

UNIVERSITI TEKNOLOGI MARA

**ISOLATION AND CHARACTERIZATION OF
ENDOPHYTES FROM *Nypa Fruticans***

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**Dissertation submitted in partial fulfillment of the requirements for the
degree of Bachelor of Pharmacy from the Faculty of Pharmacy, UiTM.**

Faculty of Pharmacy

July 2006

ACKNOWLEDGEMENT

Finally, Research Instrumentation (PHM555) ended. Throughout the course, I had gained a lot of knowledge and experiences in aspects of conducting a research study. I am very grateful to all the people involved either directly or indirectly to make this research paper successful.

A special debt of gratitude to my supervisor Cik Siti Alwani Ariffin and all lab assistances, for giving me the opportunity to enhanced my knowledge and exposures to the laboratory working environment, and had given me their fullest support and guidance.

I would also like to thank my family and friends for giving me their support.

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ABSTRACT

The potential contribution of marine sources to the discovery of new bioactive molecules was recently recognized but the biodiversity of marine microbes and the versatility of their bioactive metabolites have not been fully explored. *Nypa Fruticans*, a marine coastal plant has been claimed to have an activity against herpes virus and it has been used for treatment of various ailments. Through this research twenty-one endophytes from *Nypa Fruticans* are successfully isolated and characterize including two acremonium, one zygomycete, one trichoderma, one chlamidoconidia, one sporothrix, two glomeromycete, ascomycete, one arthroconidia and another ten of the isolates cannot be identified from different parts of this plant.

Key words: *Nypa Fruticans*, marine coastal plant, endophytes, bioactive metabolites.

CHAPTER 1

INTRODUCTION

1.1 Endophytes

Since 1904 after the discovery of endophytes in Darne, Germany, various investigators have defined endophytes in different ways, which is usually dependent on the perspective from which the endophytes were being isolated and subsequently examined (Strobel and Daisy, 2003). The meaning of the term endophyte has undergone various transformations in last decade and there is still considerable disagreement as what constitutes an endophyte (Saikkonen *et al.*, 1998). Tan and Zou, (2001) defined an endophyte as a bacterial (including actinomycetes) or fungal microorganism, which spends the whole or part of its life cycle colonizing intercellular or intracellular inside the healthy tissues of the host plant. Endophytic fungi can be found in almost all plants including trees, grass, algae and herbaceous plants (Huang *et al.*, 2001). The question is whether they are produce by the plant itself or as a consequence of a mutualistic relationship with beneficial organisms in their tissue (Radu and Kqueen, 2002).

Tan and Zou, (2001) believe the reason why some endophytes produce certain phytochemicals originally characteristic of the host might be related to a genetic recombination of the endophyte with the host that occurs in evolutionary time. All aspects of the biology and interrelatedness of endophytes with their respective hosts is a vastly under investigated and exciting field (Strobel and Daisy, 2003). Thus, more