UNIVERSITI TEKNOLOGI MARA

EFFECT OF pH BUFFER ON GROWTH AND METABOLISM OF THE SELECTED ENDOPHYTES

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ABSTRACT

The main goal of this project is to study the effect of pH on growth and metabolism of HAB10R12 and 3PR3. The growth of these fungi was observed and extraction was carried out after three and four weeks of incubation. The extracts obtained were analyzed with HPLC to detect interesting compound(s). Antimicrobial assay was done in order to know antimicrobial activity of fungal extracts against certain microorganisms.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Robert Whittaker in 1969 proposed five kingdoms in classifying organisms. One of the kingdoms is fungi, which performs an essential role in ecosystem. Fungi are one of the most diverse kingdoms of organisms. Occurring worldwide, most fungi are largely invisible to the naked eye, living for the most part in soil, dead matter, and as symbionts of plants, animals, or other fungi. There are four groups of true fungi known as Zygomycetes, Basidiomycetes, Ascomycetes, and Deuteromycetes. Within the group, fungi are classified based on sexual reproduction. There are some fungi known as fungi imperfecti which indicates that the reproduction mode is not known. The most recognizable contribution of fungi is in decomposing organic matter. They live diversely in a wide range of habitat such as in deserts, hypersaline environment, and deep seas, on rocks and in extremely high and low temperature (Garvie *et al.* 2008).

An understanding of the influence of pH on growth and metabolism of the fungi can be used to determine the survival of fungi. However, survival of the fungi is not really the main interest opposed to the by-products or secondary metabolites produced by them. Secondary metabolites are defined as organic compounds that are not directly involved in the normal growth, development or reproduction of organism. A well known example of fungal secondary metabolite which has been widely used is penicillin which is produced by *Penicillium* spp. The process of producing secondary metabolites by fungi is known as secondary metabolism or also known as special metabolism. Secondary metabolism is a