

CHAPTER II

LITERATURE REVIEW

2.1 Ingredient Review

2.1.1 Cilembu Sweet Potato



Figure 2.1 Cilembu Sweet Potato

Cilembu sweet potato (*Ipomoea batatas* L. (Lam)) is a type of sweet potato, but what differentiates it from other sweet potatoes is its delicious and sweet taste like honey. Cilembu sweet potatoes are often also called honey sweet potatoes (Thoriq & Widyasanti., 2019). Cilembu sweet potatoes have cream colored skin and flesh reddish and yellow when cooked. Cilembu sweet potatoes are rich in carbohydrates. Cilembu sweet potatoes also has a low fat content, namely 0.1 g (Putri et al., 2021). Cilembu sweet potato has a chewy and attractive flesh structure so it is very popular with farmers and consumers (Wicaksono et al., 2020). Sweet potato cilembu per 100 g of material has an energy source content of 86 kcal, carbohydrates 20.1g, fat 0.1g, protein 1.6g, vitamin B-1 (thiamine) 0.1mg, vitamin B-2 (riboflavin) 0.1mg, vitamin B-3 (niacin) 0.61mg, vitamin C 2.4mg, calcium 30mg, magnesium 25mg, phosphorus 47mg, potassium 337mg, sodium 55mg and zinc 0.3mg (Sari., 2019).

2.1.2 Rice Bran

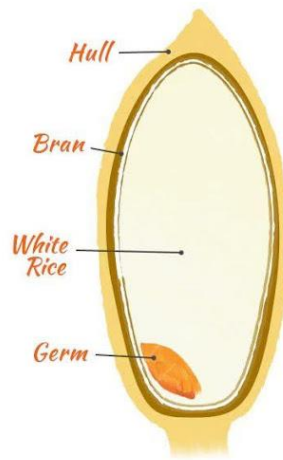


Figure 2.2 Rice Bran

Rice (*Oryza sativa* L.) has been long known as one of the vital agricultural commodities in staple food markets, providing sources of energy and nourishments to most Asian populations (Tan et al., 2020). Approximately, 20% husk, 8–12% bran, depending on the degree of milling, and 68–72% milled rice or white rice are produced (Manzoor et al., 2023). Currently, rice bran is mainly utilized in animal feed or discarded as waste and its application in the human food is limited because of rancidity caused by exposure of oil to lipases during the milling process as well as the high fiber content and potential contamination. However, the high nutritional value, low-cost, and potential health benefits of rice bran and its components have attracted increasing interest from nutritionists and food scientists to search for appropriate methods to promote their application in the food industry. (Wang et al., 2021). In 100 g rice bran contains 476.00 kcal, dietary fiber 33.80 g, protein 14.50 g, carbohydrate 49.69 g, calcium 229.10 mg, magnesium 781.00 mg, sodium 111.70 mg, and fat 12.4 g (Abd., 2023). Fat level affects rice bran's shelf life. The recommended fat consumption per person per day is 20-25% of total energy (702 kcal) or the equivalent of 5 tablespoons of fat per person per day (67 grams). (Kemenkes., 2024)

2.1.3 Tapioca Starch

Tapioca flour is flour that comes from natural starch in granule form. The starch in cassava is produced through milling, decantation, separation, settling and drying. The grinding that is done comes from cassava whose dregs are removed (Sembong et al., 2019). Tapioca flour has properties that can bind water, increase product weight, and can also reduce shrinkage. Tapioca flour is a flour that has good water absorption compared to other starches (Primadini et al., 2021). The main content of tapioca flour is carbohydrates and is a flour with low protein. The water content of tapioca flour really determines the quality of the tapioca flour (Asmoro, 2021). Tapioca used as a basic ingredient for chips because it has quite high binding capacity and forms a strong structure (Ananta et al., 2022). Tapioca has high levels of amylopectin, so products made with tapioca flour tend to have a crunchy texture (Sovyani et al., 2019). Flour in production Food serves as a filler and fasteners to improve stability emulsion, reducing the resulting shrinkage cooking, gives a bright color, increase product elasticity, forms a dense and dense texture draw water from the dough (Taus et al., 2022)

2.1.4 Sugar

Granulated sugar is a food ingredient that functions as a sweetener and preservative for food and drinks. Apart from that, granulated sugar is also a source of energy and a source of carbohydrates needed by the human body. Until now, sugar cannot be completely replaced with other artificial sweeteners. Sugar is a natural sweetener that does not have harmful effects on the health of the human body as long as it is consumed in moderation (Djalil et al, 2022). Several types of sugar that are often used in food processing are granulated sugar (sucrose), rock sugar and ant sugar (Suyatno & Alhanannasir,. 2022).

2.2 Product Review

Snacks are a type of food that has long been known to the public.

Snack food consumption in Indonesia increased 40% from 2017 to 2020 (Yusuf et al., 2023). One type of snack that has been developed and is quite popular among the public is chips. Sweet potato rice bran chips are chips made from sweet potato, rice bran and tapioca. These chips can be said to contain high fiber, because the fiber content in rice bran is quite high. 100 grams of rice bran contains 21-33.80 g dietary fiber (Abd., 2023). The need for dietary fiber intake in Indonesia is recommended by the National Widya Karya for Food and Nutrition (WNPG), namely 20-37 g/day (Hardiansyah., 2019). The World Health Organization (WHO) recommends that the optimal amount of dietary fiber intake is 25-30 g/day, while the average Indonesian population only consumes 10.5 g/day of fiber (Putri et al., 2021).

Consumption of tubers in Indonesia is still relatively low. The recommended energy contribution according to the standard Pola Pangan Harapan (PPH) from tuber foods towards the total energy requirement of 2,100 kcal is 6% or around 126 Kcal/day. Consumption in 2020 has not met the recommended energy contribution and has decreased compared to 2019 (BKP., 2019).

2.3 Process Review

One of the most popular cooking methods world-wide is deep-frying. During the frying process, the physical, chemical and sensory characteristics of the food are modified. Texture, colour and oil content are the main quality of the fried foods (Nizori & Mishra., 2018). After going through the frying stage, the chips are placed in the oven to reduce the oil content.