

CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

The result of the sensory test that held before stated that most of the panelist is satisfied with the product. However, there are some problems with texture and taste. In terms of texture, some of the panelists seem to dislike the texture. They stated that the texture of this cereal is a little bit hard to chew. In addition, in terms of taste, there were some panelists who didn't really like the taste because the panelist can find slightly a taste of the flour in the cereal. For shape and smells almost all of the panelist like the shape and smells of the product that is given for the sensory test.

4.2 Nutrition Fact

4.2.1 Nutrition Table

The nutritional value of purple sweet potato is as follows

Table 4.1 Nutritional Value of Purple Sweet Potato per 100 g

Calorie (cal)	85
Protein (g)	1.54
Fat (g)	0
Carbohydrate (g)	20
Fiber (g)	3.1
Sugar (g)	3.85
Calcium (mg)	30
Iron (mg)	0.62
Potassium (mg)	337
Sodium (mg)	54

Source : USDA FoodData Central, 2020

The nutritional value of miana leaves is as follows

Table 4.2 Nutritional Value of Miana Leaves per 100 g

Calorie (cal)	96
Protein (g)	20.33
Fat (g)	1.70
Fiber (g)	35.66
Ca (mg)	3.29

Source : (Fati *et al.*, 2020)

The nutritional value of tapioca starch is as follows

Table 4.3 Nutritional Value of Tapioca Starch per 100 g

Calorie (cal)	350
Protein (g)	0
Fat (g)	0
Carbohydrate (g)	90
Calcium (mg)	20

Source : FoodData Central, 201

4.2.2 Nutrition Calculation

Table 4.4 Nutritional Value of Ingredients used in The Recipe for Cereal Purple Sweet Potato and Miana Leaves

Ingredients	Calories (cal)	Protein (g)	Fat (g)	Carbs (g)	Fiber (g)	Sugar (g)	Ca (mg)	Fe (mg)	K (mg)	Na (mg)
Purple sweet potato (100g)	85	1.54		20	3.1	3.85	30	0.62	337	54
Miana leaves (50g)	48	10.16	0.85		17.8		1.6			
Tapioca starch (50g)	175			45			10			
Margarine (10g)	71.4		7.86							75
Honey (30g)	57.2	16.2			16.2	24.6				
Baking powder (0.5g)							16.7			54.2
Water (25g)										
Total	436.6	27.9	8.71	65	37.1	28.45	58.3	0.62	337	183.2

4.2.3 Nutrition Label

Nutrition Facts	
4 servings per container	
Serving size	(30g)
Amount Per Serving	
Calories	110
<small>% Daily Value*</small>	
Total Fat 2g	3%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 45mg	2%
Total Carbohydrate 16g	6%
Dietary Fiber 9g	32%
Total Sugars 7g	
Includes 0g Added Sugars	0%
Protein 7g	14%
Vitamin D 0mcg	0%
Calcium 14.58mg	2%
Iron 0.155mg	0%
Potassium 84.2mg	2%
<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 Nutritional Label

4.3 Food Safety and Packaging

4.3.1 Processing and Storage Temperature

The process of making cereal made from purple sweet potato and miana leaves is divided into two parts, the first is to make the miana leaves powder by dehydrating the fresh miana leaves by dehydrator at 40°C for 36 hours. The second part is to make the cereals by steaming the purple sweet potato and then measuring all

of the ingredient and mix all of the ingredient until it form a dough, after that shape the dough. After the dough is shaped dehydrated the dough in dehydrator at 45°C for 24 hours. Fry the cereals with hot sand frying method and cereal is ready to be served.

Almost all of the dry food product have the same characteristic which is low in water content so it can be easily stored at room temperature without changing the quality or shelf life of the product it self while the packaging of the product is still sealed (Violalita *et al.*, 2021).

