

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Brownies are one type of cake that is widely favored because of its sweet taste, soft texture, and fairly simple manufacturing process. Along with the development of culinary trends, there are now various processed brownie innovations, one of which is brownie crackers. Different from conventional brownies that are dense and tend to be wet (fudgy or cakey), brownie crackers have a thinner shape, crispy texture, and crisp like biscuits. This product is suitable as a light snack that is practical, easy to carry, and favored by various age groups. In its manufacture, brownie crackers still use basic ingredients such as chocolate, sugar, eggs, and wheat flour. However, excessive use of wheat flour has several disadvantages, especially for those who have gluten sensitivity or are on a healthy diet that is high in fiber.

In general, the main ingredient in making brownies, including brownie crackers, is wheat flour. However, wheat flour contains gluten, a type of protein that can cause digestive distress for some individuals, especially those with gluten intolerance or celiac disease. In addition, the high consumption of wheat flour, which is low in fiber, is not in accordance with the healthy lifestyle that many people now adopt. Therefore, alternative raw materials that are healthier, high in fiber, and friendly to various dietary needs are needed - one of which is tofu pulp. The fat and protein content in tofu pulp is quite high, tofu pulp contains 17.73% protein which can be utilized for substitution in food processing Sebtiana Kristantri et al., (2024). Therefore, alternative ingredients are needed that can replace wheat flour partially or completely, without reducing the taste quality of brownies.

Tofu pulp is a solid waste generated from the tofu-making process. Although often considered as waste, tofu pulp still contains high nutritional values, such as vegetable protein, crude fiber, and minerals. Tofu pulp, which is usually considered as waste from tofu production, now has an

added economic value by being converted into products that have a selling value Zahra Kinanti & Purwanti, et al., (2024). It provides multiple benefits, both in the environmental aspect of reducing the amount of waste disposed of, as well as in the economic aspect by creating high-value products that can provide additional income for the community Rafly Saleh, et al., (2022). In addition, tofu pulp is also easy to obtain and relatively cheap, so it has the potential to be utilized as an alternative material. With proper processing, tofu dregs can be converted into high-value materials, while helping to reduce organic waste that has the potential to pollute the environment Ginting et al., (2024).

The selection of brownies crackers as an innovation in tofu pulp processing was based on several strategic considerations, both from a technical, market, and sustainability perspective. Brownies crackers were chosen because they have unique characteristics that combine the crispy texture of crackers with the distinctive sweet flavor of brownies, thereby appealing to consumers from various demographics. Additionally, the dry cookie-like form of crackers allows for a longer shelf life compared to moist products like sponge cake or pudding, making them more efficient in terms of distribution and marketing.

In terms of processing, brownies crackers are relatively easy to make and do not require advanced technology, making them suitable for implementation on a small-scale industrial or SME level. The coarse and fibrous texture of tofu residue also makes it easier to mix into the cracker dough without compromising the final product's structure. Thus, the characteristics of tofu residue actually support the production of dry products like crackers that remain crispy yet contain high levels of fiber and protein.

The utilization of tofu pulp as a substitute for wheat flour in making brownies not only provides added value in terms of health and economy, but also supports efforts to process waste in a sustainable manner (sustainable food processing). The essence of the idea in making tofu dregs brownie

crackers was inspired because of the large amount of industrial waste from making tofu that is no longer used, although usually tofu dregs are used as animal feed but the tofu dregs themselves can also be used to become a food that is environmentally friendly, delicious and has a high protein content, besides that the more economical price is also one of the drivers of the creation of these brownie crackers. This study aims to explore the extent to which tofu dregs can be used as a substitute for wheat flour in making brownie crackers, both in terms of texture, taste, nutritional content, and consumer acceptance.

1.2 Objective of the Study

The objective of this study are following below:

1. Utilization of tofu pulp waste into environmentally friendly products that have selling value and as a form of reducing waste from the tofu industry that can pollute the surrounding environment.
2. Knowing the effect of wheat flour substitution with tofu pulp on the organoleptic quality (colour, aroma, taste, and texture) of brownie crackers.
3. Analyzing the nutritional content of brownies with tofu pulp substitution, especially protein and fiber content.
4. Can substituting wheat flour with tofu pulp produce gluten-free brownies crackers that still have organoleptic qualities acceptable to consumers?