

CHAPTER IV

RESULT AND DISCUSSION

4.1 Product result

The nutritional value contained in low-calorie vegan lempur depends on the main ingredients used. The main ingredients used in making vegan lempur are shirataki rice, enoki mushrooms, coconut milk by replacing glutinous rice with shirataki rice also makes lempur healthier and also calories lower. Using shirataki rice and enoki mushrooms will also affect the taste and texture, shirataki rice must be cooked then steamed to produce a soft and chewy texture. In the process of making shirataki rice the first step is by boiling rice with lots of water then waiting until reduced then when it's cooked. The next process is to steam it for about 30 minutes, during the boiling and steaming process so that it gives a soft, sticky and chewy texture to vegan lempur (Kusumawati et al., 2022). Starch content in shirataki and white rice. The results showed that the starch content in shirataki rice was 3.79 gr/100 gr (3.79%), lower than the starch content in white rice of 24.47 gr/100 gr (24.47%). The low starch content in shirataki rice makes the taste of shirataki rice not as soft as glutinous rice, that's what makes lempur using shirataki rice require binders such as psyllium husk, jelly powder, carboxymethyl cellulose, glutinous rice flour so that the texture becomes softer, if a binding agent is added will make the texture more sticky (*Nurmarida Asriani, S., Sandra, Y., & Arifandi, F. (2023)*)

The international content in the enoki mushroom is very good Water 88.34 grams, 37 calories of energy, 2.66 grams of protein, 0.29 grams of total fat, Carbohydrate 7.81 gram, fiber 2.7 gram , iron 1.15 mg , magnesium 16 mg , potassium .359 mg , sodium 3 mg , vitamin B-6 0.1 mg , vitamin E 0.01 mg. The lempur is low in calories and is vegan, and the fiber content in the enoki mushrooms is also very good for digestion. Using enoki mushrooms in the vegan lempur filling makes the texture almost similar to chicken, replacing the lempur filling which generally uses animal protein (shredded chicken) with of Vegetable

protein (enoki mushroom) makes vegan lempur very suitable for consumption by people who are on a diet and vegan friendly (Widyastuti & Tjokrokusumo, 2021).

4.2 Nutrition fact

4.2.1 Nutrition table

The nutritional value of shirataki rice as follows :

Table 4. 1 Nutrition Value of Shirataki Rice per 100 gr

| | |
|--------------------|------|
| Calorie (kcal) | 10 |
| Fat (g) | 0 |
| Natrium (g) | 0 |
| Carbohydrate (g) | 3 |
| Fiber (g) | 3 |
| Sugar (g) | 0 |
| Protein (g) | 0 |
| Strach content (g) | 3,79 |

Source : Asriani et al., 2022

Shirataki rice contains very low calories and takes out 0 calories. Shirataki rice itself has a good content for the body, the content in shirataki rice per 100g includes 0 grams of fat, 0 grams of sodium, 3 grams of carbohydrates, 3 grams of fiber, 0 grams of sugar, 0 gram protein, 3,79 gram strach content. Due to the low starch content in shiartaki rice makes the texture of shirataki rice not as sticky as glutinous rice so a binding agent must be added to produce sticky and not hard. Lemper, the cooking process is also very influential, during the cooking stage where the shirataki rice dough is, where the shirataki rice must be cooked using boiling water and using a lot of water which is then waited for to reduce. After that, it must be steamed for about 30 minutes. This cooking process is also very influential in the making of shirataki rice. A good cooking process will also produce a good texture of shirataki rice. That good process makes the shirataki rice have a soft and supple texture, then added a binding agent (psyllium husk, carboxymethyl cellulose, jelly powder, glutinous rice flour) making the texture sticky and soft like glue using glutinous rice (Asriani et al., 2022)

Table 4. 2 Nutrition Value of Enoki Mushroom per 100 gr

| | |
|------------------|-------|
| Calorie (kcal) | 0 |
| Water (g) | 88,34 |
| Energy (g) | 37 |
| Protein (g) | 2,66 |
| Fat (g) | 0,29 |
| Carbohydrate (g) | 7,81 |
| Fiber (g) | 2,7 |
| Iron(mg) | 1,15 |
| Magnesium (mg) | 16 |
| Potassium (mg) | 359 |
| Sodium (mg) | 3 |
| Vitamin B-6 (mg) | 0,1 |
| Vitamin E (mg) | 0,001 |

Source: Widyastuti & Tjokrokusumo, 2021

4.2.2 Nutrition calculation

The benefits of enoki mushrooms are very good for the body, which are the low fat content, contains no cholesterol and also the high fiber content. The high fiber content can facilitate digestion and the content of other enoki mushrooms which are very good for the body (Widyastuti & Tjokrokusumo, 2021).

