

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Edamame flour is a flour that obtained from green soybeans which are dried and ground or blended into a fine powder. Edamame flour presents a promising alternative in development of gluten-free products, as it is rich in protein at 34-35% of the recommended daily intake (RDI), carbohydrates at 45,42%, vitamin A and vitamin C (Yani, 2018). In comparison, wheat flour contains only about 8,9% protein (DKBM, 2004). Edamame was first discovered in China, as early as the second century BC (Mentreddy et al., 2002). Edamame has been staple in Japanese cuisine for over four centuries, cherished for its versatility and nutritional benefits (Johnson, Wang, & Suzuki, 1999). This nutritious legume is enjoyed in various forms, including snacks, soups, salads, and as a side dish

Wheat flour is one of the essential food ingredients highly demanded by the Indonesian population. Wheat flour can be processed into many products, including noodles, bread, cakes, donuts, and various other food products. This leads to an increase in wheat flour imports year by year. Unfortunately, wheat flour contains gluten, a protein that helps dough rise and gives it structure. Processed wheat flour also usually has a lower fiber content. Celiac disease affects approximately 1% of the population of children and adults. In adults, there are 2-3 times more women affected than men. The exact prevalence in Indonesia is not yet known, but it is suspected to be around 1 in 100 people. Research conducted on children with feeding difficulties treated at the Picky

Eaters Clinic in Jakarta suggest that about 34% of these children may have Celiac disease.

Putri salju cookies are typically crescent-shaped or spherical cookies coated in dusting sugar. They are beloved for their delicious taste, crisp texture, and the sensation of melting in the mouth when eaten. In 100 g of Putri salju cookies, there are approximately 609.3 calories, 57.9g of fat, 22 g of carbohydrates, and 1.9 g of protein. In terms of nutritional value, the protein content only contributes 1.25% of the total calories in putri salju cookies. However, most formulations of putri salju cookies available in the market contain gluten from wheat flour, which poses a problem for individuals sensitive to gluten. The reason for using putri salju cookies for this product, putri salju cookies are known for their soft texture that melts in the mouth. Edamame flour, which is high in protein and fiber, can provide a unique texture that is both soft and crunchy at the same time

Brown rice flour is an alternative basic ingredient for composite flour consisting of carbohydrates, fats, proteins, minerals, and vitamins. The fiber in brown rice flour can help provide a better texture in cookies. The protein content in brown rice flour ranges from 5.2-6.8% (Anonymous, 2013). Brown rice belongs to the *Gramineae family*, and *Oryzoidae subfamily* (rajguru et al., 2002). The reason of using edamame flour and brown rice flour for this cookies is because the combination of these two flours is a healthier alternative compared to regular wheat flour, especially for people who want to reduce the wheat flour consumption or who have a gluten allergy.

Cornstarch is starch obtained from the endosperm of corn kernels which has a characteristic white color and fine texture. Cornstarch is categorized as gluten-free (Faridah, 2008). In cookies production, cornstarch as an auxiliary ingredient utilized to attain the desired texture (Faridah, 2008). In 100g of

cornstarch, there are approximately 343 calories, 85g of carbohydrates, 0.30g of protein, and 0g of fat.

1.2 Objectives of the Study

The objectives of this study are following below:

1. This research aims to design a new formulation for putri salju cookies that does not contain gluten using edamame flour as a basic ingredient. The objective is to provide a healthy alternative for individuals who sensitive to gluten
2. Through this research, it is expected to gain a better understanding of the potential use of edamame flour in gluten-free cookies formulations. The findings of the study can serve as a foundation for the development of innovative and healthier gluten-free products in the future.