

**DETERMINATION OF MINERALS (IRON AND CALCIUM) IN  
THREE DIFFERENT TYPES OF CEREAL**

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## **ABSTRACT**

### **DETERMINATION OF MINERALS (IRON AND CALCIUM) IN THREE DIFFERENT TYPES OF CEREAL**

This study was conducted to determine the amount of iron and calcium in three different types of cereal. Calcium and iron contents in the samples were determined by using Atomic Absorption Spectroscopy. Different concentrations of iron and calcium standards were prepared and added into the sample by using standard addition method. The sample was digested by using acid in order to turn the sample into solution form. The amount obtained for iron in samples A, B and C varies as well as the amount of calcium in samples D, E and F. Based on the analysis, sample B and C contain similar amount of iron which are 7.82 mg/g and 7.79 mg/g while sample A contains 6.19 mg/g. Sample D has the highest amount of calcium which is 7.24 mg/g while sample E and F contain 1.19 mg/g and 0.60 mg/g respectively. Therefore, we can conclude that all cereals can provide iron and calcium needed by the body.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of study

In agriculture, cereals are the influential crops with a total of 2500 million tonnes globally in 2011 as they are the dominant source of calories as well as protein to humans (Lafiandra *et al*, 2014). Higher micronutrient consumptions as well as positive health outcomes have been associated with breakfast cereal intake (Holmes *et al*, 2012).

Mineral is one of the elements that contain in cereal. It is needed as an essential nutrient by humans to perform functions necessary for living. Minerals such as calcium and iron are required by human body as they are important for human diet. Mineral helps in cellular body process from rebuilding tissues to maintain ion contents (Smith and Sutor, 2012).

One of the minerals in cereal which is calcium is needed for preventing osteoporosis, blood clotting, building strong bones, and sending nerve signals (Smith and Sutor, 2012). Thus, calcium is an important mineral needed by human. Osteoporosis may occur due to lack of calcium intake. However,