

**UNIVERSITI TEKNOLOGI MARA**

**ANTIOXIDANT AND  
ANTIMICROBIAL ACTIVITIES OF  
*Muntingia calabura* IN AQUEOUS,  
CHLOROFORM AND METHANOL  
LEAVES EXTRACTS USING  
VARIOUS ASSAYS**

**BALKIS BINTI OMAR**

Dissertation submitted in partial  
fulfillment of the requirements for the

Faculty of Pharmacy

November 2008

## **ACKNOWLEDGEMENTS**

A very grateful to Almighty ALLAH for His blessing in finishing this thesis. I would like to thank all those who guided me in doing this study. A special thank to my great supervisor, Dr. Zainul Amiruddin Zakaria and co-supervisor, Miss Thellie Ponto for their ideas, guidance, advices, help and contributions in order to complete this final year project. To my parents, teammates and friends, thank you very much for your support, understanding and encouragement.

Without those people mentioned above, it will be impossible for me to complete this study on time. Only God can reward you all. Thank you very much.

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## ABSTRACT

This study was carried out to determine the antioxidant and antimicrobial activities of aqueous, chloroform and methanol extracts of *Muntingia calabura* using various assays. As compared to standard curve of gallic acid, aqueous and methanol extracts of *M. calabura* showed high total phenolic content (TPC) which were 2970.4 and 2978.1 respectively. All extracts were found to show remarkable antioxidant activities in both DPPH and superoxide radical scavenging assays. However, the methanol extract showed the highest inhibitory activity with percentage of inhibition yielded 92 to 99% and 85 to 89 % respectively. Lower antioxidant activity was shown by all extracts when tested with thyrosinase inhibitory assay. Using microbroth dilution method, there was no inhibitory action demonstrated by all extracts against methicillin sensitive and resistant strains of *S. aureus*, *E. coli*, *P. aeruginosa*, *C. albicans* as well as *M. canis* at concentration 5 µg/µl of the samples.

# CHAPTER 1

## INTRODUCTION

### 1.1 Natural plants

In Asia, Latin America and Africa the extensive use of natural plants as primary health remedies, due to their pharmacological properties, is quite common (Conco, 1991). In addition, culinary herbal extracts and essential oils have become increasingly popular as alternative sources of natural preservative agents, largely because herbs are widely cultivated, effective and safe for consumption. (Peter YYW *et al.*, 2005).

### 1.2 Medicinal plant

In recent years pharmaceutical companies have spent a lot of time and money in developing natural products extracted from plants, to produce more cost effective remedies that are affordable by the population (Farnsworth, 1994).

### 1.3 *Muntingia calabura*

Also called buah ceri or kerukup siam by the Malays, this plant consists of sweet sticky fruits with juicy and full of tiny seeds. They are a favorite with birds and bats, which disperse the seeds and children too. Tiny, sticky hairs are covering the leaves. Although it provides good shade, it is not a popular wayside tree because the birds and bats that visit the tree also leave their droppings under the tree.