

CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

The product result is the skin having a harder texture compared to the traditional counterparts due to its starch composition cassava flour is primarily composed of starch, particularly amylose and amylopectin. Wheat flour also contains starch, but its starch composition is different. The starch in cassava has a higher amylopectin content compared to wheat, and amylopectin tends to gelatinize at higher temperatures. This can result in a harder texture when fried, as the gelatinized starch forms a more rigid structure. Other reason also include One of the key differences between cassava flour and wheat flour is the presence of gluten. Wheat flour contains gluten proteins that can provide elasticity and structure to dough and batter. When wheat-based products are fried, the gluten network can help maintain a softer texture. Cassava flour does not contain gluten, which can contribute to its harder texture when fried. Compared with the wheat starch, cassava starch has relatively low amylose content, protein, and fat Especially, amylose content can significantly influence the application performance. The starch-based model dough was not suitable to be utilized for the foods requiring higher dough strength, such as the leavened products and all kinds of noodles, which are traditionally made from the high-gluten or medium-gluten wheat flour (Rong Liu et al., 2019). The chemical composition of the flour produced from different varieties showed that the mean of starch is 78.34%, sugar 1.82%, amylose 30.31, ash 0.36%, pH 4.52, and cyanogenic potential (CNP) 0.28 mg HCN/kg. Report that starch content is one of the vital quality indices of starchy food which determine the texture of the cooked dough. (Wasiu Awoyale et al., 2022). Cassava flour might

have a different moisture content than wheat flour. The moisture content can affect how the flour absorbs oil during frying. If cassava flour has a lower moisture content, it might absorb more oil, leading to a drier and harder texture.

4.2 Nutrition Fact

4.2.1 Nutrition Table

The nutritional value of Sago flour is as follows:

Table 4. 1 Nutrition value of cassava flour per 100 g

	Flour (retting & peel)
Wet root (g)	27.9
Fat (g)	0.04
Dry matter (g)	20.8
Calories	83
Protein (g)	0.26
Carbohydrates (g)	20.3
Fiber (g)	0.3
Ash (g)	0.24
Calcium (g)	7
Phosphorus (g)	10
Iron (mg)	0.8
Thiamin (µg)	13
Riboflavin (µg)	8

Source: Adugna Bayata., 2019

The nutritional value of duck meat is as follows:

Table 4. 2 Nutritional value of duck meat of 28 days age

Items	28D
Protein (%)	20.43
Intramuscular fat (%)	3.46
Fe (mg/100g)	4.4
Zn (mg/100g)	1.91
Ca (mg/100g)	18.18
Mg (mg/100g)	25.58

Source: Zhenfeng Cao *et al.*, 2019

4.2.2 Nutrition Calculation

Table 4. 3 Nutriton Calculation

Ingredients	Cal	Carbs (g)	Protein (g)	Fat (g)	Sugar (g)	Fiber (g)	Sodium (mg)
Duck Meat	88.8	0	6.8	7.2	0	0	27.2
Spring onion	3.2	0.6	0.16	0.02	0.24	0.24	0.4
Garlic	3.2	0.6	0.16	0.02	0.04	0.02	0.2
Ginger	0.4	0.1	0.02	0	0.02	0.02	0
Five-Spice	1.6	0.32	0.02	0.06	0	0.1	0.2
Hoisin	14	3.32	0.18	0.1	2.36	0.1	79.4
Salt	0	0	0	0	0	0	908
Xanthan Gum	1	0.2	0	0	0	0.2	0.4
Cassava Flour	111	26.4	0.3	0.06	0.3	1.62	2.4
Oil	72	0	0	8.4	0	0	0
Shaoxing wine	6	0.18	0	0	0.18	0	0
Water	0	0	0	0	0	0	0
Total:	303.6	31.62	7.64	16.06	3.1	2.3	1015.6

4.2.3 Nutrition Label

Table 4. 4 Nutrition Label

Nutrition Facts	
1 servings per container	
Serving size	5 Pcs
Amount Per Serving	
Calories	300
	% Daily Value*
Total Fat 16g	21%
Saturated Fat 3.56g	18%
Trans Fat 0g	
Cholesterol 75mg	25%
Sodium 1020mg	44%
Total Carbohydrate 32g	12%
Dietary Fiber 2g	7%
Total Sugars 3g	
Includes 0g Added Sugars	0%
Protein 8g	16%
<small>Not a significant source of 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>	

4.3 Food Safety and

Packaging

4.3.1 Processing and storage temperature

The processing and storage temperature of gyoza, a popular Japanese dumpling, play crucial roles in ensuring its quality and safety. During processing, gyoza wrappers are typically filled with a mixture of ingredients, often including minced meat and vegetables. Proper processing temperature is vital to cook the filling thoroughly and achieve a safe internal temperature. After processing, rapid cooling is essential to prevent bacterial growth. When it comes to storage, gyoza should be kept at a refrigerated temperature between 0-5°C) to maintain freshness and inhibit microbial growth. Proper temperature control throughout

processing and storage stages is essential for preserving the taste, texture, and safety of this delectable dish.

