

CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

Nutritional sport food has a variety of nutrients that are good for athletes. Whether a product is good or not depends on the materials used. The main ingredients of nutritional sport food are dates and bananas with the addition of honey as a natural sweetener which is great for meeting nutritional needs during long-term sports / endurance sports. Bananas are foods that are high in potassium where potassium itself is great for preventing cramps in the muscles which usually cramps occur during long-term exercise. The second is dates. Dates have a carbohydrate content of 75% and 65% of the carbohydrates are sugar. The sugar in dates is divided into fructose and galactose.

Dates are said to be very good for endurance sports because they can produce energy for a long time through the process of glucose and fructose entering hepatocytes, fructose is phosphorylated by fructokinase to become fructose-1-phosphate. Fructose-1-phosphate is broken down into DHAP (dihydroxyacetonephosphate) and glyceraldehyde by aldolase B. DHAP (dihydroxyacetone-phosphate) and glyceraldehyde can be phosphorylated (by triose-P-isomerase and triokinase, respectively) to glyceraldehyde-3-phosphate. DHAP (dihydroxyacetone-phosphate) and glyceraldehyde-3-phosphate can enter the metabolite pool of gluconeogenesis and/or glycolysis which produces ATP as an energy source (Rosset et al., 2017).

4.2 Nutrition Fact

4.2.1 Nutrition Table

The nutritional of dates is as follow:

Table 4.1 Nutrition Value of Dates per 100g

| | |
|--------------|----------|
| Calori | 280 kcal |
| Carbohydrate | 75 gr |
| Sugar | 65 gr |
| Serat | 7-8 gr |
| Protein | 2-2,5 gr |
| Calsium | 65 mg |
| Zat besi | 1 mg |
| Zink | 0,5 mg |
| Kalium | 650 ml |
| Vitamin A | 160 IU |

Sources : yankes.kemkes.go.id

Dates contain a lot of sugar which is good for endurance sports. Where from 75% of carbohydrates in dates 65% of them are sugar in the form of glucose and fructose. Where this sugar is digested in such a way that it can become energy and the energy produced can last a long time. Where the work of processing sugar on dates is very good for sports that last a long time so that athletes can be met with energy needs in a long period of time.

4.2.2 Nutrition Table

The nutritional of King Banana is as follow:

Table 4.2 Nutrition Value of King Banana per 100g

| | |
|----------------|----------|
| Calori | 120 kcal |
| Carbs | 31,8 gr |
| Sugar | 65 gr |
| Fat | 0,2 gr |
| Protein | 1,2 gr |
| Kalsium | 10 mg |
| Zat besi | 0,8 mg |
| Water | 65,8 mg |
| Kalium | 582,2 mg |
| Vitamin C | 10 mg |
| Natrium | 35 mg |
| Tembaga | 0,31 mg |
| Beta - karoten | 53 mcg |
| Thiamin | 0,14 mg |
| Riboflavin | 0,14 mg |
| Niasin | 1,2 mg |
| Abu | 1 g |
| Seng | 0,7 mg |
| Fosfor | 22 mg |

Sources: Prosiding Seminar Nasional Unimus Volume 3,2020

Natural dopping is the right name / we often hear for bananas, because there are so many nutrients contained in them. Potassium is one of the reasons bananas are very suitable for long endurance because it can prevent or reduce the potential for muscle cramps. Where bananas also have sodium where sodium itself can help process food in the stomach and intestines so that the absorption of substances and juices can be absorbed proper

Table 4.3 Nutritional Value of Ingredients used in The Recipe for Nutritional Sport Food

| Ingridient | Calories (kcal) | Carbohydrate (g) | Protein (g) | Fat (g) | Sugar (g) | Kalium (mg) |
|--------------------------|--------------------|---------------------|----------------|--------------|----------------|----------------|
| Dates juice (75g) | 210 | 56,25 | 1,7 | 0 | 48,75 | 487,5 |
| Banana juice (75g) | 202,5 | 53,7 | 2,025 | 0,34 | 109,7 | 982,5 |
| Water (75g) | 135,025 | 0 | 0 | 0 | 0 | 0 |
| Gelatin (10g) | 33,5 | 0 | 8,56 | 0,001 | 0 | 1,6 |
| Nutrijell (7,5g) | 2,25 | 0,375 | 0,075 | 0,075 | 0,225 | 0 |
| Honey (30g) | 91,2 | 24,7 | 0,09 | 0 | 24,7 | 15,6 |
| TOTAL | 539,45 | 135,025 | 12,45 | 0,416 | 189,675 | 1487,2 |

