

## CHAPTER I

### INTRODUCTION

#### 1.1 BACKGROUND OF THE STUDY

Flour is one of the ingredients used to make various foodstuffs, and one of the flours that is often used by the people of Indonesia is wheat flour. Wheat flour itself has a very high gluten content of around 24-36%. Gluten is a specific protein found in wheat, and is needed to improve the elasticity and texture of carbohydrate-based dough. The gluten in wheat flour is formed when wheat flour is mixed with water. Gluten is formed from two complexes known as gliadins and glutenins. Gluten helps build dough strength and hardness. Gliadin is softer and tougher so it affects the elasticity of the dough (Widianto *et al.*, 2002).

Currently, Indonesian are more familiar with the use of wheat flour as a staple ingredient in food preparation. Due to the high demand for wheat flour, it is procured through imports in quite large quantities. In 2014, according to the Central Statistics Agency (BPS), Indonesia's imports reached 7 million tons. The use of wheat flour certainly has some negative sides, such as the import of wheat which is quite high, because Indonesia cannot produce its own gluten, and wheat flour itself is not safe for consumption by people with celiac disease and diabetics. When people with celiac disease consume gluten, they will experience an excessive immune reaction and damage the walls of the patient's small intestine. Wheat flour itself is also not recommended for consumption by small children, because the digestion of small children is still not perfect to digest the gluten contained in wheat flour.

Apart from the use of wheat as a raw material for making wheat flour and a source of carbohydrates. Actually, Indonesia also has an abundant source of raw materials for making flour. One of them is corn, corn is an important food crop, whose production is increasing. Corn flour itself has a high content of

carbohydrates, protein, fat and dietary fiber. To overcome some of the negative sides of using wheat flour, there is a gluten free flour product that uses corn meal and corn cobs as a substitute for wheat flour. The corn plant itself consists of 20% of cobs which are waste from corn plants (Retnani *et al.*, 2009) if converted to the amount of corn production in 2015 it can potentially produce 305,682.6 tons of corn cobs. The amount of waste is said to be very large and will be very potential if it can be utilized. The characteristics of flour certainly determine its use in food products. To get the character of flour as desired, here we will use the fermentation process in processing it. According to Mubarak (2005) stating that fermentation can reduce nutrients and improve protein quality in corn flour so that corn flour can be processed into fermented corn flour first. In addition, the fermentation process can help reduce the bitter taste produced by the corn cob itself.

In this research, fermented corn flour will be processed into Gluten Free Ravioli products. In general, pasta products such as ravioli, spaghetti, macaroni, etc. require semolina flour in their manufacture. Semolina flour is flour made from hard durum wheat and contains high protein gluten. Gluten Free Ravioli with Balinese Base Genep is a dish that is high in fiber, gluten free and high in antioxidants. This food is a combination of two countries (fusion food), namely Italy and Indonesia. In this food we can taste the spices that are typical of Indonesia, especially from Bali. These gluten free ravioli will have fillings such as button mushrooms and spinach. This product has many nutritional and health benefits, as described below:

1. Substitute for wheat flour which is very suitable for people with celiac disease, so this food will not make sufferers experience excessive immune reactions and will not damage the smooth walls of
2. This product. safe for consumption for someone who uses lacto ovo vegetarian as a lifestyle. Lacto-ovo vegetarians are vegetarians who consume plant-based ingredients and do not consume meat, poultry, fish.

However, this group still consumes eggs and milk and their processed products.

3. This product is also high in antioxidants because this product uses many spices such as galangal, ginger, turmeric, kencur, cloves and many more. Antioxidants are compounds that can inhibit reactive oxygen species / reactive nitrogen species (ROS / RNS) and also free radicals so that antioxidants can prevent diseases associated with free radicals such as carcinogenesis, cardiovascular and aging

## **1.2 THE OBJECTIVES OF THE STUDY**

1. Identify the proper way to process corn and corn cobs to produce good flour products
2. Identify ideal packaging and packaging methods to extend product shelf life and increase usability.