Table 4. 3 Nutritional Value of Ingredients Used In the Recipe For Vegan Lemper

| Ingredients | Calori -es (Cal) | Carbohy -drate (g) | Protein (g) | Fat (g) | Sug- ar (g) | Fiber (g) | Sodium (mg) |
|----------------------------------|---------------------------------|-----------------------------------|------------------------|--------------------|----------------------------|----------------------|------------------------|
| Shirataki rice (200gr) | 20 | 6 | | | | 6 | |
| Coconut milk (30gr) | 69 | 1.7 | 0.7 | 7.2 | 3.3 | 0.66 | 4.5 |
| Water (300ml) | | | | | | | 20 |
| Psyllium husk (1tbs) | 9 | 4.1 | 0.2 | 0.1 | | 4.0 | 6 |
| Jelly powder (1tbs / 10gr) | 1 | 0.3 | | | 0.1 | | |
| Glutinous rice flour | 125 | 27 | 2.01 | 0.21 | | | |

| | | | | | | | |
|---|------------|---------------|--------------|--------------|--------------|--------------|---------------|
| (3tbs / 35gr) Carboxymethyl Cellulose Salt (1tps) | | | | | | | 2325 |
| Bay leaves (2psc) Lemongrass (2psc) Lime leaves (1psc) | | | | | | | |
| Enoki mushrooms (350gr) | 105 | 21 | 10.5 | | | 3.5 | |
| Shallots (8psc) | 145 | 35 | 3,2 | 3.3 | 15 | 6 | 10 |
| Garlic (5psc) | 20 | 4.95 | 0.95 | 0.1 | 0.15 | 0.5 | 5 |
| Ceyenne pepper (6psc) | 16 | 4.38 | 0.93 | 1.56 | 2.49 | 0.72 | 4.2 |
| Candlenuts (3psc) | 35 | 0.69 | 0.46 | 3.6 | 0.2 | 0.5 | |
| Ginger (2cm) Galangal (2cm) | | | | | | | |
| Cooking oil (2tbs) | 180 | | | 20 | | | |
| White pepper (1tps) | 10 | 2 | | | | | |
| Sugar (1tps) | 16 | 4.2 | | | 4.2 | | |
| Mushroom powder (1tps) | 20 | 2 | 0.3 | 0.5 | | | 150 |
| Total | 771 | 113.32 | 19.25 | 36.57 | 25.44 | 21.88 | 2524.7 |

4.2.3 Nutrition label

| Nutrition Facts | |
|---|---------------|
| 3 servings per container | |
| Serving size | (100g) |
| Amount Per Serving | |
| Calories | 60 |
| % Daily Value* | |
| Total Fat 3g | 4% |
| Saturated Fat 0g | 0% |
| <i>Trans</i> Fat 0g | |
| Cholesterol 0mg | 0% |
| Sodium 0mg | 0% |
| Total Carbohydrate 10g | 4% |
| Dietary Fiber 2g | 7% |
| Total Sugars 0g | |
| Includes 0g Added Sugars | 0% |
| Protein 2g | 4% |
| Vitamin D 0mcg | 0% |
| Calcium 0mg | 0% |
| Iron 0mg | 0% |
| Potassium 0mg | 0% |
| <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 Plant Based Vegan Lemper

4.3 Food safety and packaging

4.3.1 Processing and storage temprature

Vegan lempur consists of boiling, steaming, sautéing, printing, wrapping, and baking. Each cooking method has its own uses that make vegan lempur become a delicious food and is popular with many people. Having to prioritize consistency in quality, taste, and cleanliness to make vegan lempur flavor is important because we have to make lempur with a good taste. Besides the taste, we have to pay attention on the quality of the texture. We have to make the lempur texture chewy, sticky, and soft even though it's vegan. The lempur that we make is a healthier and more calorie version. We have to make vegan lempur with a taste, quality and texture that is almost the same as the texture of lempur in general. In addition to making lempur, we also have to pay attention to cleanliness. We have to maintain cleanliness for the welfare of people who

consume vegan lempur. Hygiene is very important because it is useless if the taste and texture are good, but doesn't maintained properly. The factor that makes our lempur last longer is the cleanliness factor because if the cooking is not clean then the lempur will not last long (Kusmaningtyas, 2013)Aditya, W. U. (2016).

