

**PHYSICO-CHEMICAL PROPERTIES AND SENSORY EVALUATION OF
COMMERCIAL HONEY**

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APRIL 2005

ACKNOWLEDGEMENTS

Alhamdulillah, I finally able to complete this research. The completion of this study was succeed with helps from those supportive people who always be behind me. I would like to take this opportunity to express my thanks to those people.

First of all, I would like to express my deepest gratitude and warmest appreciation to my supervisor, Cik Anida Bt. Yusoff. She had been very supportive, patiently giving me advice and guidance to ensure that this study was carried out in the most objective manner. Her contribution in the completion of this project was very meaningful to me. Thanks for everything and may God bless you.

I would like also to express my special thanks to Head of Programme, Department of Food Technology, Prof. Madya Dr. Siti Noorbaiyah Abdul Malek for her full cooperation. Special thank to Lab Assistance, En. Osman, En. Omar, Pn. Nora and Cik Hariyah for their cooperation in guiding and conducting me during completion of this research, especially while handling analysis in Lab Food Analysis 201.

Special thanks goes to all my fellow friends who have always assisted me in their own way and giving me a courage, morale support and love during study in UiTM.

ABSTRACT

PHYSICO-CHEMICAL PROPERTIES AND SENSORY EVALUATION OF COMMERCIAL HONEY

Determination of physico-chemical properties and sensory evaluation of commercial honeys is very important and the collection of information is to gather all the data mainly on physical and chemical properties of honey. The information will be used as one of the resource for SIRIM to develop a Standard for Malaysia Honey. Thus, the objective of this study was to determine the physico-chemical properties and the sensory evaluation of commercial honey. The physico-chemical analysis that has been conducted were pH, water insoluble solid, total soluble solid, free acidity, moisture content, ash content and color. For sensory evaluation, five attributes were tested which was appearance, color, spreadibility, sweetness and overall acceptability. Six types of honey which been used such as Manuka, Clover, Rewarewa, Rata, Kamahi and Flomax. For Rewarewa, it was found that the significantly highest in pH (4.40) but significantly lowest in free acidity (13.33) and total soluble solid (78.73). Then, for Clover, the significantly highest values were found in water insoluble solid (0.99), ash content (0.84) and free acidity (32.67) and total soluble solid (78.87) while the significantly lowest value was found in pH with 3.86. For Rata, the significantly highest value was found in total soluble solid with 79.13 and the significantly lowest values were found in water insoluble solid, moisture content and ash content with 0.20, 28.40 and 0.25, respectively. For Manuka, the significantly highest values were found in moisture content with 33.68 and pH with 4.22. Then, for Kamahi, the significantly lowest values were found in total soluble solid with 78.53, moisture content with 29.04 and ash content with 0.12. Sample Rewarewa showed the significantly lightest color with value 52.39 while sample Kamahi was the significantly darkest color with 17.83. For sample Flomax and Rewarewa, the a value were -0.41 and -1.78, respectively which more to greenness in color. But, sample Clover with a value 3.45 was towards to redness in color. Sample Rewarewa showed the significantly highest in yellowness color with 20.55 while for sample Clover with 7.60 was the lowest in yellowness color. Results of sensory evaluation showed the attributes of appearance, color, spreadibility, sweetness and overall acceptability. For overall acceptability, the significantly highest were found in sample Kamahi with 6.56, Clover with 6.53 and Flomax with 6.02. This was due to lightest in color and the texture of the honey was smoothness that contributed to easily in spreadibility.

CHAPTER 1

INTRODUCTION

Honey is the most important primary product of beekeeping both from a quantitative and an economic point of view. It was also the first bee product used by humankind in ancient times. The history of the use of honey is parallel to the history of man and in virtually every culture evidence can be found its use as a food source and as a symbol employed in religious, magic and therapeutic ceremonies (Crane, 1975).

Honey is a natural sweet substance produced by honeybees from the nectar of blossoms or from the secretion of living parts of plants or excretions of plant sucking insects on the living parts of plants, which honeybees collect, transform and combine with specific substances of their own, store and leave in the honey comb to ripen and mature (Codex Alimentarius, 1993).

Honey is a supersaturated solution of sugar, mainly fructose, glucose and maltose like sugars, with traces of sucrose, glucose oxidase, hydrogen peroxide, phenolics, flavonoids, terpenes and others. The sugars make honey hygroscopic (moisture absorbing) and viscous, and the sugar concentration plus other factors including low pH,

hydrogen peroxide, flavonoids, phenolics and terpenes make honey antimicrobial or prevent microbial growth (Molan, 1992).

The main use of honey is as a flavorful sweetener and energy source, which is eaten with and as a component of a wide variety of foods. The sweetness is from the sugar, particularly fructose and flavor is created by a wide variety of trace essence derived from plant esters, alcohols, aldehydes and other compounds (White and Crane, 1975). Secondary, the uses of honey are for the promotion of health and well being. Some of these uses include aiding in the healing of wounds, healing of serious skin burns, and healing gastric ulcers. The basis for the wound and burn healing properties of honey is its antimicrobial, moisturizing/ fluid removal and oxygen barrier properties. The flavonoid content and low pH of honey is likely aid in stimulating growth and healing. Honey has varies in physical and chemical properties. Thus, this study is conducted with the following objectives:

- i. To determine the physico-chemical properties of commercial samples of honey
- ii. To determine the sensory properties of commercial samples of honey