

CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

Pine nuts are beneficial for checking blood lipids and controlling coronary heart disease (CHD) This is due to their containing only unsaturated fatty acids, whereas most other nuts also have monounsaturated fatty acids, primarily oleic acid. However, pine kernels contain mostly linoleic acid in the form of polyunsaturated fatty acids. Linoleic acid can be transformed into cellular mediators

that play an important role at the vessel level and improve blood coagulation *P. koraensis* Siebold and Zucc and *P. sibirica* have the highest fat content—maximum 65–75%.

Red beans (*Phaseolus vulgaris* L.) are a type of legume that has great potential and is often found in Indonesia. Judging from its nutritional content, red beans are a food ingredient that has high energy and is a source of vegetable protein and carbohydrates (Putri et al., 2020; Astawan, 2009). According to the Central Statistics Agency (2018), red bean production in Indonesia in 2016 reached 37,171 tonnes. Processing red beans into instant porridge is an effort to increase the usability of red bean-based products. Processing red beans into porridge has the advantage of being easy to use and having a longer shelf life.

Red beans are a type of legume that contains starch and high Fiber. Red beans are abundant in Indonesia and easy to obtain. High production levels are often not matched by high utilization. Red beans are a source of vegetable protein. Apart from being rich in protein, red beans also contain high carbohydrates, minerals and vitamins. Red beans have the highest carbohydrate content among other types of nuts, protein content which is equivalent to green beans and lower fat content compared to soybeans, and Fiber content equivalent to green beans, soybeans, and peanuts. (Fatimah et al., 2013)

The texture of this red bean porridge is smooth but still textured, not so thick, and still textured. And for topping we use Pine Nuts Milk Sauce.

4.2 Nutrition Fact

4.2.1 Nutrition Table

Table 4. 1 Nutrition Value of Pine Nuts per 100 g

Nutrition	Total/100 g
Protein (g/100g)	3.9 g
Carbohydrates (g/100g)	3.7 g
Fat (g/100g)	19 g
Sodium	0.6 mg
Calories	224

Table 4. 2 Nutrition Value of Red Beans per 100 g

Nutrition	Total/100 g
Calories	112
Fat	0.5 g
Carbohydrates	23 g
Protein	8.7 g

Table 4. 3 Nutritional Value of Ingredients used in The Recipe for Red Beans Porridge With Pine Nuts Milk Sauce

Ingredients	Calories (kcal)	Carbohydrate (g)	Protein (g)	Sugar (g)	Fiber (g)	Sodium (mg/100g)
Pine Nuts (100 g)	673	13.08	13.69	3.59	3.7	2
Sugar (5 g)	19.35	4.99	0	4.99	0	0
Water	0	0	0	0	0	0
Red Beans (177 g)	225	40	15	0.6	11	1.8
Brown Sugar (100 g)	377	97.33	0	96.21	0	39
Salt (4 g)	0	0	0	0	0	1,500
Cornstarch (100 g)	381	91.27	0.26	0	0.9	9

4.2.2 Nutrition Label



Figure 4. 1 Nutrition Fact of Red Beans Porridge With Pine Nuts Milk Sauce

4.3 Food Safety and Packaging

4.3.1 Processing and Storage Temperature

Red beans are soaked in the solution sodium bicarbonate 4.2% for 4 hours with a ratio of 1:3. Function of soaking with sodium bicarbonate for softens texture, reduces components antinutrients (Rehman et al., 2000). After soaked, drained and washed red beans with distilled water. Then it's done heating with autoclave at temperature. 121°C for 2 minutes. Function of heating with an autoclave is to ripen red beans so that the texture becomes soft. Then the red beans are dried in the cabinet dryer for 18 hours. Making Instant Porridge Instant porridge is made based on the method used by Slamet (2011). Materials used in making instant porridge, namely millet flour white, parboiled red bean flour, milk powder, sugar and salt are mixed, then Add water to the ratio: the mixture of ingredients is 5:1. Then the mixture is cooked until gelatinized to obtain a slurry. The slurry is then dried with drum dryer with a temperature of 140 °C.

4.3.2 Self Life

The self-life of this porridge is only 1 day at refrigerator temperature, and 6 hours at room temperature.

4.3.3 Product Packaging

Polypropylene (PP) is a good choice of plastic material for food packaging. Polypropylene or PP plastic is one of the most frequently used plastics because of its characteristics. PP plastic has a smooth surface, can withstand chemicals, has high flexibility and durability, is easily recycled and can reduce electricity. In addition, the price is relatively cheaper compared to other raw materials. Polyethylene (PE) is a type of plastic polymer made from ethylene compounds. PE plastic is very popular because it is lightweight, strong, resistant to water and chemicals, and easy to recycle. PE plastic has low gas permeability, making it

suitable for wrapping or storing food ingredients that require protection against oxygen and moisture.

High Density Polyethylene (HDPE) is hard, resistant to high temperatures, and can be formed into various objects without losing its strength, and can be recycled. The advantage of this type of plastic is that it is known to be strong but also easy to shape after the melting point has gone through a heating process, corrosion resistance.

Polypropylene plastic cup and High-Density Polyethylene plastic for the pudding have the dimensions of 9,8 cm x 4,5 cm (200 ml) and 10 x 20 cm, respectively.