4.2.3 Nutrition Label

| Nutrition Facts | | Amount/serving | % Daily Value* | Amount/serving | % Daily Value* |
|--------------------------------|--|--------------------------|----------------|---------------------------|----------------|
| | | 1 servings per container | | Total Fat 0g | 0% |
| Serving size (40g) | | Saturated Fat 0g | 0% | Dietary Fiber 0g | 0% |
| Calories per serving 90 | | Trans Fat 0g | | Total Sugars 0g | |
| | | Cholesterol 0mg | 0% | Includes 32g Added Sugars | 64% |
| | | Sodium 30mg | 1% | Protein 2g | 4% |
| | | Vitamin D 0mcg | 0% | Calcium 0mg | 0% |
| | | Potassium 47mg | 0% | Iron 0mg | 0% |

* 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.

Figure 4.1 Nutrition Fact of Nutritional Sport Food

4.3 Food Safety and Packaging

4.3.1 Processing and Storage Temperature

Nutritional sports food is made through various kinds of processing. In the beginning, the main ingredients for making sports food were good sorting of the main ingredients, so that when they were processed, they would make a good product. After sorting the raw materials, various methods are carried out to produce good juice from each main ingredient, here we use plantains with dates. The raw materials are processed using the boiling method to obtain the two fruits. This stage is very important because it facilitates the next stage of raw material processing.

To produce cider, we need the help of water and boil it so that the nutrients contained in it dissolve into the water and we reduce the water again to produce good cider. After doing this method, we will prepare other supporting materials such as honey, water, gelatin, and jelly powder. The next processing is boiling the mixed ingredients again until they just boil, this method aims so that the gelatin and jelly powder can dissolve into the liquid perfectly. This hall is intended so that the product

has the right density consistency when it is cooled and inserted into the printing press. The next process is to print the liquid into the mold to make the shape and maintain the solid form so that it is very easy to eat.

After passing through the next printing process is the storage process. After the dough is put into the mold, wait for the dough to cool down and then put it in the refrigerator for about 4-8 hours so that it can be perfectly solid. After it is perfectly solid, the food is put into the packaging. This aims to maintain the shelf life of these foods. The packaging used is large plastic candy packaging and then sealed with a sealer so that no bacteria or other substances enter which can damage and shorten the shelf life of food.

4.3.2 Shelf Life

This nutritional sports food is in the form of a compacted liquid so that it can be consumed by eating. Usually sports food like this is stored at room temperature with a shelf life of 3-7 days. Signs that can be seen if it is close to expiration or damaged are changes in color, texture, and odor produced. To extend the shelf life of sports food, it can be stored in the refrigerator at a temperature of 5 – 10 degrees Celsius which can last up to 2 weeks – 1 month.

4.3.3 Product Packaging

Food packaging is one of the most important parts in making a product a plus, and can attract people to buy if the packaging is good. There are several kinds of packaging out there, one of which is plastic packaging. Plastic packaging is also divided into several types, namely PP plastic and PE plastic packaging. For PP packaging it is the best packaging for food because PP plastic has low permeability to water vapor and gas and can reduce contact between the material and oxygen. (Hartatic, 2007)

PP plastic has better tensile strength and clarity as well as lower water vapor and gas permeability compared to PE plastic. PP has properties that do not react with materials, can reduce contact between

materials and O₂, do not cause toxins and are able to protect materials from contaminants (Pantastico, 1988 in Hartatik, 2007). The characteristic differences between paper packaging and plastic packaging affect the amount of bacteria present in food.

For my product, I use PP plastic containers which are very suitable for the products I make. In addition, PP plastic packaging has been tested and can reduce direct food contact with oxygen. The plastic I used was 13cm x 5cm.



Figure 4.2 Polypropelene Candy Bag 13cm x 5cm



Figure 4.3 label

4.4 Financial Aspects

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 26 times per month. As for raw materials, 10 recipes are made per day, of which 1 month is around 260 recipes or in other words 100 pcs in 1 day or 2600 pcs in 1 month. Start-Up Capital.

