CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

White beans and carrots are the major materials used to make vegan nuggets, and their nutritional worth relies on those nutrients. This main ingredient is is potential to be alternative food because of the benefits that gived. White bean extracts have been utilized as a commercial dietary supplement to lower postprandial glucose levels. White beans aid in regulating their blood sugar levels. White beans have the potential to affect, body weight, or body fat. (Yanli Ma, dkk).

Also the ingredient suits the flavour to replace the ingredient in the nuggets. A source of many nutrients is carrots. They are a significant root vegetable that is abundant in naturally occurring bioactive chemicals known for their beneficial impacts on health and nutrition. Carotenoids, anthocyanins, and other phenolic compounds are only a few of the astonishing variety of phytochemicals that may be found in carrots. When added to the diet, the vegetable becomes a good source of nutritional antioxidants. Carotene, vitamin E, and anthocyanin are the antioxidants that are present in carrots in the highest concentrations. Due to their nutritional makeup and antioxidant capability, carrots are thought to have a number of health benefits, including the ability to prevent cancer and certain types of heart disease. (Geetha Shree Nagraj, dkk).

4.2 Nutrition Fact

4.2.1 Nutrition Table

The nutritional value of vegan nugget is as follows:

Table 4. 1 Nutrition Value of white beans per 100 g

Nutrition	Total/100gr
Calories (kal)	333
Carbohydrates (g)	51
Fat (g)	1,4
Vitamin B6 (mg)	0,318
Water (mg)	10
Carbon	3,7
Protein (g)	22

White beans contain a lot of good ingredients, where white beans have good vitamins and protein to replace meat in nuggets. White beans are legumes that are high in carbohydrates and protein, where there are 51 g of carbohydrates, 22 g of protein and other good nutrients.

Table 4. 2 Nutrition Value of carrots per 100 g

Nutrition	Total/100gr
Calories (kal)	42,00
Carbohydrate (gr)	9
Fat (gr)	0,2
Protein (gr)	1
Calsium (mg)	33
Phosphor (mg)	35
Iron (mg)	0,66
Vitamin A (SI)	835
Vitamin B (mg)	0,6
Vitamin C (mg)	1,9
Water (g)	88,20

The carrot plant is a good provider of vitamin A and other essential elements for the body. The high concentration of carotene, a chemical form of vitamin A, in carrot tubers results have high in vitamin A content in the vegetable. Also carrots have a 4.200 calories, 9g carbohydrate, 0,2 g fat, 1 g protein, 33 mg calsium, 35 mg phospor, 0,66 mg iron, 835 SI vit a, 0,6 mg vit b, 1,9 mg vit c, 88,20 g water. (Rahmayani1 , dkk)

4.2.2 Nutrition Calculation

Table 4. 3 Nutritional Value of Ingredients used in The Recipe for vegan nuggets

Ingredients	Calories (Kkal)	Carbohydrate (Gr)	Protein (Gr)	Fat (Gr)	Sugar (Gr)	Fiber (Gr)	Sodium (Gr)
Carrots 150 gr	41	9,58	0,93	0,24	4,54	2,8	69
Cauliflower 100 gr	25	5,3	1,98	0,1	2,4	2,5	30
Cannellini beans 200 gr	666	102	44	2,8	-	-	-
Salt 5 gr	-	-	-	-	-	-	2,325mg
Black pepper 5 gr	5	1,36	0,23	0,07	0,01	0,6	1
Bread crumbs 50 gr	191,5	34,2	7,1	2,7	2,87	2,45	879,5mg
Tapioca flour 30 gr	108	26,7	-	-	-	-	3
Garlic powder 5 gr	16,6	3,6	0,84	0,03	1,2	-	1,3
Maizena 20 gr	360	89	1	-	-	7	-
Chickpea flour 100 gr	387	57,8	22,3	6,69	10,85	10,8	64
Water 100 ml	-	-	-	-	-	-	2

