CHAPTER I

INTRODUCTION

1.1 Background

Coffee is a popular drink that is often consumed by Indonesian people for its refreshing and stimulant effect. In 2017/2018, Indonesia is included as world's fourth largest coffee producers and exporter countries in the world, after Brazil, Vietnam and Colombia with coffee production of 10.36 million bags (ICO, 2019). There are two species of coffee that dominated the coffee market and consumption, namely Arabica (*Coffea arabica*) and Robusta (*Coffea canephora*), in which they contribute to different characteristic of flavor and aroma. Besides its distinctive flavor and aroma, coffee is also well known for its caffeine content which is a bioactive compound that can stimulate the central nervous system. The adequate consumption of caffeine also can bring positive impact on human long-term memory, enhance concentration, and prevent dementia (Patocka *et al*., 2019).

Indonesia is a home to several islands that are known for their coffee, including Gayo coffee, Mandheling coffee, Lintong coffee, Java coffee, Bali Kintamani coffee, Flores coffee, Toraja coffee, Lampung coffee, Civet coffee and many more (Sulistyaningtyas *et al.*, 2017). According to Jamil (2019), the great potential of Indonesian coffee increases competition between importers and cause changes in the balance of international market, where there is a tendency to have excess supply of the world coffee and resulted in the lower coffee price. One of the diversifications and innovation that can be done to increase the economic value and

enhance the unique flavor of Indonesian coffee is by making fermented coffee beverage.

Fermented food and beverages contribute to many beneficial effects towards the human body. Therefore, they have been an essential part of the human diet since the ancient time. Besides contributing to health benefits, fermentation also can improve the organoleptic and nutritional properties of product, increase the economic values, and can preserve product which enhances the shelf life of the product (Hutkins, 2018).

According to Baschali *et al.* (2017), fermented beverage can be divided into three groups, which are alcoholic beverage, low-alcoholic fermented beverage (LAFB) and no-alcoholic fermented beverage (NAFB). Wine, for example, is an alcoholic beverage made from fresh grape juice through fermentation process, which is considered as a very pleasant drink. Wine is rich in bioactive compounds which make it beneficial to human health, reducing risk of cancer, heart and circulatory diseases, dementia and blindness as well as decreasing blood pressure, improving skin condition, digestion, having anti-inflammatory action, alleviating lung diseases and providing greater longevity and quality of life. The yeast species that is responsible in fermentation process is *Saccharomyces cerevisiae* which contribute to flavor and aroma of alcoholic beverages (Snopek *et al.*,2018; Kaur *et al.*, 2019; Wutz, 2019).

In this study, Flores coffee, Toraja coffee, Ulee Kareng coffee and Lampung coffee were made into fermented coffee beverage. Different ratio of yeast starter concentration, sugar concentration, coffee origin and different fermentation time

affected the sensory and chemical properties of fermented coffee beverage. Thus, this study was conducted to obtain the best treatment for the making of fermented coffee beverage.

1.2 Research Problem

Indonesian coffee is one of the most popular drinking products which is favored by locals and foreigners. However, the excess supply of the world coffee results in the decreasing of coffee price. Therefore, one of the ways to increase the economic value and quality of Indonesian coffee is to make fermented coffee beverage. The flavor of fermented beverage is greatly affected by fermentation time and concentration of yeast starter and sugar. Hence in this study, the optimum fermentation time and concentration of yeast starter and sugar that can yield most favorable fermented coffee beverage were analyzed. Different origin of coffee beans also tends to give different profile flavor due to their types and plantation conditions.

1.3 Objectives

The objectives of this research are divided into two which were general objective and specific objectives.

1.3.1 General Objective

The general objective of this research was to determine the preferred Indonesian coffee origin and fermentation treatment that gives the most preferred organoleptic properties of fermented coffee beverage.

1.3.2 Specific Objectives

      The specific objectives of this research were:

1. To determine the best concentration of yeast starter and sugar for the fermentation process of fermented coffee beverage.

2. To determine the most preferred coffee origin and fermentation time that resulted the most acceptable fermented coffee beverage based on its organoleptic properties.