

CHAPTER IV

RESULT AND DISCUSSION

4.1. Product Result

Candy is a food that is much liked by children and adults. Currently there are lots of sweet foods circulating in society, namely jelly candy. But most of the sweets on the market are only concerned with taste and appearance without worrying about health, so it needs to be developed, so that sweets can benefit the body, for example by using date juice (Bone, K, 2013). Result of research and statistical tests general indicate that the amount of fresh fruit flesh date more and more added the resulting water content increases. The water content in dates is quite high i.e. 21 g per 100 g of dates. Because is affect the quality of candy is water content, therefore water content is very related to shelf life from the candy it contains, (Wahyuni, 1998). The more amount of fruit flesh added dates then the water content of the candy will increase, (Sudarmaji, 2007). The highest ash content is found of 2,721% and the lowest of 1.566%. More meat added dates, the ash content will be produced high. Because of the flesh dates contain lots of minerals, (Gemilang, 2012). Determination the quality of the candy is affected by the content ash, where the ash content itself is very influence in the process of candy processing. When the ash content content in the raw material for manufacture the candy is good, then the candy is produced to meet quality requirements soft candy, (Nurwati, 2011).

Jelly candy water content water in the study this ranged from 9.16%-12,84%. The resulting water jelly candy has meet the jelly candy quality standarts, which is a maximum of 20%. Observations made on the water content of jelly candy shows a decrease ginger extract concentration, this is due to more and more the addition ginger liquid in the candy. Jelly can bind water contained in the jelly candy material. Moisture content of a product determined by the moisture content of the raw material and support used, in addition, also

affected by the processing. (Subaryono and Utomo, 2006) states that the water content jelly candy is determined by duration of cooked and drying on jelly candy product.

(Rismandari, 2017) water content high jelly candy due to substances in material contains too much water or dissolved solids are too low, so the consistency of the gel formation is too little ensure that the network does not hold to liquid sugar, which produces jelly candy and generate levels sinnersis and height, (Atmini, 2010). From water content is too high, will reduce product durability, because it's easy to get damaged by microbes. Data on water content of jelly candy extract turmeric tested normally distributed data ($P>0.005$). The data is normal, then proceed with parametric test is significant.

Data to the texture shows the higher the concentration of gelatin the more product hardness. According to (Rahman, 2012), if the concentration of gelatin is too low, the gel become soft, but when concentration of gelatin used is too high it will be stiff. Texture is a sensation of pressure can be felt by mouth or by touch with fingers (Kurniawan, 2006), texture is an important parameter in food soft.

4.2. Nutrition fact

4.2.1. Nutrition Table

The nutritional value of Jelly Candy from spices liquid and date juices is as follows:

Table 4. 1 Nutrition value of dates per 100 g

Calorie (kcal)	277
Protein (g)	2
Carbohydrate (g)	75
Fiber (g)	7
Ash (g)	3.43
Moisture (g)	22.8
Total Sugars (g)	74.3
Lipid (g)	0.47

Source: Shafiei et al, 2020, Eltayeb et al, 2020

The water content of dates indirectly proportional to the sugar content, so dates with low water content way to contain high sugar and vice versa. Varieties of dates contain about 70% reducing sugars with nearly equal amounts of glucose and sugar fructose. The most important commercial characteristics of dates are based on at a significant sugar content both for fresh consumption an for fruit processing, (Shafiei, Eltayeb, 2020).

4.2.2. Nutrition Calculation

Table 4. 2 Nutrition Value of Ingredients used in The Recipe for Jelly Candy for Date Juices and Spices Liquid

Ingredients	Calories (kcal)	Carbohydrate (g)	Protein (g)	Fat (g)	Sugar (g)	Fiber (g)	Sodium mg/100 g
Dates	195	49	2		48	4,5	
Ginger	3,2	0,72	0,08	0,04	0,08	0,08	0,52
Turmeric	1,6	0,28	0,28	0,04	0,04	0,08	3,84
Gelatine	201		51,6				117,6
Total	400,8	50	53,9	0,08	48,1	46,6	121,9

Above is the nutritional value of the candy per recipe. In which 1 recipe makes 2 packs of candies or 28 pcs.

4.2.3. Nutrition Label

Nutrition Facts	
14 servings per container	
Serving size	1 pcs (10g)
Amount Per Serving	
Calories	15
% Daily Value*	
Total Fat 3g	4%
Saturated Fat 0g	0%
Trans Fat 0g	
Sodium 0mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 2g	7%
Total Sugars 2g	
Includes 0g Added Sugars	0%
Protein 2g	4%
<small>Not a significant source of cholesterol, 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>	

Figure 4. 1 Nutrition Fact of Jelly Candy from Date Juices and Spices Liquid

4.3. Food Safety and Packaging

4.3.1. Processing and storage temperature

Jelly candy is best stored at temperature in a cool place. Store the Jelly candy at room temperature, which is around 20-25 C. Avoid direct exposure to sunlight or heat sources that could cause the candy to melt. And if it is placed in a cool place it can retain the taste

of candy and oxidation from the air can't get in and spoil the taste of the jelly candy (Sharif et al, 1989). Jelly candy is susceptible to moisture, which can make it soggy or spoil. Make sure to store it in a dry place and away from sources of moisture such as kitchen or bathroom. Increase in the value of water content caused by the increased speed respiration and formation of free water on the material by microbes during storage. In addition, various reactions that occur during storage such as fat oxidation, which produces water vapor, as well biochemical and microbiological reactions that take place during the process storage. Increment difference influenced by type and storage characteristic used, because it will affect the movement of water vapor formed (Kasmadiharja, 2008). Avoid contamination and make sure the storage container and surrounding area are clean before storing the jelly candy. Keep away from ingredients with strong or pungent odors, which can spoil the taste and texture of the candy, (Purnomo, 1995), texture is a group of physical properties caused by structural elements of foodstuffs that can be felt by the touch, related to the deformation and disintegration of the food measured organoleptically by eye, time, and distance.

