

CHAPTER IV

RESULT AND DISCUSSION

4.1 Product Result

Wine is a unique drink because it is made from fruit juice that is fermented for a few weeks even a year and this drink absorb the characteristic of the fruit that is used to make the wine . This tropical citrus wine is made using 3 kinds of citrus fruits such as, Jeruk keprok that gives sweet taste, Jeruk manis baby pacitan for its sour taste and acidity and also limau for its aromatic compound. The result of this project is the aromatic compound from the limau is quite there giving it fresh and citrusy scent. But for the taste it is quite bitter because of the jeruk baby pacitan that can be bitter if its left for a few days. The fermenting period of this wine is 1 week with alcohol content of 4.5%.

4.2 Nutrient Facts

4.2.1 Nutrition Table

The nutritional value of Jeruk Keprok is as follows

Table 4.1 Nutritional value of Jeruk Keprok per 100 gr

Calorie (cal)	53
Fat (g)	0.3
Carbohydrates (g)	13
Protein (g)	0.8
Sodium (mg)	2
Calcium (mg)	37
Potassium (mg)	166
Iron (mg)	0.2

The nutrition value of Jeruk Limau is as follows

Table 4.2 Nutrition Value of Jeruk Limau per 100 gr

Calorie (cal)	27.5
Fat (g)	0
Protein (g)	0.5
Carbohydrate (g)	9.25
Fiber (g)	0.5

The nutrition value of Jeruk Manis is as follows

Table 4.3 Nutrition Value of Jeruk Manis per 100 gr

Calorie (cal)	47
Fat (g)	0.12
Protein (g)	0.94
Carbohydrate (g)	11.75
Kalium (mg)	181

Sweet orange baby java has high vitamin content between Another vitamin C namely (53.2 mg), vitamin A (11mg), potassium (181 mg), and calcium (40mg). (*Tetri Widiyani Et al .,2022*)

4.2.2 Nutrition Calculation

The nutrition value of ingredients used in the making of Tropical citrus wine

Table 4.4 Nutritional Value of Ingredients used in The making of tropical citrus wine

Ingredients	Calories (cal)	Carbohydrate (g)	Prot ein (g)	Fat (g)	Fiber (g)	Sodium (mg)	Vitamin C (mg)
Jeruk Keprok (250ml)	108	50	1.3	0.5	0.5	2.5	77.5
Jeruk Manis (200g)	94	23.5	1.88	0.24	2.8	2.8	100
Granulated sugar (70g)	271	70	0	0	0	0.7	0
Limau (25g)	6.9	0.9	0.1	0	0.1	0.3	28.3
Yeast (0.2g)	0.8	0.1	0.1	0	0.1	0.1	0
TOTAL	480.7	144.5	3.38	0.74	3.5	6.4	205.8

4.2.3 Nutrition Label

Nutrition Facts	
Portion Size	225 g
Amount Per Portion	
Calories	238
% Daily Value *	
Total Fat 0.5g	1 %
Saturated Fat 0.1g **	0 %
Sodium 2.6mg **	0 %
Total Carbohydrate 59g	21 %
Dietary Fiber 0.5g	2 %
Sugar 56g **	
Protein 1.4g	3 %
Vitamin D 0mcg **	0 %
Calcium 34mg **	3 %
Iron 0.5mg **	3 %
Potassium 425mg **	9 %
<small>* The % Daily Value (DV) tells you how much a nutrient in a serving of food contribute to a daily diet. 2000 calories a day is used for general nutrition advice.</small>	
<small>** Amount is based on ingredients that specify value for this nutrient and 0 for those that don't.</small>	

Figure 4.1 Nutrition Fact of Tropical citrus fruit wine

4.3 Food Safety and Packaging

4.3.1 Processing and Storage Temperature

The production process of this Tropical citrus wine is going through The bottling process which is putting the fruit juice into the bottle with the sugar and yeast. And then after that there is the fermentation period that is going on for about 8-14 days until the yeast finish eating the sugar inside the bottle and turning the glucose into alcohol.