Oil 11 ml	90	-	-	10	-	-	-

4.2.3 Nutrition Label

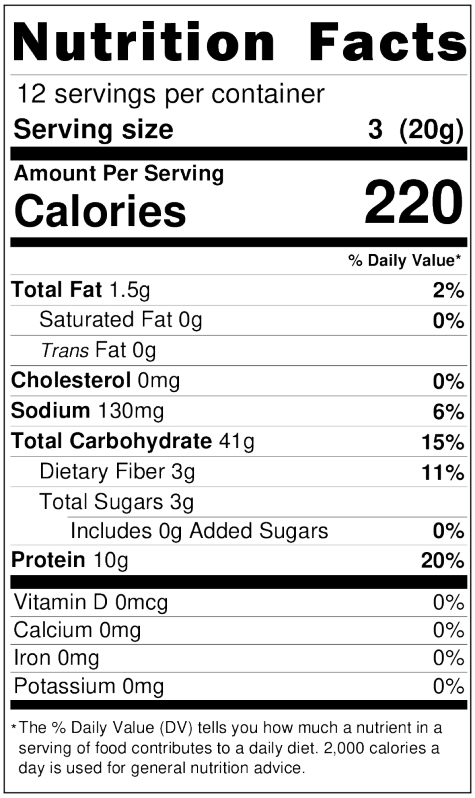


Figure 4. 1 Nutrition Fact of vegan nugget

4.3 Food Safety and Packaging

4.3.1 Processing and Storage Temperature

There are various steps involved in creating nuggets, there are material weighing to ensure that there are no errors in the production of nuggets, all materials used in the process are accurately weighed. Second, grinding is done to make the ingredients smaller. Third, Ingredient blending. White beans and carrots are the main ingredients in producing nuggets, along with optional additives like spices and binders. All of the ingredients are mixed together, and then the mixture is stirred until it is uniform. Four, coating. Making nuggets requires a procedure called coating, which entails two steps: dipping the dough for the nuggets in chickpea flour and then coating it with bread flour. To get the bread flour to adhere to the nuggets, the first step is to dip the nuggets in chickpea flour that has been dissolved in water. The most crucial step in the process of creating frozen food items and other food sectors is the bread flour coating, which is the second stage. A coating of bread flour can add crispyness, flavor, and deliciousness to the product.

Nugget should be storage in freezer at minus 10° to keep the quality. (domilli, dkk). Food deterioration is governed by physical and biochemical mechanisms, which freezing foods slows down but does not completely stop. Food deterioration is governed by physical and biochemical mechanisms, which freezing foods slows down but does not completely stop. When handled and prepared appropriately, frozen meals are frequently regarded as having better sensory and nutritional properties than foods stored in other ways. These characteristics depend on the ability to carefully regulate the freezing process, prepare the product before freezing, and store it after freezing. (R.M.George). Freezing is an effective way of food preservation. (Peizhi Zhang, dkk)

4.3.2 Self Life

Vegan nugget is a frozen food product, food products with proven vacuum packaging have longer shelf lives, around 5 days. The shelf life of the nuggets can be seen to be less than one day after storage at room temperature, less than 12 days after storage in a refrigerator, and more than three months after storage in a freezer (domilli, dkk)

4.3.3 Product Packaging

By preventing the introduction of oxygen and contaminated air, packaging can preserve and stop food from spoiling. Correct packaging method that can be used is vacuum packaging. Vacuum packaging eliminates gas and water vapor from the goods being packed. Because vacuum packaging is sturdy, flexible, easy to form, and resistant to penetrate by water and air, it is typically used in conjunction with other types of plastic packaging. On the other hand, modern packaging must serve as a successful means of maintaining the quality of food products as well as raising product pricing, bolstering sales, and disseminating data (Han, 2005). Traditional packaging methods, such as vacuum packing and modified atmosphere packaging (MAP), are still used to package fresh meat and processed meat products, respectively.

The packaging is composed of aluminum foil structurally.It is made of three layers: a printed layer (OPP) that acts as a damp protector, a protective layer (Alu Foil) that shields against air, light, oxygen, and gas, and a coating. The inner layer (PE) serves as a wrapper and sealing layer after that. Alu minium foil coating molecules are chemically and physically structured to inhibit light transmission, oxygen permeation, gas and water vapor through the packaging's walls.

Packaging composed of nylon/vacuum is suitable for semi-wet food like sausages, nuggets, meatballs, presto milkfish, and others. Two layers make up packaging composed of nylon and vacuum, notably an inner layer (PE) that serves as packaging and a seal and an air protecting layer. (Imam Budi Mulyawan, dkk)

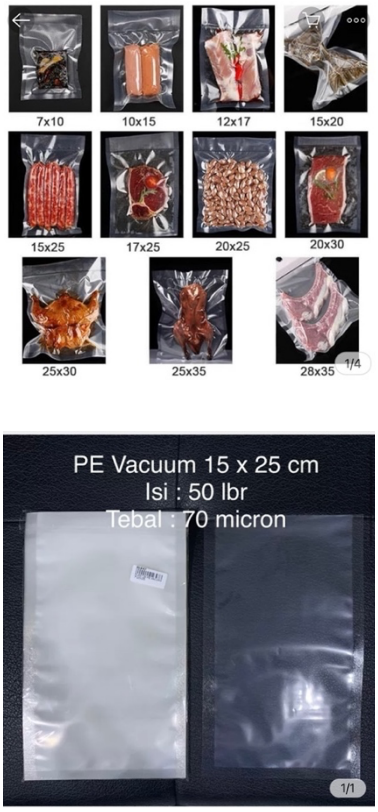
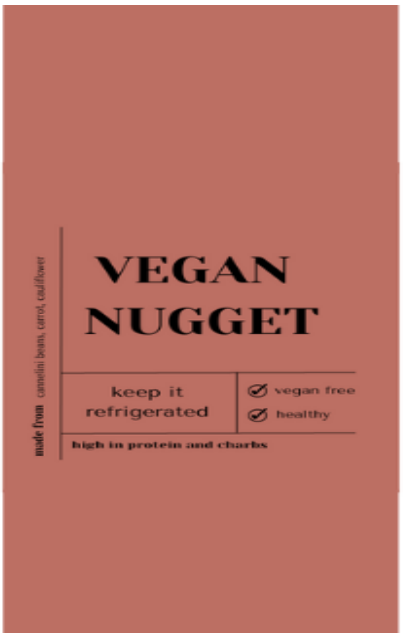