4.3.2. Shelf Life

Jelly candy that are stored in an airtight container, in a cool place such as chiller, and protected from exposure to direct sunlight can last for 2 months. Jelly candy with exposed container gives significant effect on aroma value, then got show aroma value of jelly candy during storage room temperature decreased quality organoleptically. Change and organoleptically quality loss on jelly candy products from the aroma temperature storage and avoid exposure to sunlight. This is presumably due to its translucent nature light, (Kataren, 2005), light is an accelerator against rancidity a combination of oxygen and light can

speed up the oxidation process. In addition to the decrease in aroma value.

4.3.3 Product Packaging

When choosing a packaging to store jelly candy, make sure the container is clean and free from odors or other contaminants that can affect the taste of jelly candy. In addition, the long storage time of the product, food also affects the quality of the product, where the longer the product is stored, then the rate of decline in the quality of food products will also increase, (Danarsi, & Noer, 2016). And must stabilize the temperature on the jelly candy it doesn't melt. The higher higher temperature storage, the rate of reaction of various chemical compounds will also increase. By therefore, The temperature factor must always be taken into account in estimating the rate of deterioration food during storage, (Syarif & Halid, 1998).

Choosing a glass jar as a jelly candy can help prevent air from entering, keeping the jelly candy fresh for a longer period of time, can protect the product from the chemical influences such as rapid changes in composition, the biological influences such as being able to resist pathogenic microorganism or agents spoilage, as well as physical protecting products from mechanical and other hazard, (Marsh & Betty, 2007), this keeps the jelly candy fresh and avoids unwanted contamination. Glass jars are usually transparent, which allows easy viewing of the contents and condition of the jelly without having to remove the lid. This helps you monitor the quality of the jelly without opening and disturbing storage. The glass does not contain harmful materials that can leak into the jelly candy. As a safe material for food contact, glass jars provide additional confidence in the safety of jelly candy storage.



Figure 4. 2 Jar Glass 200 ml



Figure 4. 3 Logo

4.4 Financial Aspects

4.4.1 Product Cost

Product cost is calculated based on the total of all cost per month. The costs consist of raw material cost, packaging cost, and utility cost. The production will be 5 recipe per day or 10 packs, the working days will be 20 days per month. Therefore the production will be 100 recipes or 200 packs per month.

1. Start-Up Capital

Table 4. 3 Start up capital

Tools and Equipment	Quantity	Price (/unit)	Sub Total
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Pot 500 ml	1	Rp. 250.000,00	Rp. 250.000,00
Knife	1	Rp. 250.000,00	Rp. 250.000,00
Scales	1	Rp. 100.000,00	Rp. 100.000,00
TOTAL			Rp. 600.000,00

2. Packaging Cost

Table 4. 4 Packaging Cost

Packaging	Quantity	Price (/unit)	Sub Total
Glass Jar 200 ml	10	Rp.6.000,00	Rp. 60.000,00
Sticker Logo	10	Rp. 450,00	Rp. 4.500,00
Sticker Label	10	Rp. 300,00	Rp. 3.000,00
TOTAL (/day)			Rp. 67.500,00
TOTAL (/month)			Rp. 1.350.000,00

3. Utility Cost

Table 4. 5 Utility Cost

Facility	Quantity	Price (/unit)	Sub Total
Water	4 m ³	Rp 2.100,00/ m ³	Rp. 8.400,00
Gas	170 gr	Rp. 190.000,00/3 Kg	Rp. 10.760,00
TOTAL (/day)			Rp. 19.166,00
TOTAL (/month)			Rp.388.320,00

4. Raw Material Cost

Table 4. 6 Raw Material Cost

Ingredients	Quantity	Price (/unit)	Sub Total
Dates	325 gr	Rp 175.000,00 /kg	Rp. 56.875,00
Water	3125 ml	Rp.19.000,00/19L	Rp. 3.125,00
Ginger	20 gr	Rp. 16.500,00/ kg	Rp. 330,00
Turmeric	20 gr	Rp. 6.000,00/kg	Rp. 120,00
Gelatine	300 gr	Rp. 25.000,00/ 70 gr	Rp. 107.143,00

TOTAL (/Day)	Rp. 167.593,00
TOTAL (/Month)	Rp. 3.351.860,00

5. Total cost

Variable Cost = Raw Material, Packaging, Utility
Cost

Total Cost (/month) = Raw Material + Packaging + Utility
= Rp.3.351.860,00+Rp.1.350.000,00+
Rp. 388.320,00
= Rp. 5.090.180,00

4.4.2 Selling Price

$$\begin{aligned}\text{Product Price} &= \frac{\text{Total Cost (/month)}}{\text{Total Product Units (/month)}} \\ &= \frac{\text{Rp. 5.090.180,00}}{200} \\ &= \text{Rp. 25.450.00}\end{aligned}$$

$$\begin{aligned}\text{Product Selling Price} &= \text{Product Price} + (\text{product price} \times \text{profit percentage}) \\ &= \text{Rp. 25.450} + (\text{Rp}25.450 \times 50\%) \\ &= \text{Rp. 25.450} + \text{Rp. 12.725} \\ &= \text{Rp 38.175 / Jar} \\ &= \text{Rp.38.175,00/ Jar}\end{aligned}$$