

**UNIVERSITI TEKNOLOGI MARA**

**FACULTY OF PHARMACY**

**EXPLORING THE POSSIBILITIES OF INDUCING  
PROTOCOLM LIKE BODIES (PLBs) FROM VARIOUS  
EXPLANTS OF *VANDA MIMI PALMER* AND  
*PHALAENOPSIS BELLINA***

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**Dissertation submitted in partial fulfillment of the requirements for the  
Bachelor of Pharmacy (Hons)**

**BACHELOR OF PHARMACY**

**2013**

## **ACKNOWLEDGEMENT**

Firstly I would like to thank to Faculty of Pharmacy, University Technology Mara (UiTM) for giving me the opportunity to do a thesis for my final year project. In addition, I would like to express my deepest appreciation to my dearest supervisor, Mdm Noor Anilizawatima bte Sulong for giving me the title for this thesis and also for the useful ideas, knowledge, comment, remarks, and engagement through the learning process of this final year project.

Furthermore, I would also like to thank to the master students and the staff for giving me the permission to use all the required equipments and the necessary materials to complete the task. A special thanks also goes to my team mates who helped me to assemble the parts and gave the suggestion about this task. Last but not least, I would like to thank to all people that had helped me directly and indirectly in finishing this final year project. Thank you so much.

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## ABSTRACT

The objective of this study is to investigate the possibility of inducing protocorm-like bodies (PLBs) from the explants of *Vanda Mimi Palmer* and *Phalaenopsis bellina*. The leaf explants was cultured on half strength Murashige and Skoog (1/2 MS) medium by using the Complete Randomized Experimental Design (CRED) method. Two types of plant regulator hormone which are 1-naphthaleneacetic acid (NAA) and 6-benzylaminopurine (BAP) with different concentration of 0 mg/L, 0.5 mg/L, 1.0 mg/L and 3.0 mg/L respectively were used to study the effect these plant growth regulators (PGRs) on PLBs induction for 16 weeks. After 16 weeks of observation, there is still no PBLs were induced by both type of orchid explants used at all plant growth regulator concentration tested. There is only the color changes of the explants that are observed. For *Phalaenopsis bellina*, the color of the explants started to change from green to brown at week 10 and turn to black color at week 12 to 16. On the other hand, *Vanda Mimi Palmer* shows a remained green explants color of sample I (1.0mg/l BAP, 0mg/l NAA), J (1.0mg/l BAP, 0.5mg/l NAA) and L (1.0mg/l BAP, 3.0mg/l NAA) until week 16, while the other sample started to change color from green to brown at week 12. In conclusion, the maximum concentration of 3.0 mg/l NAA and 3.0 mg/l BAP are unable to trigger the explants to induce PLBs in these two species.

# CHAPTER 1

## INTRODUCTION

### 1.1 Orchid

Orchid is one of the members of orchidaceae family. Orchidaceae family is one of the two largest groups of living flowers with colorful and fragrant blooms. There are approximately about 21,950 to 26,049 orchidaceae species that are found in 880 genera throughout the world wide. Orchid habitats are widely distributed and can be found almost in all countries except for Antartica. The name orchid is come from the Greek which mean ‘testicle’ because of the shape and the root of the flowers. The bulbophyllum, epidendrum, dendrobium, pleurothalis, vanilla, vanda, phaelaenopsis and orchis are some of the genera types that are found in the orchidaceae family (S.Buesnavista., 2010).

### 1.2 Plant Tissue Culture

In this study, the method that is used is the plant tissue culture method. Plant tissue culture method is a collection of techniques used to maintain or grow plant cells, tissues or organs under sterile conditions on a nutrient culture medium of known composition. Plant tissue culture is widely used to produce clones of a plant in a method known as micropropagation. This method was chosen because it is the most efficient way of mass producing a selected species or hybrid. The young shoot tip is severed, sterilized and its actively growing region is obtained and cut into pieces into flask that contain the artificial culture media. The plants produced throughout this method are true to type and identical to the mother plant (MK Smith & RA Drew., 1951).