

**DETERMINATION OF MINERALS IN COMMERCIAL HONEYS USING  
ATOMIC ABSORPTION SPECTROMETRY AND  
INDUCTIVELY COUPLE PLASMA-OPTICAL EMISSION SPECTROMETRY**

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## ABSTRACT

### DETERMINATION OF MINERALS IN COMMERCIAL HONEYS USING ATOMIC ABSORPTION SPECTROMETRY AND INDUCTIVELY COUPLE PLASMA-OPTICAL EMISSION SPECTROMETRY

This study was conducted to determine the amount of minerals in the commercial honeys which were *Kelulut*, *Tualang* and black seed honey. Honey was chosen as subject because people ate it for health. The instruments used for the analysis were Atomic Absorption Spectrometry, AAS and Inductively Couple Plasma-Optical Emission Spectrometry, ICP-OES while the minerals chosen were iron (Fe), magnesium (Mg), lead (Pb), calcium (Ca), and copper (Cu). The sample preparation used for the project was wet digestion. The concentration of the minerals in the sample were determined and compared. In AAS analysis, *Kelulut* honey gave the highest amount of iron while in ICP, black seed honey has the highest amount of iron. Of all the three honeys, black seed honey contains the highest amount of minerals compared to the other two honeys. For AAS result, the amount of magnesium in black seed honey was 15.2 mg/L and the amount of iron was 6.08 mg/L. For ICP-OES, the magnesium in black seed honey was 7.8 mg/L while iron was 14.75 mg/L.

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background

According to the second edition of Dictionary of Food Science & Technology, honey is a natural syrup produced by honeybees which mainly come from nectar but can also come from honeydew and fruit juices (Armson *et al*, 2009). Typically, nectar has low surface tension and heat conductivity, and it appears in changing hues and unequivocally hygroscopic (Afzal *et al*, 2014). Honey is said to have a different composition as there are flavour compound and aroma compound that are present in the nectar, which is dependent on its botanic origin (Armson *et al*, 2009). The biochemical properties of honey and its quality can be identified with its development, climatic conditions, production methods, handling and stockpiling conditions, and the nectar wellspring of honey (Abdolrasoul *et al*, 2015).