CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

Baby cookies has a variety of nutrients that are good as complementary food baby. The use of sweet potato flour as replacement wheat flour is to make a gluten free product with unique in flavour, odor, texture and provide good nutrient for baby. Gluten is an elastin protein that comes from plants. Gluten can be found in grains and types of grains such as wheat (Anggraini, 2022). Gluten can also cause digestive disorders in children with special needs or autism, and very concentrated absorption (Winarno, 2013).

As a good substitute for complementary food, the ingredient used to provide good nutrition for babies also includes unsalted margarine, which is the function of margarine in making cookies to make the texture of the cookies better, firmer and crunchier (Safitri, 2022). The used of sugar powder in this product is to give and support sweet taste from sweet potato it self and also gives the cookies a crunchy texture. The amount of sugar used must be correct, because if you add too much, the texture of the cookies will become hard when baked and the taste will of course be sweeter, which is not good for baby nutrition. Eggs here are also used for emulsification, texture softening and binding power between the food raw materials used. Eggs also make the product more fluffy because they catch air during the mixing process.

4.2 Nutritional Fact

4.2.1 Nutritional Table

The Nutritional of Purple Sweet Potato is as follow:

Table 4. 1 Nutrition Value of Purple Sweet Potato Flour 100g

Calories	300g
Carbohydrate	84.40g
Fat	0.60g
Protein	2.80g
11alcium	89mg
Iron	3.90mg
Fosfor	125mg
Natrium	42mg
Calium	940mg
Tembaga	800mcg
Air	9.40mg
Abu	2.80g

Source: nilaigizi.com

There are so many nutrient that contained in the purple sweet potato flour. Purple sweet potato flour is a source of carbohydrates and a fairly high source of calories. Purple sweet potatoes are also a source of vitamins and minerals, the vitamins contained in purple sweet potatoes include vitamin A & vitamin C.

Table 4. 2 Nutrition Value of Ingredients used in the recipe for gluten-free purple sweet potato cookies.

Ingredient	Calories (Kcal)	Carbohydrate (g)	Protein (8)	Fat (g)	Sugar (g)	Kalium (mg)
Purple Sweet Potato Flour 130g	354	84.40	2.80	0.60	0	940
Corn Starch 40g	85.25	34	0.12	0	0	9
White Egg 2 pcs	16	0.2	3.3	0.1	0.2	0
Unsalted Margarine 200g	1768	0.40	0.6	200	0	25.90
Powder Sugar 90g	350	89.6	0	0.1	88.1	0
TOTAL	**2.573,25**	**208.6**	**6.82**	**200.8**	**88.3**	**965.9**

4.2.2 Nutrition Label

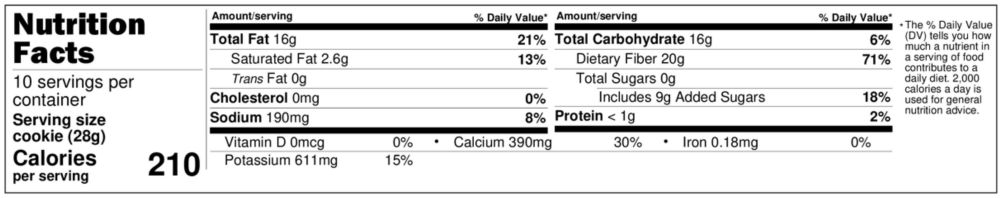

Figure 4. 1 Nutrition Fact of Gluten-Free Purple Sweet Potato Cookies

4.3 Food Safety and Packaging

4.3.1 Processing and Storage Temperature

Purple Sweet Potato Cookies made through various kind of processing. First the main ingredients for making baby cookies were good sorting of the main ingredients, its to make sure the ingredients are good in texture that it would be enhance in processing good product for baby. After shorting the raw material, the method are carried out to produce purple sweet potato flour is dehydrated. First, peeled the raw purple sweet potato until the skin get off from each part and wash to remove some dirt from purple sweet potato skin. Second slice the purple sweet potato using mandolin to get easier time from dehydration. After slicing the skin of purple sweet and preparing tray for dehydrate the purple sweet potato in the oven. Purple sweet potato slices dehydrated in oven gas with 60°C around 5-7 hours until perfectly dry. Next process is milling use food processor to get flour texture and sieving to get fine texture of flour with sieve mesh 80.

To produce purple sweet potato cookies, the next process is preparing the ingredients such as sweet potato flour, powder sugar, unsalted margarine, corn starch and white egg. In this cookies we used creaming method. First mixing the unsalted margarine and powder sugar with high speed of hand mixer in the mixing bowl until the texture get fluffy then pour the white egg slowly into the mixing bowl until the batter ingredients have more volume and fluffy. Mix the flour ingredients into the mixing bowl folding using rubber spatula until the flour mix well and use hand blender to mix the dough ingredient until the dough color get combine. After mixing the ingredients we put the dough into the piping bag and shaping in the baking tray. Before we bake the cookies dough, we have to prepare the heat of oven in 145°C. After all preparation done, put the

baking tray into the oven and bake the cookies around 20-23 minutes until the cookies get fine color and nice texture.

