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THE IDENTIFICATION OF MARINE ENDOPHYTIC FUNGI FROM MALAYSIAN SEAWEED

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ABSTRACT

Endophyte are able to inhibits a host and producing variety of broad acting secondary metabolite that having unique structure such as flavonoid, alkaloid and xanthones. Therefore endophyte has a potential as a new drug lead due to their ability to produce a metabolite that having a therapeutic value such as, antifungal, antimicrobial and antitumor. Seaweeds has become attractive to be studied are due to their relationship with marine endophytic fungi and their survival in the challenging marine environment. However, our understandings for marine endophyte are still lacking due to insufficient studies and little information provided from the existing studies. Therefore this study, can be a good platform for collecting information for Malaysian marine endophytic fungi. Marine endophytic fungi were identified using morphological observation and molecular technique. Through morphological observation eight isolates were able to be identified macroscopically and microscopically. The results are then further confirmed with molecular technique, where the closely related species of fungi were identified. The result obtained shows that one fungal isolates from *Padina sp.* was identified as *Trichoderma Harzianum,*one fungal isolates from *Turbinaria sp.* was identified as *Camarosporium sp.*and six fungal isolates from *Sargassum sp.* were identified as *Massarina Igniaria Rhinocladiella atrovirens Hypoxylon monticulosum Arthrinium Malaysianum Lenzites Elegans* and *Schizophyllum malaysianum.* All of the marine endophytic fungi have proven to produce an outstanding activity that are not only limited in the medicinal fields, but in broad spectrum of activity.

CHAPTER ONE

INTRODUCTION

Natural product has been used in the drug development ever since in the 19th century. Nowadays, interest of researches for the natural product in the drug development is increased. This is due to raising in health problem such as, antibiotic resistance and outbreak of new disease like ebola and zika virus disease. Marine natural products are being widely focused on nowadays in the drug development, because they are proven to produce many health benefit activity.

Among marine natural products, seaweed is the best in producing this biological activity, include anticancer, antimicrobial, antifungal and many more. Despite of showing a potent biological activity, the study on marine endophyte is not well explored (WONG et al., 2015) (Felício et al., 2015). Therefore, in this study, type of endophyte that reside in brown seaweed which are, *Padina sp.* and *Sargassum sp.* collected from Semporna, Sabah will be identified. The method used for identification is by molecular and morphology techniques.