

UNIVERSITI TEKNOLOGI MARA

**ISOLATION AND CHARACTERIZATION OF
ENDOPHYTES FROM *Pandanus odoratissimus***

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TABLE OF CONTENTS

	Page
TITLE PAGE	
APPROVAL SHEET	
ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF FIGURES	v
ABSTRACT	vi
CHAPTER ONE (INTRODUCTION)	1
1.1 Endophytes	1
1.2 Natural products of endophytes	3
1.3 Sample characteristics	4
1.4 Objectives	7
CHAPTER TWO (LITERATURE REVIEW)	8
CHAPTER THREE (MATERIALS AND METHODS)	13
3.1 Materials	13
3.2 Methods	
3.2.1 Collecting samples	13
3.2.2 Isolation of endophytes	15
3.2.3 Characterization of endophytic fungi	16
3.2.4 Stock culture	16
CHAPTER FOUR (RESULT)	18

ABSTRACT

Endophytes are fungi that colonize the inner part of the host plant for the whole or part of their life cycle. They are found in almost all plants in the earth. The purpose of this study is to isolate and identify the endophytes present in *Pandanus odoratissimus*, since there is no study has been done for that purposes. *P. odoratissimus*, a marine coastal plant was taken from Port Dickson, Negeri Sembilan. From this study, 45 endophytes have been isolated and most of the isolates were come from leaves samples. The morphological properties of 45 isolated endophytes were conducted macroscopically and microscopically. From the observation, there are 3 actinomycete appeared on the PDA medium. Through microscopic observation, all the isolated endophytes were determined by using Light Microscopy and picture was taken by using digital camera. From the observation, the 45 isolates were identified according to their hyphal characteristics and the asexual spore types and we found that 19 of the isolates having spores, 12 of isolates did not produce spores and the rest are not able to either be identified or observed under microscope.

CHAPTER 1

INTRODUCTION

1.1 Endophytes

The beginning of the development of drug resistance in human pathogenic bacteria among such microbes as *Streptococcus* spp., *Mycobacterium tuberculosis*, *Staphylococcus* spp. and others has prompted a search for more and better antibiotics. Together with this, there is an increasing need for more and better antimycotics especially as the human population has developing more fungal infections as a result of the AIDS epidemic and an increased numbers of patients with organ transplants, whose immune system is weakened (Strobel, 2003). Drug resistance in bacteria, the appearance of life threatening viruses, the recurring problems with diseases in persons with organ transplants and the tremendous increase in the incidence of fungal infections in the world's population each only underscore our inadequacy to cope with these medical problems (Strobel *et al.*, 2003). It now appears relatively untapped sources of microbial diversity is represented by the microbial endophytes (Strobel, 2003).

The marine environment is a best resource for the isolation of less exploited microorganisms (Sponga *et al.*, 1999). As a matter of fact, in the sea, untapped habitats exist with unique characteristics. In addition, the potential contribution of marine sources to the discovery of new bioactive molecules was recently recognized. Most