**UNIVERSITI TEKNOLOGI MARA**

# EVALUATION OF FUNGAL CULTURE MEDIA FOR THE PRODUCTION OF SECONDARY METABOLITES BY AQUATIC FUNGI

**MARDHIAH BINTI MUHSIN**

Dissertation submitted to fulfilment of the requirements for the degree of Bachelor of Pharmacy (Hons)

2015

# ACKNOWLEDGEMENTS

Alhamdulillah, thanks to Allah for his blessing and guidance for helping me in doing this research from beginning till the end. Besides, I had an opportunity to work with people who had contributed a lot in helping me to finish up this research project. Besides , I also gain a very meaningful experience and knowledge about this project.

First and foremost, I would like to express my appreciation to my supportive research supervisor, Dr. Syed Adnan Ali Shah for the kind support, uncountable guidance and encouragement during this research project. I also would like to thank to Mrs Juliana for providing me materials and chemicals used for this research. A special thanks also to the postgraduate students, Miss Fazi and others who are very enthusiast in sharing their knowledge, and also contributing their priceless energy and time.

Finally yet the most importantly, my pleasure thank you to my parents, family and friends who always give support and keep praying for me during this research project. Lastly, thank you to all those who had been helped me to finish up this project whether directly or indirectly.

# TABLE OF CONTENTS

# ABSTRACT

Marine fungi are one of the sources that produced a lot of secondary metabolites. Secondary metabolites have been proved in many studies used as developing of a new drug from the lead compound activity. Some secondary metabolites showed as anticancer, antibacterial, antihelminthic and many more. In this study, two types of marine fungi were inoculated and growth in different media conditions which are PDA, PDB and MEA. The incubated fungi was then being extracted and analysed for their production of secondary metabolites using TLC and HPLC methods. Fungus 2 showed more production of secondary metabolites in the PDA and PDB compared with Fungus 1 based on the elution compound on TLC and also the HPLC chromatogram. However, both fungi are favourable growth in PDA and PDB because of more compounds seen on TLC plates from the spot of PDA and PDB fungal cultures and also more peaks formed in HPLC chromatogram of PDA and PDB fungal cultures.

# CHAPTER 1

## 1.0 INTRODUCTION

### 1.1 Research Background

The research on natural products for developing new drug is very beneficial to date. This is because natural products are often used as the initiator for drug discovery. Natural products are the substance that are being produced by living organisms. Fungi are one of the sources of potential natural products. The fungal sources of new bioactive metabolites have been broadened from terrestrial strains to marine habitats and living plants with their endophytes (Schueffler & Anke, 2014).

Marine fungi are recognized as sources that produce a lot of bioactive metabolites that can further processes for new medicines (Swathi, Sowjanya, Narendra, Reddy, & Krishna Satya, 2013). In addition, the bioactive metabolites from marine fungi are one of the interest lead compounds in formulating medicines (Duarte, Rocha-Santos, Freitas, & Duarte, 2012) and also have been proven to be a wealthy source of novel anticancer, antiplasmodial antibacterial, antiviral agents and anti-inflammatory (Rajasekar, Balaji, Kumaran, Deivasigamani, & Pugzhavendhan, 2012).

Nature is being a source of active principles in medicine for thousand years and the large number of modern drugs isolated from microorganisms, basically based on the traditional used of the drugs (Jha & Zi-rong, 2004). In addition, many of the novel bioactive candidates produce by fungi usually from an accidental finds or screening of ubiquitous fungi (Rajalakshmi & Mahesh, 2014).