| Tools and Equipment | Quantity | Price (/unit) | Sub Total |
|---------------------|----------|---------------|-----------|
| Sauce Pot 3L | 1 | Rp250.000,00 | Rp250.000 |
| Sauce pan | 2 | Rp135.000 | Rp270.000 |
| Blender | 1 | Rp230.000 | Rp230.000 |
| Large bowl | 2 | Rp27.000 | Rp54.000 |
| Small bowl | 2 | Rp13.000 | Rp26.000 |
| Knife | 1 | Rp75.000 | Rp75.000 |
| Wooden spatula | 2 | Rp15.000 | Rp30.000 |
| Cutting board | 1 | Rp43.500 | Rp43.500 |
| Strainer | 2 | Rp37.000 | Rp74.000 |
| Digital scale | 1 | Rp120.000 | Rp120.000 |

| | | | |
|------------------------|----|-----------|--------------------|
| Whisk large | 1 | Rp60.000 | Rp60.000 |
| Spoon | 3 | Rp3.000 | Rp9.000 |
| Refrigrator | 1 | Rp700.000 | Rp700.000 |
| Mold | 10 | Rp22.000 | Rp220.000 |
| TOTAL (/3years) | | | Rp2.161.500 |

Table 4.4 Start-Up Capital

1. Labour cost

Table 4.5 Labour cost

| Occupation | Personel | Salary(/month) | Sub Total |
|--------------|----------|----------------|--------------------|
| Owner | 1 | Rp5.000.000 | Rp5.000.000 |
| Helper | 1 | Rp2.000.000 | Rp2.000.000 |
| TOTAL | | | Rp7.000.000 |

2. Packaging Cost

Table 4.6 Packaging Cost

| Packaging | Quantity | Price (/unit) | Sub Total |
|-----------------------|----------|---------------|------------------|
| PP Candy Plastic | 100 | Rp110 | Rp11.000 |
| Sealer | 1 | Rp89.000 | Rp89.000 |
| TOTAL (/day) | | | Rp100.000 |
| TOTAL (/month) | | | Rp375.000 |

3. Utility Cost

Table 4.7 Utility Cost

| Facility | Quantity | Price(/unit) | Sub Total |
|-----------------------|----------|----------------|------------------|
| Water | 8 L | Rp 370(/L) | Rp2.960 |
| Electricity | 5 kWh | Rp1.300 (/kWh) | Rp6.500 |
| | | Rp 18.500 | |
| Gas elpiji 3kg | 1 | (/biji) | Rp18.500 |
| TOTAL (/day) | | | Rp10.960 |
| TOTAL (/month) | | | Rp284.960 |

4. Raw Material Cost

Table 4.8 Raw Material Cost

| Raw Materials | Quantity | Price (/unit) | Sub Total |
|-----------------------|----------|------------------|-------------|
| Dates | 1,125g | Rp 48.500 (/kg) | Rp54.562,5 |
| King Banana | 2,52 kg | Rp 12.000 (/kg) | Rp30.240 |
| Gelatin | 150g | Rp 185.000 (/kg) | Rp27.750 |
| Jelly powder | 112,5g | Rp 80.000 (/kg) | Rp9.000 |
| Honey | 450g | Rp 60.000 (/kg) | Rp27.000 |
| TOTAL (/day) | | | Rp148.552,5 |
| TOTAL (/month) | | | Rp3.862.365 |

5. Rent Cost

Table 4.9 Rent Cost

| Facility | Size | Price | Sub Total |
|-----------------------|-----------|--------------|------------------|
| Land | 3 m x 3m | Rp 8.500.000 | Rp708.334 |
| Building | 2,5 m x 3 | (/year) | |
| TOTAL (/month) | | | Rp708.334 |

6. Total Cost

$$\begin{aligned}
 \text{Fixed cost} &= \text{Labour Cost and Rent Cost} \\
 \text{Variable Cost} &= \text{Raw Material Cost, Packaging} \\
 &\quad \text{Cost, and Utility Cost} \\
 \text{Total Cost (/month)} &= \text{Labour} + \text{Raw Material} + \\
 &\quad \text{Packaging} + \text{Utility} + \text{Rent Cost} \\
 &= \text{Rp7.000.000} + \text{Rp375.000} + \\
 &\quad \text{Rp284.960} + \text{Rp3.862.365} + \\
 &\quad \text{Rp708.334} \\
 &= \text{Rp 11.856.034}
 \end{aligned}$$

4.4.2 Selling Price

$$\begin{aligned} \text{Product Price} &= \frac{\text{Total Cost (/month)}}{\text{Total product Units (/month)}} \\ &= \frac{\text{Rp } 11.856.034}{2600 \text{ pcs}} \\ &= \text{Rp } 4.560/ \text{ pcs} \end{aligned}$$

$$\begin{aligned} \text{Product selling Price} &= \text{Product Price} + (\text{Product Price} \times \text{Profit Percentage}) \\ &= \text{Rp } 4.560 + (\text{Rp } 4.560 \times 120 \%) \\ &= \text{Rp } 4.560 + \text{Rp } 5.472 \\ &= \text{Rp } 10,032 \approx \text{Rp } 10.000 / \text{ pcs} \end{aligned}$$