Figure 4. 2 PE Vacum packaging

There also product label that provide in packaging, this can help the costumer to know the identity for our product.



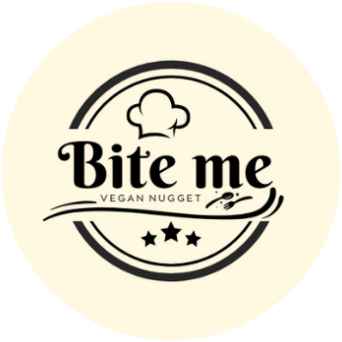


Figure 4.3 Logo

4.4 Financial Aspects

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

Product costs are costs calculated from total expenses per month, where expenses include raw materials, labor, packaging costs, and utilities. the cost of work is calculated according to working days per month, which is 30 days. while raw materials are calculated according to the recipe where 5 recipes are used per day, and if a total is used in a month 150 recipes, as many as 10 portions per day and 300 portions for 1 month.

1. Start-Up Capital

Table 4. 4 Start-Up Capital

Tools and equipment	Quantity	Price (unit)	Sub total
Food procesor	1	47.000	47.000
Bowl	10	3.800	38.000
Spoon	10	4.500	45.500
Pan	2	100.000	200.000
Knife	2	37.000	74.000
Cutting board	2	26.000	52.000
Peeler	1	28.100	28.100
Measuring cup	1	14.900	14.900
Tongs	1	35.350	35.350
Digital scale	1	100.000	70.000
		TOTAL	604.850

2. Labour Cost

Table 4. 5 Labour Cost

Occupation	Personnel	Salary/month	Sub total
cooking staff	2	1.500.000	3.000.000
admin	1	1.000.000	1.000.000
		TOTAL	4.000.000

3. Packaging Cost

Table 4. 6 Packaging Cost

Packaging	Quantity/per day	Price/per unit	Total
Plastic vacuum bag	10 pcs	36.350/50 pcs	7.270
Plastic bag	10 pcs	15.000/50 pcs	3.000
Sticker logo	10 pcs	10.000/40 pcs	2.500
Nutrition pack logo	10 pcs	15.000/10 pcs	15.000
		TOTAL	27.770
		TOTAL/MONTH	883.100

4. Utility Cost

Table 4. 7 Utility Cost

Facility	Quantity/per day	Price/per unit	Total
Water	750 L	2000/m3	1.500
Electricity	10 kwh	1.500/kWh	15.000
LPG	400 gr	160.000/3kg	21.300
		TOTAL	37.800
		TOTAL/MONTH	1.134.000

5. Raw Material Cost

Table 4. 8 Raw Material Cost

Raw Materials	Quantity	Price/unit	Sub Total
Carrots	750g	5000/250gr	15.000
Cauliflower	500g	30.000/1kg	15.000
Cannelini beans	1kg	50.000/500gr	100.000
Salt	5g	5000/250gr	100
Black Pepper	5g	30.000/100gr	1.500
Bread crumbs	250g	12.000/500gr	6.000
Tapioka flower	150g	7000/500gr	2.100
Garlic powder	5g	23.700/80gr	1.481
Maizena	100g	21.000/1kg	2.100
Chickpea flour	500g	27.000/500gr	27.000
Water	500 ml	4.500/600ml	5.250
Oil	25ml	16.000/1000ml	800
		TOTAL/DAY	176.331
		TOTAL/MONTH	5.289.930

7. Total Cost

Fixed Cost = Labour Cost

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

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

= 4.000.000+5.289.930+883.100+1.134.000

=11.307.030

4.4.2 Selling Price

Product price $= \frac{total\ cost/month}{total\ product\ unit/month}$

$= \frac{11.307.030}{300}$

$= 37.690$

Product selling price = product price + $(product\ price\ x\ profit\ precentage)$

= 37.690 + (37.690x 50%)

= 37.690 +18.845

= 56.535