

CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

The nutritional value of sorghum kwetiau depends on the ingredients. The main ingredients of sorghum kwetiau are sorghum flour, tapioca starch, water, oil and salt. Sorghum flour is one of the products derived from milling the sorghum plant. Sorghum seeds can be processed into sorghum flour with a fairly high fiber content, which is around 80.42% (Elkhalifa and Bernhardt, 2010). Sorghum flour has the potential to be an alternative food source because of its high fiber and protein content.

Tapioca flour has a very important role in the process of making kwetiau sorghum because the starch content in it makes the texture of the kwetiau sorghum skin chewy (Suharto, 2018). Tapioca, also known as kanji or aci, is starch extracted from cassava tubers. Tapioca flour also has several other names, such as aci flour or starch. Analysis of typical cassava roots identified 70% water content, 24% starch, 2% fiber, 1% protein and 3% other components (minerals, fats, sugars). The process steps used to produce tapioca starch in industry are washing, peeling, grating, extraction, fine filtering, separation, wetting, and drying (Juita Zulkarin, 2013).

4.2 Nutrition Fact

4.2.1 Nutrition table

The Nutrition value of Sorghum Flour as follows:

Table 4.1 Nutrition Value of Sorghum Flour per 100 g

Calorie (kcal)	339
Fat (g)	3,3
Fiber (g)	6,3
Carbohydrate (g)	74,63
Protein (g)	11,3

Per 100 grams of sorghum contains 332 kcal, while rice has 360 kcal. Sorghum is also superior in protein content, namely 11 grams, 28 mg of calcium, 44 mg of iron, and 287 mg of phosphorus. Meanwhile, in terms of carbohydrates, per 100 grams of sorghum contains 73 grams while rice contains 78.9 grams.

The Nutrition value of Tapioca Starch as follows:

Table 4.2 Nutrition Value of Tapioca Starch per 100 g

Calorie (kcal)	360
Fat (g)	0
Fiber (g)	0
Carbohydrate (g)	89
Protein (g)	0

4.2.2 Nutrition Calculation

Table 4.3 Nutrition Value of Kwetiau Sorghum per 100 g

	Calori	Carbohydrat n (g)	Protei (g)	Fat (g)	Sugar (g)	Fiber (g)	Sodium (mg/100g)
Sorghu Flour (240 g)	813,6	179,12	24,12	7,92	0	15,12	14,4
Tapioca Starch (80 g)	288	71,2					8
Oil (20 g)	180			20			
Water (640 g)							
Salt (4g)							4650
Meatball (50 g)	285	10,6	17,35	18,45	2,1	0,5	670
Duck egg (2pcs)	260	2,04	17,94	19,28	1,3		204
Shallots (30 g)	18	4,26	0,39	0,03	1,8	0,6	
Garlic (15 g)	12	2,97	0,57	0,06	0,09	0,3	3
Chicken Thigh (100 g)	39		4,89	2,05			78

Sweet soy sauce (30 g)	120	30			26		800
Oyster sauce (10 g)	10	2			2		580
Worcestershire sauce (5g)	3,85	0,95			0,5		49
Soy sauce (5 g)	0,25	0,05	0,05				41,5
Sesame Oil (5 g)	120			13,6			
Fish Sauce (5 g)	0,25	0,5	0,5				41,5
White pepper (2 g)	10	2					
Beef powder (10 g)	10	2			2		250
Bean Sprout (20 g)	8	1,31	1,01	0,13	0,52	0,6	2
Caisim (20 g)	5	0,87	0,6	0,08	0,47	0,4	26
TOTAL	2.182,95	309,862	67,42	81,6	36,78	17,52	7.375,9

4.2.3 Nutrition label

Nutrition Facts	
1 servings per container	
Serving size	1 Box (250g)
Amount Per Serving	
Calories	730
% Daily Value*	
Total Fat 27g	35%
Saturated Fat 16g	80%
Trans Fat 11g	
Sodium 2460mg	107%
Total Carbohydrate 103g	37%
Dietary Fiber 6g	21%
Total Sugars 12g	
Includes 0g Added Sugars	0%
Protein 23g	46%
<small>Not a significant source of cholesterol, vitamin D, calcium, iron, and potassium</small>	
<small>*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.</small>	

Figure 4. 1 Nutrition Label

4.3 Food Safety and Packaging

4.3.1 Processing and Storage Temperature

Because the texture of the kwetiau is soft and breaks easily Sorghum kwetiau must be cooked using high heat and in a short time. Kwetiau Sorghum that has been cooked should be eaten directly. If you want to store cooked sorghum kwetiau, it is better to store it in the refrigerator. Health experts suggest that the ideal refrigerator temperature is actually lower, which is between 1.7 to 3.3 degrees Celsius. Temperatures above 1.6 to 3.3 degrees Celsius may be too high, causing rapid spoilage and food poisoning by bacteria such Salmonella and E. coli (Sulax, November 2022).