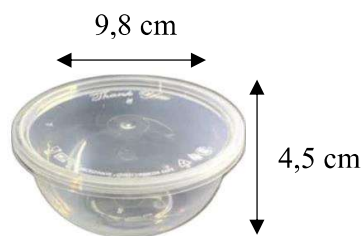


Figure 4. 2 Polypropylene Plastic Cup 200ml



Figure 4. 3 High-Density Polyethylene Plastic 10x20cm

Nutrition Facts	
Serving: 1	
Amount per serving	
Calories	382
Total Fat 7.4g	14%
Saturated Fat 0.8g	8%
Cholesterol 0mg	0%
Sodium 1074mg	48%
Total Carbohydrate 69.2g	28%
Dietary Fiber 8g	20%
Total Sugar 33.8g	
Protein 12.7g	
Vitamin D 0mcg	0%
Calcium 78mg	6%
Iron 8mg	23%
Phosphorus 105mg	17%

*The % Daily Value (DV) tells you how much a nutrient in a food serving contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Recipe endorsed by **well**

Ingredients:
Pine Nuts, Red Beans, Brown Sugar, Salt, Cornstarch

LACTOSE FREE

Porridge

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Figure 4. 4 Logo

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 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 30 portions per day or 750 portions per month.

1. Start-Up Capital

Table 4.4 Start-Up Capital

Tools and Equipment	Quantity	Price (/unit)	Sub Total
Milk Filter	1	Rp 23,500	Rp 23,500
Sauce Pot	1	Rp 20,000	Rp 20,000
Measuring Cup	1	Rp 17,000	Rp 17,000
Measuring Spoon	1	Rp 19,000	Rp 19,000
Small Bowl	5	Rp 30,000	Rp 150,000
Large Bowl	3	Rp 50,000	Rp 150,000
Digital Scales	1	Rp 75,000	Rp 75,000
Blender	1	Rp 300,000	Rp 300,000
Spoon	5	Rp 3,000	Rp 15,000
Wooden Spatula	2	Rp 25,000	Rp 50,000
TOTAL			Rp 819,500

2. Packaging Cost

Table 4.5 Packaging Cost

Packaging	Quantity	Price (/unit)	Sub Total
Plactic Cup	20 pcs	Rp 11,500 (/25pcs)	Rp 9,200
HDPE Plastic	20 sheets	Rp 8,500 (/100pcs)	Rp 1,700
Twistie	20 pcs	Rp 4,500 (/750pcs)	Rp 120

Plastic Bag	20 pcs	Rp 9,000 (/100pcs)	Rp1,800
Plactic PE 3cm x 20 cm	20 pcs	Rp 8,500 (/500pcs)	Rp 340
TOTAL (/day)			Rp 13,160
TOTAL (/month)			Rp 329,000

3. Utility Cost

Table 4. 6 Utility Cost

Facility	Quantity	Price (/unit)	Sub Total
Water	600 L	Rp 2,500 (/m3)	Rp 1,500
Electricity	10 kWh	Rp 1,500 (/kWh)	Rp 15,000
TOTAL (/day)			Rp 16,500
TOTAL (/month)			Rp 412,500

4. Raw Material Cost

Table 4. 7 Raw Material Cost

Raw Materials	Quantity	Price (/unit)	Sub Total
Pine Nuts	300 g	Rp 200,000 (/250gr)	Rp 240,000
Red Beans	1,5 kg	Rp 32,000 (/kg)	Rp 48,000
Brown Sugar	1 kg	Rp 23,000 (/kg)	Rp 23,000
Cornstarch	150 g	Rp 4,000 (/100g)	Rp 6,000
Salt	20 g	Rp 6,000 (/kg)	Rp 147
Water	6,5 lt	Rp 1,900 (/lt)	Rp 12,350
Gas (12 kg)	3 kg	Rp 17,200 (/kg)	Rp 51,600
TOTAL (/day)			Rp 381,097
TOTAL (/month)			Rp 9,527,425

5. Total Cost

Fixed Cost = Labour Cost and Rent Cost

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

$$\begin{aligned}\text{Total Cost (/month)} &= \text{Raw Material} + \text{Packaging} + \text{Utility} \\ &= \text{Rp } 9,527,425 + \text{Rp } 329,000 + \text{Rp } 412,500 \\ &= \mathbf{\text{Rp } 10,268,925}\end{aligned}$$

4.4.2 Selling Price

$$\begin{aligned}\text{Product Price} &= \frac{\text{Total Cost (/month)}}{\text{Total Product Units (/month)}} \\ &= \frac{\text{Rp}}{\text{portions}} \\ &= \frac{\text{Rp } 10,268,925}{750 \text{ portions}} \\ &= \mathbf{\text{Rp } 13,691 / \text{portion}}\end{aligned}$$

$$\begin{aligned}\text{Product Selling Price} &= \text{Product Price} + \left(\frac{\text{Product Price} \times}{\text{Profit Percentage}} \right) \\ &= \text{Rp } 13,691 + (\text{Rp } 13,691 \times 50\%) \\ &= \text{Rp } 13,691 + \text{Rp } 6,845 \\ &= \mathbf{\text{Rp } 20,535 \approx \text{Rp } 20,500}\end{aligned}$$