# DETERMINATION OF CAFFEINE USING HPLC AND OTHER QUALITY CHARACTERISTICS IN DIFFERENT BRANDS OF COFFEE

**NOR AISHAH AKMAL BT A.RAHMAN**

**Thesis Submitted in Partial Fulfilment of the Requirement for the Degree of Bachelor of Science (Hons.) Food Quality Management in the Faculty of Applied Sciences Universiti Teknologi MARA**

**April 2005**

## ACKNOWLEDGEMENTS

Alhamdulillah. Gratefully thanks to Allah S.W.T, The Most Gracious and The Most Merciful for giving me the opportunity and strength to complete this final year project report successfully.

I would like to express my sincere gratitude and appreciation to my supervisor, Assoc. Prof. Dr Rozana bt Abdul Razak for her guidance, encouragement, advise and ideas to ensure this project is successfully completed.

I would also want to express my sincere thanks to all lectures of Food Technology Department for their guidance and valuable advice through out my study in Uitm.
Not forgetting to all the laboratory assistants for their assistance, cooperation and support.

Last but not least, thank you to my parents, for financial support and encouragement during the preparation of this project.

# TABLE OF CONTENTS

## ABSTRACT

### DETERMINATION OF CAFFEINE USING HPLC AND OTHER QUALITY CHARACTERISTICS IN DIFFERENT BRANDS OF COFFEE

Determination of caffeine in coffee was done using HPLC. The main objective of the analysis is to determine the caffeine content in various coffee brands. Highest caffeine concentration was detected in Kapal Api roasted coffee which was 137.61 ppm. The lowest concentration of caffeine was obtained in Boh decaffeinated coffee with 11.29 ppm. Physical analysis of moisture content, ash and colour of coffee were also carried out to compare the quality characteristic between different coffee samples. The highest percentage of moisture content was obtained in Nescafe decaffeinated coffee which was 4.10%. The highest percentage of ash was found in Nescafe decaffeinated coffee. The percentage of the ash was 8.24%. Colour determination on the coffee sample was carried out using chromameter.

# CHAPTER 1

## INTRODUCTION

People have enjoyed caffeinated beverages for many years. Some examples of caffeinated beverages are cola, coffee and tea. One of caffeinated drink that is widely consumed all over the world is coffee. Coffee drinking is not essential for man's nurture. It is drunk mainly for pleasure and stimulating effects.

According to Bender's Dictionary of Nutrition and Food Technology (1999), coffee is defined as beverage produced from roasted bean from the berries of 2 principal types of shrub. They are *Coffea arabica* and *Coffea canephora. Coffea* genus is in the family *Rubiaceae*, with subdivisions and some 80 separate species, of only two species are commercially important for green coffee. They are *Coffee arabica* and *Coffee canephora. Coffea arabica* is also known as Arabian or Arabica coffee, meanwhile *Coffea canephora* is also known as Robusta coffee. Robusta plants are bred by use of cutting and Arabica plants are bred from seed. Both species require different optimal environment for optimum growth.

Arabica grow best at higher altitude and have outstanding resistance to frost damage. The range of temperature for Arabica to grow well is between 60°F and 70°F. The temperature should not exceed 75°F. Robusta coffee grows at low altitudes and it can