UNIVERSITI TEKNOLOGI MARA

# USAGE OF ELICITORS FOR FUNGAL METABOLITE PRODUCTION

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# TABLE OF CONTENTS

**TITLE PAGE** **Page**

**ACKNOWLEDGEMENT** ..... **iii**

**TABLE OF CONTENT** ..... **iv**

**LIST OF ABBREVIATIONS** ..... **vii**

**LIST OF TABLES** ..... **vii**

**LIST OF FIGURES** ..... **ix**

**ABSTRACT** ..... **x**

**CHAPTER 1**

**INTRODUCTION** ..... **1**

1.1 Back Ground of Study ..... 1

1.2 Problem Statement. ..... 3

1.3 Objectives ..... 3

1.4 Hypothesis ..... 3

1.3 Significance of study ..... 4

## ABSTRACT

Endophytic fungi isolated at AuRIns by researchers are believed to produced secondary metabolites. In this study, the isolated Arctic fungal, R3-2 AUE, R3-2 SP17, R3-5 SP1, R5-1, R32 White, R1-1 SP16, SPB, and SPC were subculture on small scales (in 96-weel plates) and incubated for three weeks and five weeks. Secondary metabolites were assumed to produced by the fungi during fermentation period. Secondary metabolite is organic compounds that are not directly involved in normal growth, development and reproduction of an organism, but play an important role in plant defense mechanism. The main objective of this study is to investigate the ability of selected fungi to produced secondary metabolites. The other factors of secondary metabolites production of fungi, first is incubation time to investigate the exponential growth phase of fungi and second is addition of elicitors. The cultures were extract by using liquid-liquid extraction (LLE). The crude extracts were subjected to HPLC analysis. The HPLC result obtained displayed interesting chromatograms that warrant further studies on determining the role of the elicitors in the production of the metabolites through HPLC analysis of individual cultures.

# CHAPTER 1

# INTRODUCTION

## 1.1 Background of study

Microorganisms exist simultaneously in different microbial population having universal characteristic and depend by several numbers of variable (such as temperature, pH, humidity, food resources, etc.) to survived. The interaction of microorganism cause metabolites to be produced and released into surrounding for microbes important functioning (Tirranen & Gitelson, 2006).

An overall global number of fungi species diverse on earth are 1.5 million up to 3.3 million species. The $10^{th}$ edition of the Dictionary of the Fungi described about 100 000 fungal species were discovered until 2008. Other than ecological decomposers, fungi has important roles in several research (Sette, Pagnocca, & Rodrigues, 2013). A wide diversity of secondary metabolites are produced by fungi. Several secondary metabolites, for example mycosporines, pigments, polyols and mycosporines, are associated with pathogenicity and fungal tolerance to