UNIVERSITI TEKNOLOGI MARA

THE EFFECT OF DIFFERENT MEDIA CONDITIONS ON PRODUCTION OF FUNGAL METABOLITES BY AQUATIC FUNGI

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ABSTRACT

The discovery of beneficial compounds in many types of fungi especially freshwater fungi past years ago have initiated a new and very promising field in this research. Based on presence and absence data for a large number and variety of aquatic habits, it is about 3000 fungal species have been reported from aquatic habitat. The biodiversity, physiology, behavior, and secondary metabolite production of aquatic fungi occur differently in different conditions.. Freshwater chemical ecology nowadays integrated into a broader and more complex framework that includes aspects physiological, population, community, and even ecosystem ecology. Chemical defenses can vary dramatically among geographic regions, habitats, individuals within a local habitat, and within different portions of the same individual. Factors affecting this variance are poorly known, but include physical stresses and induction due to previous attack. A wide range of media are used for isolation of different groups of fungi that influence the vegetative growth and colony morphology, pigmentation and sporulation depending upon the composition of specific culture medium, pH, temperature, light, water availability and surrounding atmospheric gas mixture.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Seventy-one percent of our planet's surface consists of water, but only 0.6% lentic and lotic fresh water habitats. Often taken for granted, freshwaters are immensely diverse habitats and host >10% of all animal and >35% of all vertebrate species worldwide (Wurzbacher Christian, 2011). Urbanization, economic growth, and climate change have increased pressure on freshwater resources, whilst biodiversity has given away to the increasing demands of a growing human population. The adverse effects on aquatic ecosystems include habitat fragmentation, eutrophication, habitat loss, and invasion of pathogenic as well as toxic species. Although there is increasing evidence that freshwater fungal diversity is high (Bhatnagar & Kim, 2010a), the study of the biodiversity of freshwater fungi is still in infancy. Aquatic fungi, in the broadest sense, include fungi present transiently in water, terrestrial fungi that release spores which are dispersed in water, and species that function entirely within water. Water is found in transient pools after rain, swamps, estuaries, permanent rivers and oceans. Within a single environment, the water can have predictable characteristics.