Usually the storing condition for the wine is in a room temperature. And if it is using a cork then the condition of the room must be in a humid condition to prevent it from drying and we should keep it away from direct sunlight and fluorescent light, which can make the wine age prematurely and develop off-flavours.

4.3.2 Shelf Life

The shelf life of this fruit wines is around 6 six months because of the low alcohol level because the alcohol percentage of an alcoholic beverage can affect the shelf life. Higher alcohol content can help extend the shelf life of wine by inhibiting microbial growth, while lower alcohol content can lead to spoilage. However, other factors such as storage conditions and method of production can also affect the shelf life of alcoholic beverages. And the packaging of the beverage also got a role in the effect of the storing of the beverage because if the lid is air tight the bacteria can not grow because of the lack of oxygen inside of the bottle. And the storing condition of the beverage must be in a humid condition if using a wooden cork so the cork keeps moist and not break. Also when exposed to direct sunlight it can make the drinks spoil. So it is better when keeping it keep it away from direct sunlight.

4.3.3 Product Packaging

Wine packaging plays a crucial role in the wine industry, and different packaging systems can have varying impacts on the environment and economy. A study compared eight different wine packaging systems in terms of environmental and economic sustainability using a life cycle assessment (LCA) and life cycle costing (LCC) approach. (*Carmen Ferrara et al., 2023*). Classically the packaging of this wine use a glass bottle that is closed using a wooden cork to keep the oxygen from going to the inside of the bottle. But there is also other alternative other than using a glass bottle with a wooden cork, such as using an aseptic carton. The one that is used for this project is a glass bottle with the capacity to hold 500 ML of

liquid and sealed with cork that have 2 part, one part made of wood and the other part that is in the inside of the bottle made of plastic.



Figure 4.2 Glass Bottle Packaging

On the side of the bottle there is a packaging label that contain information such as Name of the product, Ingredient, logo, and nutrition fact.

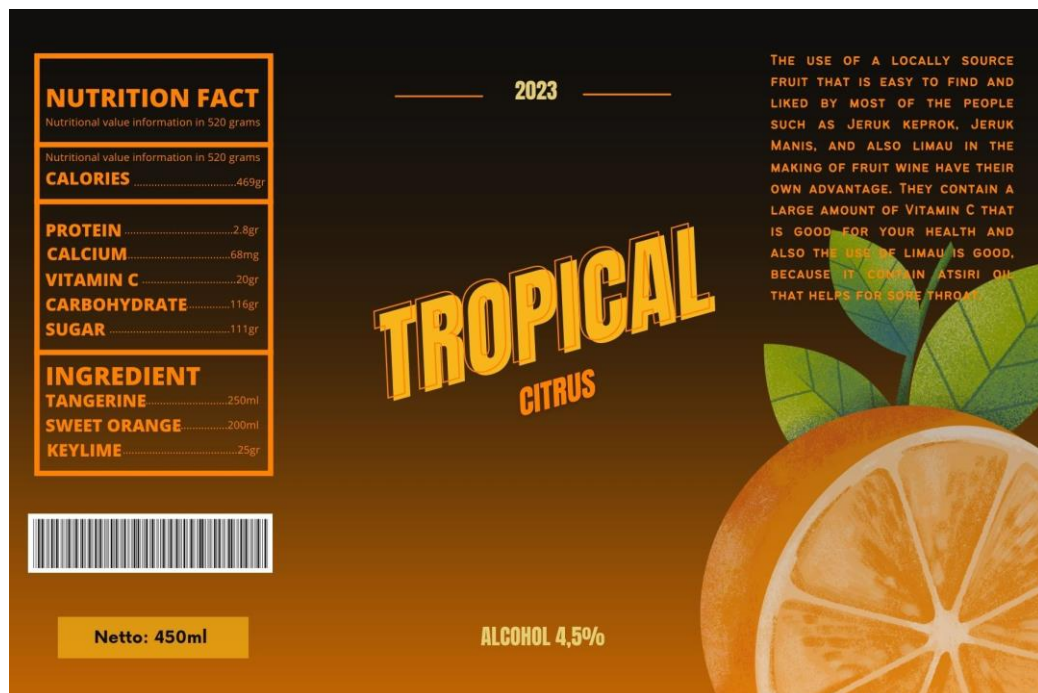


Figure 4.3 Packaging Label

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 raw material cost is, is counted as 5 lt per day, the working day is 5 days a week.

