A flavor is a substance which may be a single chemical entity, or a blend of chemicals of natural or synthetic origin, whose primary purpose is to provide all or part of the particular effect to any food or other product taken in the mouth. The description of the flavor compound in food or food product is called as flavor profile (Brannen et al., 2005). Flavor is about the responses that come from human senses and usually being categorized into three kinds of things which are olfaction, taste, and the somatosenses (irritation, tactile, and thermal). These responses are being input and processed into human’s brain and leads to what is called as flavor perception (Reineccius, 2006). The description of flavor compound in food or food product is called as flavor profile.

According to Hui et al. (2006), bananas are considered the fourth most important food crop in the world besides cereals such as rice, wheat, and corn. Salunkhe (1995) said that Indonesia is one of the major producer countries for banana and it is supported by Badan Pusat Statistik (2013) which reported that the production of banana was the highest fruit production in Indonesia. According to Barrett et al. (2005), besides appearance and texture, flavor is one of the important qualities for fresh fruit. Naqvi (2004) stated that banana is a fruit with major source of carbohydrates, vitamins A, B6, C, minerals like potassium, calcium, phosphorus, and fiber. There are some species of banana that have been
recognized throughout the world and pisang mas (Musa acuminata), pisang kepok (Musa paradisiaca), and pisang batu (Musa balbisiana) are included in it. Pisang mas and pisang kepok could be easily found in the traditional market and pisang batu could be gotten from the local farm. Although pisang mas and pisang kepok could be easily gotten as it had already consumed widely but pisang batu was still not utilized fully well because it was usually being discarded. The three banana species were selected to be analyzed using Gas Chromatography-Mass Spectrometry-Olfactometry (GC-MS-O) which is an instrumental analysis for identifying its aroma active compound and Qualitative Descriptive Analysis (QDA) which is a sensory analysis for identifying its sensory profiles. The result got from QDA will then be further analyzed by using Principal Component Analysis (PCA).

1.2 Research Problem

Aroma of fruits can be known by detecting the aroma active compound that can be caused by the presence of volatiles in it. Pisang mas, pisang kepok, and pisang batu have different aroma with each other, however there is still no report regarding the aroma active compound of the fruits which show the different aroma active compound between the bananas, therefore the analysis of it is required to be done in order to know the difference.
1.3 Objectives

1.3.1 General Objectives

This research was done in order to compare the aroma profiles of *pisang mas*, *pisang kepok*, and *pisang batu* since the three of them had not been observed from this field of study about the difference of aroma.

1.3.2 Specific Objectives

The specific objective of doing this research was to:

1) Identify the aroma active compounds of *pisang mas*, *pisang kepok*, and *pisang batu* by analysis using Gas Chromatography Mass Spectrometry Olfactometry (GC-MS-O)

2) Compare the aroma active compounds from three kinds of bananas which are *pisang mas*, *pisang kepok*, and *pisang batu* in term of sensory profiles using Quantitative Descriptive Analysis (QDA)

3) Compare the result from each fruit in term of its instrumental analysis and sensory analysis.