Boiling is the most important step in making vegan lempur. Boiling must use lots of water, which mixed with coconut milk and must be cooked until it is completely cooked to produce lempur which is durable and does not spoil quickly. It because in this step initially shirataki rice is very hard and not chewy. By boiling, it makes the result's texture chewy and not hard. By mixing binding agents (psyllium husk, jelly powder, glutinous rice flour, carboxymethyl cellulose),the result's texture makes shirataki rice chewy, soft and sticky like lempur in general. The water content absorbed by shirataki rice produces a good vegan lempur texture. It is the same with the steaming process that can makes the result's texture being very soft and easy to shape (Kusmaningtyas, 2013).

The glutinous rice flour makes the texture of the vegan lempur become sticky. So when we do the shaping process, we can use the spoon then spread it into the banana leaves. The next process is put the enoki mushroom filling above the shirataki rice then roll it up. After that, we can wrap it in the banana leaves and seal with toothpicks. The toothpicks is used to keep it safe so the contents inside wont spill out. The next process is grill the lempur to get a smoky aroma, which can attract consumer. Sometimes, when the lempur is not cooked well and properlu, the result is not good too. It makes the shirataki rices can't be dense and hard, the texture will be break too. (Seldianto et al., 2022)

4.3.2 Self life

Vegan lempur is categorized as a wet snack because the main ingredients in shirataki rice are made from water and neoki mushrooms,which use a lot of water and coconut milk. The coconut milk only lasts 24 hours at room temperature and also 48 hours if it is put in the chiller, 7 days if it is put in the freezer. So there's no air gets into the vegan lemperto make the vegan lempur last longer. Namely 4 days if in a vacuum pack for the best consumption, not more

than a day because if the lempur is stored for too long, it is not consumed immediately, there will be a change in taste and texture due to the ingredients. The ones used cannot last long, if you want to enjoy vegan lempur, if you want to consume it, you can preheat it using a microwave for 30 seconds, and if it's frozen, you can preheat it using a microwave for about 5 minutes. It is recommended to consume the lempur in warm conditions because it is much tastier. If it feels like the vegan lempur has changed in taste, the taste tastes sour, the texture is slimy and the smell is a little sour, so don't eat the vegan lempur. (Hui Min Yu et al., 2020)

4.3.3. Product packaging

Food packaging has many functions, namely to keep food clean and food free from animals and also to keep food clean. Food packaging is used to protect food along the supply chain. Otherwise, the handling of food products can be costly and inefficient. In addition, food packaging is to protect food from possible harm; such as physical, chemical, or even microbiological; which can have an impact on the quality and safety of the food itself. The selection of food packaging materials must consider costs, product quality, and their ability to protect food (Alamri & Qasem, 2021).

Vegan lempur is a snack that can be consumed as a stomach booster when you are hungry, vagen lempur is a traditional food that is made more attractive and a bit modern because vegan lempur is made with new innovations that are more calorie and vegan friendly because we make vegan lempur according to existing orders and generally vegan lempur is packaged using only banana leaves and then put in plastic with a seal, so here I am making a new innovation by making lempur more modern by packing vegan lempur using packaging that is environmentally friendly and not harmful to the environment around my packaging I don't use plastic for this use because plastic is considered not good for the environment and difficult to decompose, I use pacakaging which uses the main ingredient using cardboard, the packaging that I make is also considered better than using plastic and also the cardboard material that I made is also heat resistant and it can be put

in the microwave because some people prefer to consume vegan lempur warmly, so the package that I chose can also be put in the microwave. (Alamri & Qasem, 2021)

Bagasse clamshell containers are 15 cm long and 7 cm high (500ml). This packaging is very environmentally friendly because the material is made of



Figure 4. 2 Bagasse Clamshells Containers 500ml cardboard which is very easy to decompose and is also eco friendly

Figure 4. 3 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 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 250 recipes per month, which are 120 pcs per day or 3000 pcs per month.

1. Start-up capital

Table 4. 4 Start-up Capital

| Total and equipment | Quantity | Price (/unit) | Sub total |
|---------------------|----------|---------------|------------|
| Chef knife | 1 | Rp 95.000 | Rp 95.000 |
| Cutting board | 1 | Rp 30.000 | Rp 30.000 |
| Bowl | 2 | Rp 12.000 | Rp 24.000 |
| Sauce pan | 1 | Rp 125.000 | Rp 125.000 |
| Wooden Spatula | 1 | Rp 23.000 | Rp 23.000 |
| Blender | 1 | Rp 219.000 | Rp 219.000 |
| Steamer | 1 | Rp 43.000 | Rp 43.000 |
| Frying pan | 1 | Rp 109.000 | Rp 109.000 |
| Spoon | 2 | Rp 3.000 | Rp 6.000 |

| | | | |
|-----------------|-----|--------------|-------------------|
| Small container | 1 | Rp 15.000 | Rp 15.000 |
| Packaging | 100 | Rp 1.200 | Rp 120.000 |
| | | Total | Rp 809.000 |