4.3.2 Shelf Life

Kwetiau sorghum is categorized as a wet food with a water content that can reach 63% -65% (Meiliena, 2016). The high water content will trigger enzyme and microbial activity which means kwetiau sorghum can only be stored for about 27-33 hours at room temperature. The signs of deterioration are initiated by the formation of sludge on the surface, changing of texture and colour, and production of off-odour (Karneta *et al.*, 2013). Kwetiau stored in the refrigerator should not be stored for too long. Kwetiau stored in the refrigerator for more than 3 days will be damaged. Therefore, the kwetiau should only be stored in the refrigerator for 3 days.

4.3.3 Product Parckaging

Food packaging lies at the very heart of the modern food industry and very few foods are sold unpackaged. Good packaging prevents waste and ensures that the food retains its desired quality throughout its shelf life. Despite its importance and the key role that packaging plays, it is often regarded as, at best, somewhat superfluous and, at worst, a serious waste of resources and an environmental menace. Such views arise because, by the time most consumers come into contact with a package, its job, in many cases, is almost over. However, if the world is ever going to be able to feed 9 billion people, then the quality and quantity of food packaging is going to have to increase considerably (G.L. Robertson, 2017).

Paper Lunch Box is a food packaging made from paper, generally in the form of a box or rectangle. Paper Lunch Boxes do not only use ordinary paper, but use special paper, namely paper coated with food grade. Paper Lunch Boxes are increasingly familiar with their use, especially in the culinary

business. Thus, paper lunch boxes have experienced a very sharp increase in demand for paper lunch boxes. Food grade paper is specifically designed for oily or fatty products, namely grease proff paper. The advantages of Paper Lunch Box as food packaging are: more environmentally friendly, safe and healthy, affordable prices, paper lunch box is easy to design and paper lunch is very practical and easy to serve (Pranata, 2021)

Sorghum Kwaytiau is very suitable to be packaged in a paper lunch box so that the Kwetiau does not get damp or dry quickly. In addition, paperbased food packaging is also more environmentally friendly and affordable.



Figure 4. 2 Paper Lunch Box Size M

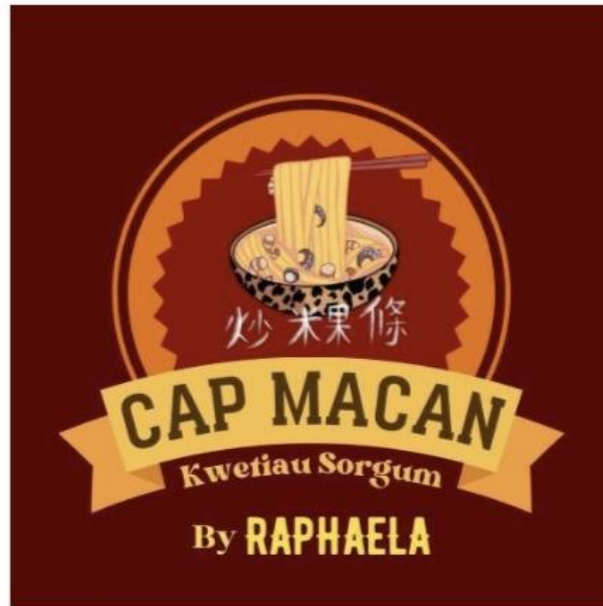


Figure 4. 3 Logo

4.4 Financial Aspect

4.4.1 Product Cost (Variable Cost, Overhead Cost, Fixed Cost)

Product cost is calculated based on the total of all cost per month. The costs consist of labour cost, raw material cost, packaging cost, and utility cost. The labour cost is considered based on monthly working days, which are 25 days per month. As for raw material, the quantity of raw materials is counted as 28 recipes per day or 700 recipes per month, which are 84 portions per day or 2,100 portions per month

1. Start-Up Capital

Table 4.5 Start-Up Capital

Tools and Equipment	Quantity	Price (/unit)	Sub Total
Bowl	2	Rp 10.000	Rp 20.000
Digital Scale	1	Rp 75.000	Rp 75.000
Steamer	1	Rp 80.000	Rp 80.000
Baking Tray 24 cm	2	Rp 15.000	Rp 30.000
Pan	1	Rp 85.000	Rp 85.000
Knife	1	Rp 50.000	Rp 50.000
Cutting Board	1	Rp 20.000	Rp 20.000
Spatula	1	Rp 15.000	Rp 15.000
Brush	1	Rp 8.000	Rp 8.000
Spoon	2	Rp 2.000	Rp 4.000
Stove	1	Rp 250.000	Rp 250.000
TOTAL		Rp 637.000	