After finishing the baking process, the cookies are cooled to room temperature around 15-20 minutes until there is no heat from the cookies, then we weigh the cookies per pack in a packaging according to the number of measurements that have been determined. This aim to maintain the shelf life of cookies. The packaging used in this product is standing pouch with metalize foil. The packaging it self have zip to lock the air in the inside of packaging and have an window to show the shape of cookies that can attract customer buy.

4.3.2 Shelf Life

The purple sweet potato cookies is form that have a finger form that easly to handle and eat for consume. Usually purple sweet potato cookies stored at room temperature with a shelf life of one – two weeks. Signs that can be seen if its expiration or damaged are changes in color, texture and odor produced. To extend the shelf life of purple sweet cookies, it can be stored in the place that not directly hit by the light of the sun.

4.3.3 Product Packaging

Food packaging have an important role in maintaining the quality of the food stored inside. The shelf life of food products is determined mostly by the way that they are packaged and stored, which controls changes in moisture content and can preserve the product's quality, flavor, and nutritional characteristics (Kumar and Sagar, 2016). Packaging also represent the brand image and identity of the product itself, in terms of color, design and written information on the packaging, it will have an influence in attracting customers to buy and memorize of our products. There are several packaging that can be used on the cookies product like PP plastic and metalized CPP bags. In this product metalized CPP bags which

are reasonable price and suitable for the cookies product. Metalized CPP bags have a little window that the customer can look the shape of the purple sweet potato cookies, also it has ziplock to lock and esier to seal the packaging.

The measurement of the packaging is 12cm X 20cm.

Figure 4. 2 Metalized CPP Bag 12x20cm

Figure 4. 3 Label

4.4 Financial Aspect

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

Product costs are calculated from the total of all costs per month. These costs consist of labor costs, packaging costs, raw material costs, and utility costs. Labor costs are calculated 20 times per month. As for raw materials, 5 recipes are made per day, of which 1 month is around 100 recipes or in other words 120 pieces in 1 day or 1740 pieces per month.

1. Start-Up Capital

Table 4. 3 Start-up Capital

Tools and Equipment	Quantity	Price (/unit)	Sub Total
Hand Mixer	1	Rp 450.000	Rp 450.000
Oven Gas	1	Rp 2.500.000	Rp 2.500.000
Baking Tray	2	Rp 28.000	Rp 56 .000
Large Mixing Bowl	2	Rp 27.000	Rp 54.000
Small Mixing bowl	3	Rp 13.000	Rp 39.000
Mandolin	1	Rp 75.000	Rp 75.000
Rubber Spatula	2	Rp 15.000	Rp 30.000
Sieve Mesh	1	Rp 97.000	Rp 74.000
Piping Bag	1	Rp 23.000	Rp 23.000
Spoon	3	Rp 3.000	Rp 9.000
Digital scale	1	Rp 120.000	Rp120.000
TOTAL (3 years)			**Rp 3.430.000**

2. Labour Cost

Table 4. 4 Labour Cost

Occupation	Personnel	Salary (/month)	Sub Total
Owner	1	Rp 3.000.000	Rp 3.000.000
Helper	1	Rp 1.500.000	Rp 1.500.000
	Total		**Rp 4.500.000**

3. Packaging Cost

Table 4. 5 Packaging Cost

Packaging	Quantity	Price (/unit)	Sub Total
Standing metalizer Bags + Cetak	500	Rp 1.200	Rp 600.000
	TOTAL (/day)		**Rp 600.000**
	TOTAL (/month)		**Rp 3.000.000**

4. Utility Cost

Table 4. 6 Utility Cost

Facility	Quantity	Price (/unit)	Sub Total
PDAM (Water)	3L	Rp 2.000 (/m^3)	Rp 6.000
PLN (Electricity)	5 kwh	Rp 1.300 (kWh)	Rp 6.500
Gas Elpiji 3kg	1	Rp 18.500 (/pcs)	Rp 18.500
	TOTAL (/day)		**Rp 31.000**
	TOTAL (/month)		**Rp 620.000**

5. Raw Material Cost

Table 4. 7 Raw Material Cost

Raw Material	Quantity	Price (/unit)	Sub Total
Purple Sweet Potato	3,5kg	Rp 13.000 (/kg)	Rp 45.500
Unsalted Margarine	1kg	Rp 8.600 (/kg)	Rp 8.600
Powder Sugar	450g	Rp 19.000 (/kg)	Rp 8.550
Egg	10pcs	Rp 25.000 (/kg)	Rp 14.000
Corn Starch	200g	Rp 15.000 (/kg)	Rp 3.000
TOTAL (/day)			**Rp 79.650**
TOTAL (/month)			**Rp 1.588.000**

6. Total Cost

   Fixed Cost = Labour Cost

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

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

   = Rp 4.500.000 + Rp 1.588.000 + Rp 3.000.000 + 620.000

   = **Rp 9.708.000**

4.4.2 Selling Price

Product Price = $\frac{\textit{Total Cost (/month)}}{\textit{Total Product Units (/month)}}$

= $\frac{\textit{Rp } 9.708.000}{2.400\ \textit{pcs}}$

= **Rp 4.045/ pcs**

Product Selling Price = Product Price + (Product Price X Profit Precentage)

= Rp 4.045 + (Rp 4.045 X 150%)

= Rp 4.045 + Rp 6.067,5

= Rp 10.112,5 = 10.000/pcs