4.3.2 Shelf Life

Shelf life is an important consideration for dry products like cereals, as it affects the quality and safety of the product, but there are no studies that mentioned the shelf life of cereal in specific times. A study mentioned that dry food like noodle made from composite flour (including tapioca flour) had a shelf life around 161 days when stored at 25°C (Violalita *et al.*, 2021). Besides the temperature storage, packaging choice is also an important factor in determining the shelf life of food products. Different packaging methods can be used to extend the shelf life and improve the quality of food products, but the choice of packaging system must be made in accordance with the conditions of the raw material, storage, and distribution in the market and household, and while considering the environmental sustainability and consumer's expectations (Lee, 2018).

4.3.3 Product Packaging

Food packaging is essential for ensuring the quality and safety of food, extending shelf life, reducing food losses and wastage, and protecting food from environmental contamination and other influences (such as odors, shocks, dust, temperature, physical

damage, light, microorganisms, and humidity) (Han *et al.*, 2018). The things that related to the product and also the most important role of packaging is to make sure that the quality and safety, other than that the packaging also influential to extend the shelf life of the product. (Dobrucka & Przekop, 2019).

In this study the packaging that will be used is the packaging that is light proof, because UV light is the main factor in the degradation of anthocyanins due to the presence of light, as evidenced by the rate of anthocyanin degradation experiencing a faster decrease when illuminated by light from a UV lamp than when illuminated by light from a 25-watt bulb lamp (Rosalina *et al.*, 2022). Therefore, the ingredients of the packaging that are used in this study is aluminium foil pack.



Figure 4.2 Aluminium Pouch



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 10 recipes per day or 175 recipes per month, which are 56 portions per day or 1,400 portions per month.

1. Start-Up Capital

Table 4.5 Start-Up Capital

Tools and Equipment	Quantity	Price (/unit)	Sub Total
Dehydrator	1	Rp 110,000	Rp 110,000
Mesh 80	1	Rp 88,000	Rp 88,000
Mixing Bowl	5	Rp 22,500	Rp 112,500
Steamer	1	Rp 48,000	Rp 48,000
Grinder	1	Rp 56,000	Rp 56,000
Digital Scale	1	Rp 185,000	Rp 185,000
Peeler	1	Rp 35,000	Rp 35,000
Spoon	10	Rp 11,000	Rp 110,000
Fork	10	Rp 11,000	Rp 110,000
TOTAL			Rp 854,500

2. Packaging Cost

Table 4.6 Packaging Cost

Packaging	Quantity	Price (/unit)	Sub Total
Aluminium foil pack	10	Rp 1,000	Rp 10,000
TOTAL (/day)			Rp 10,000
TOTAL (/month)			Rp 250,000

3. Raw Material Cost

Table 4.7 Raw Material Cost

Raw Material	Quantity	Price (Rp) (/unit)	Sub Total
Miana leaves	500 g	10,000 / 100 g	Rp 50,000
Purple sweet potato	1000 g	12,000 / 500 g	Rp 24,000
Tapioca starch	500 g	7,000 / 500 g	Rp 7,000
Honey	300 g	85,000 / 640 ml	Rp 39,850
Baking powder	5 g	52,500 / 450 g	Rp 580
TOTAL (/day)			Rp 121,430
TOTAL (/month)			Rp 3,035,750

4. Total Cost

$$\begin{aligned}
 \text{Variable Cost} &= \text{Raw Material Cost and Packaging Cost} \\
 \text{Total Cost (/month)} &= \text{Raw Material} + \text{Packaging} \\
 &= \text{Rp 3,035,750} + \text{Rp 250,000} \\
 &= \mathbf{\text{Rp 3,285,750}}
 \end{aligned}$$

4.4.2 Selling Price

$$\begin{aligned}
 \text{Product Price} &= \frac{\text{Total Cost (/month)}}{\text{Total Product Units (/month)}} \\
 &= \frac{\text{Rp 3,285,750}}{250 \text{ pack}} \\
 &= \text{Rp 13,143 / pack} \\
 \text{Product Selling} &= \text{Product Price} + (\text{Product Price} \times \text{Profit Percentage}) \\
 &= \text{Rp 13,143} + (\text{Rp 13,143} \times 50 \%) \\
 &= \text{Rp 13,143} + \text{Rp 6,571.5} \\
 &= \text{Rp 19,714.5} \Rightarrow \text{Rp 20,000}
 \end{aligned}$$