CHAPTER I

INTRODUCTION

1.1 Background

Biscuits and cookies are food products which have a very significant part in the food industry in most countries (Manley, 2011). The reasons for this are due to their relatively long shelf life, great convenience as food products, good value for money, and human affinity, especially children, towards products which contains sugar. However, according to Manley (2011), and Bassinello et al. (2011) cookie lacks dietary fiber and essential fatty acids.

The interest on research, development and commercialization of functional food ingredients, nutraceuticals and dietary supplements have been growing around the globe (McManus et al., 2011). Chia (Salvia hispanica L.) is an annual plant which grows mainly in South America, known to be rich in dietary fiber and omega-3 fatty acid. For this reasons, it is expected that chia seeds can be utilized as an ingredient for functional food, which in this case acts as a substitute of wheat flour in formulation of cookie (Reyes Caudillo et al., 2007). Research done by Pizarro et al. (2013) and Steffolani et al. (2015) shows that chia flour can be added into the formulation of pound cake and bread, respectively. However, the result of both experiments showed that the addition of chia can decrease the specific volume of the final product and texture parameter based on sensory evaluation result, but an increase in the amount of hydrogenated vegetable fat can help overcome the problem. Fat is important for texture parameter, due to its ability to prevent excessive gluten development by preventing water from reacting
with glutenin and gliadin to form gluten. Optimization of the amount of chia flour and hydrogenated vegetable fat added is expected to produce cookies with acceptable texture comparable to most cookies. However, because of the usage of new ingredient in the making of cookies, the method used to make the cookie need to be adjusted (Novianty, 2015). Therefore it is important to determine the best mixing method.

1.2 Research Problem

The addition of chia flour in wheat flour-based product such as cake and bread is known to cause a decrease in its specific volume and lower texture acceptability compared to the control. The mixing method of cookie have to be adjusted as well, as new ingredient is incorporated in the formulation. The correct amount of hydrogenated vegetable fat is known to be able to increase the specific volume and texture characteristics of the wheat flour-based product. Hence, finding the correct formulation of chia seeds flour and hydrogenated vegetable fat for use in cookie making is expected to overcome this problem.

1.3 Objectives

1.3.1 General Objectives

The general objective of this research was to produce cookies with the optimal texture using chia flour and hydrogenated vegetable fat.

1.3.2 Specific Objectives

The specific objectives of this research were:

1. To determine the best mixing method of cookie made with the addition of chia flour.
2. To study the effects of incorporating different amount of chia flour and hydrogenated vegetable fat towards the texture characteristics of cookie.

3. To evaluate the acceptability of texture parameter of cookie made with the addition of chia flour based on sensory evaluation.