1. Start-Up Capital

Table 4. 1 Start-Up Capital

Tools and Equipment	Quantity	Price (/unit)	Sub Total
Glass Jar 5L	7	Rp. 138.000,00	Rp. 966.000,00
Airlock	7	Rp. 19.500,00	Rp. 136.500,00
Refractometer	1	Rp. 250.000,00	Rp. 250.000,00
Rubber Ring Seal	7	Rp. 10.000,00	Rp. 70.000,00
Digital Scale	1	Rp. 68.000,00	Rp. 68.000,00
Orange Juicer	1	Rp. 399.000,00	Rp. 399.000,00
Cutting Board	1	Rp. 25.000,00	Rp. 25.000,00
Knife	1	Rp. 200.000,00	Rp. 200.000,00
Strainer	1	Rp. 60.000,00	Rp. 60.000,00
Funnel	1	Rp. 20.000,00	Rp. 20.000,00
Bowl	1	Rp. 9.500,00	Rp. 9.500,00
Spoon	2	Rp. 5.600,00	Rp. 11.200,00
Sauce Pot	1	Rp. 200.000,00	Rp. 200.000,00
TOTAL			Rp.2.415.200,00

2. Packaging Cost

Table 4. 2 Packaging Cost

Packaging	Quantity	Price (/unit)	Sub Total
Glass Bottle	10	Rp.19.950,00	Rp. 199.500,00
Sticker Logo	10	Rp. 600,00	Rp. 6.000,00
Sticker Label	10	Rp. 250,00	Rp. 2,500,00
TOTAL (/day)			Rp. 208.000,00
TOTAL (/month)			Rp. 4.576.000,00

3. Utility Cost

Table 4. 3 Utility Cost

Facility	Quantity	Price (/unit)	Sub Total
Water	2 m ³	Rp 2.100,00/ m ³	Rp. 4.200,00
Gas	50 gr	Rp. 188.000,00/3 Kg	Rp. 3.133,00
TOTAL (/day)			Rp. 7.333,00
TOTAL (/month)			Rp.161.326,00

4. Raw Material Cost

Table 4. 4 Raw Material Cost

Ingredients	Quantity	Price (/unit)	Sub Total
Jeruk	2.850 gr	Rp 30.000,00 /kg	Rp. 85.500,00
Keprok			
Jeruk Manis	2.280 gr	Rp. 19.900,00/kg	Rp. 45.372,00
Limau	250 gr	Rp. 30.000/ 1kg	Rp. 7.500,00
Sugar	700 gr	Rp. 14.500,00/1 kg	Rp. 10.150,00
Yeast	2 gr	Rp. 30.00,00/ 10 gr	Rp. 6.000,00
Alcohol	50 ml	Rp. 20.246,00/ 100 ml	Rp. 10.123,00
TOTAL (/Day)			Rp. 164.145,00
TOTAL (/Month)			Rp. 3.611.190,00

5. Total cost

Variable Cost = Raw Material, Packaging, Utility Cost

Total Cost (/month) = Raw Material + Packaging + Utility
= Rp.3.611.190,00+Rp.4.576.000,00+
Rp.161.326,00
= Rp. 8.348.516,00

4.4.2 Selling Price

Product Price = $\frac{\text{Total Cost (/month)}}{\text{Total Product Units (/month)}}$
= $\frac{\text{Rp. 8.348.516,00}}{220}$

= Rp. 37.947.80

= Rp. 38.000,00

Product Selling Price = Product Price + (product price × profit percentage)

= Rp. 38.000+ (Rp38.000× 150%)

= Rp. 38.000+ Rp. 57.000

= Rp 95.000 / Bottle

= Rp.100.000,00/ Bottle