2. Labour Cost

Table 4.6 Labour Cost

Occupation	Personnel	Salary (/month)	Sub Total
Chef	1	Rp 5,000,000	Rp 5,000,000
Cook helper	1	Rp 3,300,000	Rp 3,300,000
Administratio n officer	1	Rp 3,200,000	Rp 3,200,000
Cleaning service officer	1	Rp 3,000,000	Rp 3,000,000
TOTAL		Rp 14,500,000	

3. Packaging Cost

Table 4.7 Packaging Cost

Packaging	Quantity	Proce (/unit)	Sub Total
Paper Lunch Box size M	84 pcs	Rp 500 (/pcs)	Rp 42,000
Chopsticks	84 pcs	Rp 8,000 (/50 pcs)	Rp 13,440
Plastig Bag	84 pcs	Rp 30,000 (/50 pcs)	Rp 50,400
TOTAL (/day)			Rp 105,840
TOTAL (/month)			Rp 2,646,000

4. Utility Cost

Table 4.8 Utility Cost

Facility	Quantity	Price (/unit)	Sub Total
Water	750 L	Rp 2,000 (/m3)	Rp 1,500
Electricity	10 kWh	Rp 1,500 (/kWh)	Rp 15,000
TOTAL (/day)			Rp 16,500
TOTAL (/month)			Rp 412,500

5. Raw Material Cost

Table 4.9 Raw Material Cost

Raw Materials	Quantity	Proce (/unit)	Sub Total
Sorghum	6.720 kg	Rp 26,500	Rp 356,160
Flour		(/500 g)	
Tapioca	2.240 kg	Rp 6,000	Rp 26,880
Starch		(/500 g)	
Water	1.8 l	Rp 3,000	Rp 9,000
		(/600 ml)	
Oil	1.120 l	Rp 40,000	Rp 22,400
		(/2l)	
Salt	84 g	Rp 4,000	Rp 672
		(/500 g)	
Scallots	2.5 kg	Rp 12,000	Rp 30,000
		(/kg)	
Garlic	1.25 kg	Rp 11.000	Rp 13,750
		(/kg)	
Sweet Soy	840 ml	Rp 25,000	Rp 38,200
Sauce		(/550 ml)	

Oyster Sauce	840 ml	Rp 50,000 (/1l)	Rp 42,000
Worcestershire Sauce	420 ml	Rp 24,000 (/300 ml)	Rp 33,600
Duck Egg	56 pcs	Rp 3,000 (/pcs)	Rp 168,000
Meatball	1.7 kg	Rp 59,000 (/340 g)	Rp 295,000
Bean Sprouts	300 g	Rp 2,000 (/g)	Rp 6,000
Soy Sauce	420 ml	Rp 9,000 (/150 ml)	Rp 25,200
White Pepper	42 g	Rp 4,500 (/25 g)	Rp 7,560
Beef Powder	42 g	Rp 5,000 (/94 g)	Rp 2,234
Fish Sauce	420 ml	Rp 6,500 (/150 ml)	Rp 18,200
Sesame Oil	420 ml	Rp 13,000 (/110 ml)	Rp 49,636
Caisim	14 pcs	Rp 2,500 (/pcs)	Rp 35,000
Chicken Tigh	1 kg	Rp 30,000 (/500 g)	Rp 60,000
TOTAL (/day)			Rp 1,239,492
TOTAL (/month)			Rp 30,987,300

6. Rent Cost

Table 4.10 Rent Cost

Facility	Size	Price	Sub Total
Land Building	15 m x 5 m 10 m x 5 m	Rp 3,000,000 (/month)	Rp 3,000,000
TOTAL (/month)			Rp 3,000,000

7. Total Cost

Fixed Cost = Labour Cost and Rent Cost

Variable Cost = Raw Material Cost, Packaging Cost, and
Utility Cost

Total Cost (/month) = Labour + Raw Material + Packaging
+ Utility + Rent Cost

$$\begin{aligned} &= \text{Rp } 14,500,000 + \text{Rp } 30,987,300 + \text{Rp} \\ &2,646,000 + \text{Rp } 412,500 + \text{Rp } 3,000,000 \\ &= \mathbf{51,545,800} \end{aligned}$$

4.4.2 Selling Price

$$\begin{aligned} \text{Product Price} &= \text{total cost (/month)} / \text{Total Products Units (/month)} \\ &= \text{Rp } 51,545,800 / 2,100 \text{ portions} \\ &= \mathbf{\text{Rp } 24,546 / \text{portion}} \end{aligned}$$

$$\begin{aligned} \text{Product Selling Price} &= \text{Product price} + (\text{Product price} \times \text{Profit} \\ &\text{presentage}) \\ &= 24,546 + (24,546 \times 50\%) \\ &= 24,546 + 12,273 \\ &= 36,819 \approx 40,000 \end{aligned}$$