UNIVERSITI TEKNOLOGI MARA

INDUCTION OF SECONDARY METABOLITES THROUGH CO-CULTURING OF FUNGI SPECIES

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ABSTRACT

Natural products and their derivatives such as the secondary metabolites have been sources of several therapeutic agents which play an important role in drug discovery for a long time. In the pharmaceutical field, secondary metabolites and biochemical indicators have develop interest to mankind due to their pharmacological and toxic properties. In the production of secondary metabolites, the interaction between fungi is important. The induction of new secondary metabolites in GS41+CR15.2, GS41+CR25, GS41+CM01, GS41+GS47 and GS38+GM29. GS41. In this experiment, GS41 showed a tremendously result by inducing new secondary metabolites. Through this experiment, some peaks of the fungi species were altered when they were co-cultured. This was done by analysing the data through UHPLC analysis. The type of interaction between fungi and other microorganism is defined as 'co-culture'.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Natural products and their derivatives have been sources of several therapeutic agents which play an important role in drug discovery for a long time (Koehn & Carter, 2005). They are lead molecules that helps to cure the diseases. They have indeed been a great help to humans in reducing pain and modifying medicines by aiding the transplantation of organs. Several therapeutic agents such as anticancer, anti-infective, and anti-diabetic agents are from natural products (Beghyn, Deprez-Poulain, Willand, Deprez, & Folleas, 2008) Natural products comes from in variety of sources such as plants, microorganisms, marine organisms, vertebrates and invertebrates (Beghyn et al., 2008).

Many different types of high-throughput screening approach are being developed to increase the quality of natural compounds that can be used for drug discovery (Harvey, 2008)

Examples of natural products that are derived from fungal are psilocin and lovastatin. Psilocin which contains a prodrug called psilocybin is isolated from *Psilocybe Mexicana* and *Stropharia cubensis*. Psilocybin are structurally similar to neurotransmitter such as serotonin and norepinephrine. It produces pscyho action because it transmits the nerve impulse from one neuron to another, especially in the brain. Psilocybin will create false signals because it is stimulated by binding to the neurotransmitter (John, 2007).

Lovastatin is obtained from fungal species that are called *Aspergillus terreus*, *Monascus rubber*, *Pleurotus ostreatus* and *Pleurotus spp.* Lovastatin can hydrolysed into an active heptanoic acid due to the presents of lactone ring. It is used in the treatment of dyslipidemia and prevention of cardiovascular diseases (S. V. Kumar, Saravanan, Kumar, & Jayakumar, 2014).