

**UNIVERSITI TEKNOLOGI MARA**

**THE EFFECT OF ACTIVATED CHARCOAL AND  
PEPTONE ON SEEDS GERMINATION OF *BRASSAVOLA  
NODOSA*, *CATTLEYA INTERMEDIA*, *DENDROBIUM  
LASIANThERA* AND *GASTROCHILUS PATINATUS*.**

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## ABSTRACT

Activated charcoal (AC) and peptone have been used in micropropagation of plants in tissue culture to improve the seeds development of the plant. The aim of this study is to examine the influence of AC and peptone on the seeds germination of orchids; named, *Brassavola nodosa*, *Cattleya intermedia*, *Gastrochilus patinatus* and *Dendrobium lasianthera*. The seeds were sown on half strength Murashige and Skoog (1/2 MS) medium supplemented with different concentrations of AC (0.0, 0.5, 1.0, 2.0 g/L) and peptone (0.0, 0.5, 1.0, 2.0 g/L) by using Complete Randomized Design (CRD) method. Three replicates of each media were utilized. The percentage of protocorm and number of shoots induced were observed after 16 weeks. The results showed that *Brassavola nodosa* exhibited the highest percentage of protocorm and number of shoots than the other three species. The most optimum growth for *Brassavola nodosa* was in the media that was supplemented with 2.0 g/L peptone and without AC while the least growth was observed in media that is supplemented with 2.0 g/L AC and without peptone. For *Dendrobium lasianthera*, the highest percentage of protocorm and shoots was found in 1.0 g/L peptone and 0.0 g/L AC while the media supplemented with 2.0 g/L AC and 0.0 g/L peptone showed the least growth. For *Cattleya intermedia*, moderate growth of protocorm was observed in media supplemented with 0.5 g/L peptone and 1.0 g/L AC while the other media showed no development. *Gastrochilus patinatus* did not showed any growth development in media investigated. The result showed that the addition of AC and peptone could enhance the seeds development of most orchid species that was investigated in this study except for *Gastrochilus patinatus*.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

Orchidaceae represents one of the most enormous and acknowledged kingdoms of the flowering plants that comprises numerous species; which is about 25,000 to 35,000 species under 750 to 800 genera (Falsetto, 2008). Orchids are well known for its perplexingly complex flowers of exquisite and long lasting beauty with incredible types of colors, shapes, and scents of flowers to cope with a various range of habitats, to attract pollinators and to conserve moisture and nutrients as well (Abbas et al., 2011).

The natural beauties of orchids have made most of the families susceptible to extinction, mainly due to over-collections and serious loss of habitat. Recently, many areas of orchid habitat in the forest are destroyed because of illegal forest exploitation, excessive logging and mining industry to establish a new agriculture land (Siregar et al., 2008).