

UNIVERSITI TEKNOLOGI MARA

**MOLECULAR IDENTIFICATION OF ISOLATED
MALAYSIAN MARINE ENDOPHYTIC FUNGI**

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ABSTRACT

Bioactive compounds of marine endophytic fungi derived from seaweeds have a great potential in pharmaceutical and medicinal field. In Malaysia, preliminary studies have been done to discover the bioactive compounds in these marine endophytic fungi. However, the data on identification of these local marine endophytic fungi is not well reported. Therefore in this study, 18 isolated marine endophytic fungi derived from eight different species of local seaweeds (*Gracilaria arcuata zanardini*, *Gracilaria coronopifolia* J. Agardh, *Chaetomorpha minima* F.S Collins & Harvey, *Caulerpa sertularioides*, *Acantophora spicifera* (M. Vohl), *Padina minor* Yamada, *Enteromorpha compressa* and *Caulerpa lentifera*) were identified. The isolated marine endophytic fungi were identified molecularly through polymerase chain reaction (PCR). The DNA of the marine endophytic fungi were amplified using ITS 1 and ITS 4 as primers. Out of 18 marine endophytic fungi, 11 of them were successfully identified. In this study, six marine endophytic fungi identified were from *Aspergillus* sp, whereas other marine endophytic fungi isolates (UF, ED2, PA2) have closest Genbank similarities with *Exophiala dermatitidis*, *Diaporthe pseudomangiferae* and *Psathyrella purpureobadia* respectively. Based on the result from this study, most of the isolates successfully validated the morphological characteristic from the previous research.

CHAPTER I

INTRODUCTION

1.1 Background of study

Bioactive compounds of marine endophytic fungi derived from seaweeds have a great potential in pharmaceutical and medicinal field (Oliveira, 2012). The uniqueness of bioactive compounds derived from marine endophytic fungi has attract many researchers interest. In Malaysia, preliminary studies have been done on the discovery of the bioactive compounds from marine endophytic fungi (Ariffin, 2011; Chareprasert, 2012; Jones, 2011). However, not many of them have been identified. Therefore, the identification of the marine endophytic fungi genus is crucial to be executed.

Identification of marine endophytic fungi can be very useful to help further studies of biodiversity, population, and screening of bioactive compounds produced by marine endophytic fungi (X. Sun, & Guo, L. D., 2012). The identification of endophytic fungi through conventional methods have been done previously. Morphological observation is a conventional method to identify the physical characterisation of the endophytic fungi. However, this conventional method is not applicable to all fungal species because it is unable to identify non-sporulating fungi (Gherbawy, 2010). Therefore, the molecular technique can be performed in order to further confirm and provide details on the isolated marine endophytic fungi identity.