4.3.2 Shelf life

When properly stored at 32°F to 41°F (0°C to 5°C), cooked dumplings can generally remain safe to eat for about 3 to 4 days. If you're not planning to consume them **within** that time, consider freezing them to extend their shelf life. (Source: USDA)

4.3.3 Product packaging

Food Packaging play an important role in the product it provide the food an identity and how people first impression towards the food. Food packaging also function as a way to preserve the product by protecting it by direct air contact, physical contact, or even microbiological. The packaging that has been selected is PVC (polyvinylchloride) materials with a size of 14cmx7.5cmx3cm.



Figure 4. 1 Packaging

4.4 Financial Aspects

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 10 recipes per day or 250 recipes per month, which are 50 portions per day or 1,250 portions per month.

1. Start-Up Capital

Table 4. 5 Start-Up Capital

Tools and Equipment	Quantity	Price/Unit	Sub Total
Sautee pan	2	Rp 150,000	Rp 300,000
Mixing bowl	2	Rp 50,000	Rp 100,000
Food processor	1	Rp 300,000	Rp 300,000
Knife	1	Rp 50,000	Rp 50,000
Cutting board	1	Rp 50,000	Rp 50,000
Rolling pin	1	Rp 50,000	Rp 50,000
Spatula	2	Rp 25,000	Rp 50,000
Steamer	2	Rp 200,000	Rp 400,000
Spoon	10	Rp 2,000	Rp 20,000
Measuring spoon	1	Rp 20,000	Rp 20,000
Measuring cup	1	Rp 20,000	Rp 20,000
Total :			Rp 1,360,000

2. Labour cost

Table 4. 6 Labour cost

Occupation	Personnel	Salary per months	Sub Total
Chef	1	Rp 4,500,000	Rp 4,500,000
Cook helper	2	Rp 3,500,000	Rp 7,000,000
Admin	1	Rp 3,000,000	Rp 3,000,000
Total:			Rp 14,500,000

3. Packaging cost

Table 4. 7 Packaging cost

Packaging	Quantity	Price per unit	Sub Total
Mika plastic	1250	Rp 500	Rp 572,000
Total:			Rp 572,000

4. Utility cost

Table 4. 8 Utility cost

Facility	Quantity	Price per unit	Sub Total
Water	18.75 m ³	Rp 1,000	Rp 18,750
Electricity	250 kWh	Rp 1,500	Rp 375,000
Total:			Rp 393,750

5. Raw material cost

Table 4. 9 Raw material cost

Raw Material	Quantity	Price per unit	Sub Total
Duck meat	50 kg	Rp 120,000	Rp 6,000,000
Spring onion	5 kg	Rp 50,000	Rp 250,000
Garlic	2.7 kg	Rp 35,000	Rp 94,500
Ginger (grated)	1.5 kg	Rp 25,000	Rp 37,500
Five-spice	2.5 kg	Rp 50,000	Rp 125,000
Hoisin	8 kg	Rp 100,000	Rp 800,000
Salt	2.5 kg	Rp 8,000	Rp 20,000
Xanthan gum	5 kg	Rp 85,000	Rp 425,000
Cassava flour	46.5 kg	Rp 40,000	Rp 1,880,000
Oil	10 L	Rp 20,000	Rp 200,000
Shaoxing wine	7.5 L	Rp 60,000	Rp 450,000
Water	25 L	Rp 800	Rp 20,000
Total:			Rp 10,302,000

6. Rent cost

Table 4. 10 Rent cost

Facility	Size	Price	Sub total
Land	15 m x 5 m	Rp 3,000,000	Rp 3,000,000
Building	10 m x 5m		
Total:			Rp 3,000,000

7. Total Cost

Fixed Cost = Labour Cost and Rent Cost

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

$$\begin{aligned}\text{Total Cost (/month)} &= \text{Labour} + \text{Raw Material} + \text{Packaging} + \\ &\quad \text{Utility} + \text{Rent Cost} \\ &= \text{Rp } 14,500,000 + \text{Rp } 572,000 + \text{Rp } 393,750 \\ &\quad + \text{Rp } 10,302,000 + \text{Rp } 3,000,000 \\ &= \text{Rp } 28,727,850\end{aligned}$$

4.4.1. Selling price

Product Price = Total cost per month/total product per month

$$= \text{Rp } 28,727,850 / 1,250$$

$$= \text{Rp } 22,982.28 / \text{portion}$$

Product Selling price = Product price x (100% + profit margin)

$$= \text{Rp } 22,982.28 \times (100\% + 50\%)$$

$$= \text{Rp } 22,982.28 \times 150\%$$

$$= \text{Rp } 34,473.42 \approx \text{Rp } 35,000.00$$