plant breeding. The tissue culture technique for oil palm was developed in the 1970's. Since the introduction of tissue culture, clonal propagation has proven to be useful, not only in producing uniform planting material, but also the development of the genetic engineering (Norhaslin Nordin 2010).

In the advanced biotechnology and breeding centre MPOB laboratory, there are hundreds of vessels that contains of oil palm tissue culture seedling in the experiment rack. Tissue culture within the culture growth is sensitive with his surroundings. In order to produce high quality oil palm tissue culture, it is necessary to provide good physical and chemical condition in growth tissue culture. Research has shown factors such as temperature, humidity, liquid, phase and gas compositions such as oxygen, carbon dioxides and ethylene will influence oil palm tissue culture growth. Oil palm tissue culture needs to be place at the room that is isolated from the external environment to maintain the appropriate temperature and the relative humidity and to avoid the entrance of contaminants.

Cultivars are often taking tissue culture vessel from laboratory to their workplace in order to improved and see the growth of tissue culture. To avoid them forgotten to return back the vessel tissue culture, an alert system via SMS and email is best solution to remind them about the vessel tissue culture they have taken. This is because, if vessel tissue culture is place at the environment which is not suitable with