2. Packaging cost

Table 4. 5 Packaging Cost

| Packaging | Quantity | Price (/unit) | Sub Total |
|---------------------|----------|---------------|---------------------|
| Safe eco packaging | 1000 | Rp 1.200 | Rp 1.200.000 |
| Plastic bag cassava | 1000 | Rp 500 | Rp 500.000 |
| | | Total | Rp 1.700.000 |

3. Utility cost

Table 4. 6 Utility Cost

| Facility | Quantity | Price (/unit) | Sub Total |
|-------------|----------|-----------------------|-------------------|
| Water | 750 | Rp 2.000 (/m3) | Rp 1.500 |
| Electricity | 5kwh | Rp 1.500 (/kWh) | Rp 7.500 |
| | | Total (/day) | Rp 9.000 |
| | | Total (/month) | Rp 225.000 |

4. Raw material cost

Table 4. 7 Raw Material Cost

| Raw materials | Quantity | Price (/unit) | Sub total |
|-------------------------|--------------|-------------------|------------|
| Shirataki rice | 2000g | Rp 47.500(250g) | Rp 380.000 |
| Psyllium husk | 10tbs (10g) | Rp 2.500(100g) | Rp 2.500 |
| Jelly powder | 10tbs (10g) | Rp 2.000(10g) | Rp 2.000 |
| Glutinous rice flour | 40tbs (40g) | Rp 12.000(500g) | Rp 960 |
| Coconut milk | 300ml | Rp 4.500(250ml) | Rp 5.400 |
| Lime leaves | 20pcs (25g) | Rp 2.000(100g) | Rp 500 |
| Carboxymethyl cellulose | 20gr | Rp 10.000(43g) | Rp 4.600 |
| Enoki mushroom | 3500gr | Rp 5.000(100g) | Rp 175.000 |
| Banana leaves | 2500gr | Rp 4.000(250g) | Rp 40.000 |
| Water | 1000ml | Rp 15.000(1000ml) | Rp 15.000 |
| Red chillies | 80psc (100g) | Rp 10.000(250g) | Rp 4.000 |
| Cayenne pepper | 6psc (750g) | Rp 12.000(250g) | Rp 36.000 |
| Shallots | 50pc(100g) | Rp 10.000(250g) | Rp 4.000 |
| Garlic | 30psc(75g) | Rp 12.000(250g) | Rp 1.920 |
| Candlenut | 30psc(40g) | Rp 9.000 (250g) | Rp 1.440 |

| | | | |
|----------------------|-------------|---------------------|----------|
| Bay leaves | 30psc(5g) | Rp 2.000(100g) | Rp 100 |
| Lemongrass | 10psc(50g) | Rp 2.000(100g) | Rp 1.000 |
| Ginger | 30cm(45g) | Rp 4.000(100g) | Rp 1.800 |
| Galangal | 30cm(45g) | Rp 4.000(100g) | Rp 1.800 |
| Cooking oil | 20tbs (25g) | Rp 14.000(1000ml) | Rp 350 |
| Mushroom powder | 10tsp (10g) | Rp 10.000(100g) | Rp 1.000 |
| Salt | 10tsp(10g) | Rp7.000(250g) | Rp280 |
| Sugar | 10tsp(10g) | Rp14.000(1000g) | Rp140 |
| Gas (3kg) | 2kg | Rp18.000(3kg) | Rp12.000 |
| Total(/day) | | Rp687.790 | |
| Total(/month) | | RP17.194.750 | |

5. Total cost

Variable cost = raw material cost, packaging cost, and utility cost

Total cost (/month) = raw material + packaging + utility
= Rp17.194.750 + Rp1.700.000 + Rp225.000
= **Rp19.119.750**

4.4.2 Selling price

$$\text{Product price} = \frac{\text{Total cost (per month)}}{\text{Total products unit (per month)}}$$

$$= \frac{19.119.750}{3000 \text{ portions}}$$

$$= \text{Rp}6.373 \text{ /pcs}$$

$$\begin{aligned} \text{Product selling price} &= \text{product price} + \frac{\text{product price} \times X}{\text{Profit percentage}} \\ &= \text{Rp} 6.373 + (\text{Rp}6.373 \times 100\%) \\ &= \text{Rp}6.373 + 6.373 \\ &= \text{Rp}12.746 \qquad \qquad \text{Rp13.000} \end{aligned}$$