

Empowerment of Processing Small Businesses Basic Ingredients *Caulerpa* sp.

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Abstract: The more developing of business world, to make increasing the tighter business competition, so that business people must be careful in seeing any opportunity. Seaweed is fisheries product which is abundant in Indonesia, as well as *Caulerpa* sp. Seaweed type *Caulerpa* sp. can be processed into various types of food and has the opportunity to generate profits. Small business that were formed after participating in training in 2018 have 5 members. From the result of the training, we have developed for other businesses, the processing of "latoh noodles" which are made from *Caulerpa racemosa* seaweed. *Caulerpa racemosa* has the potential as a food raw material because it has various advantages including the high nutrient content with 25.61% protein content, 30.67% fiber, 25.86% weightless extract without nitrogen (BETN), 4.27% water content and fat. 3.16%. Latoh noodle processing can be provided business opportunities. The working capital of IDR 1,505,670 with a total production of 720 packs of noodles will generate a profit of IDR 294.20 per month.

Key words: *Caulerpa racemosa*, effort analysis, seaweed

1. Introduction

Noodle is one of food product which is came from China, made from flour and looks like rope. This type of food has been very well known by almost all of Indonesian people. Generally dried noodle circulated in market, made from flour as the main ingredients. Its chemist composition is not contain of vitamin A. It's different if the main ingredients of noodle come from high quality selection of wheat seed. It is nutrient source that able to provide energy to the body and also help fixed the texture and adding the flavor of food raw material.

Seaweed has commonly used by Indonesian people, especially coastal and islands people since hundreds years ago. The usage of seaweed as food raw material has been used but the usage is still limited for vegetables or side dish. Nutrient content of seaweed consist of carbohydrate, protein, little bit of fat and ash

(which is natrium and kalium salt compound). Seaweed in nutrition science more known has crude fiber content value which is important used as basic functional food therapy which can be used in obesity patien [1].

One of seaweed type which can be used as additional food raw material is latoh. Latoh is one type of seaweed which is lives attached on bottom waters and its scientific name is *Caulerpa* sp. Seaweed type *Caulerpa* sp. include into green algae, sheet shaped thalli (branch), bars and circles, soft till hard and syphonous structure. Whole part of seaweed *Caulerpa* sp. consist of assimilator and ramuli which forms circles looks like grapes, so commonly called as sea grapes. *Caulerpa* sp, or commonly called as latoh by Javanese coastal people especially Jepara, lawi-lawi (Sulawesi), Bulung Boni (Bali), in fact has been known since long time ago by coastal people and it has been used directly nor indirectly as daily food raw material souce. Latoh looks like fish egg and green coloured which people commonly use it as daily side dish that can be consumed directly in raw condition or served with fish

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and rice. In America and Europe, lath known as green caviar and in some Asia's countries despite consumed by people, it's also used as medicine of some diseases. Types of seaweed which is potentially to be cultivated is *Caulerpa* sp., *Eucheuma* sp. and *Gracilaria* sp. *Caulerpa racemosa* is potentially as food raw material because it has some excellences, among of them nutrient content with high level of protein 12.88-30.33%, carbohydrate 27.20-48.10% and fat 0.30-2.64%.

In order to increase its value added and sale value, hence business development of seaweed cultivation, should be followed with its processing industrial development. The potency of seaweed resource in Indonesian waters quite huge and the needs of its processed products, both at home and abroad is quite high. Till now, seaweed production result mostly exported in dry form and only in few quantity has been produced into alginate, carrageenan and agars. Beside being exported in dry form, carrageenan, alginate and agars, seaweed also can be processed into fast food. One of alternative in increasing noodle nutrient value is with adding seaweed, considering seaweed is one of potential commodity and can be mainstay for small and medium scale business development efforts which is usually called as Medium Small Scale Business (MSSB).

The purpose of this activity is to increase the economy of coastal people which is incorporated in to MSSB through processing *Caulerpa racemosa* into noodle form. Despite of increasing nutrient value of noodle, it's also able to give value added of *Caulerpa racemosa* as raw material with varies kind of processed product and give work chance.

2. Material and Methods

Method of processing activity done in socialization and training which is done in two steps. The first step is step of preparation and direct observation of population condition and development of *Caulerpa racemosa* in people's pond.

The following step is collecting the people and then we gave explanation about varies of research related to nutrient content and use of sea grape (*Caulerpa racemosa*) for healthy. Handling technique of sea grape to keep the freshness in more time. Through its handling technique, the freshness of sea grape can be maintained in long time, so the sensation and unique flavor of fresh sea grape can be tasted anytime and anywhere.

Next step is giving training and skill knowledge related to easy and cheap product processing technique and also training related to how to sell product processing result. Result which is achieved from this activity will be descriptive analyzed.

Tools and raw materials which will be used in lath noodle making are as follow:

1) Tools:

- Noodle grinder
- Basin
- Blender
- Knife
- Tray
- Stove
- Steamer

2) Raw materials:

- Seaweed *Caulerpa racemosa*
- Wheat flour
- Salt
- CMC
- Egg whites
- Lemonade/citrus

Step in making of lath noodle are as below:

- Cut fresh seaweed into measurement around 2 cms, wash it until clean, smooth it and then cooks until appear small bubbles. Keep it a side. Wheat flour, salt, CMC mixed into 1 and stirred up till homogeny and add egg whites with keep stirred.
- Batter flaked into sheets with purpose to smoothing the fibers so it will not break easily, then the batter formed using noodle maker.

- The batter sheets which is already tiny, cut elongated using noodle cutter roll.
- After noodle forming, next step is steaming.
- Last step is noodle drying until really dry and packaging.

Feasibility can be estimated by counting Break Event Point (BEP), Benefit Cost Ratio (B/C ratio), and Return Cost Ratio (R/C ratio).

a) BEP

BEP is a type of analyze to determine and looking for some goods and services should sold to customer in certain price to covering appear costs and to get profit. The profit of calculating BEP is to know when does the product result achieve break even point. In other word, BEP is condition where the amount spent same as total income which is accepted from sales result.

b) R/C ratio

R/C ratio analyze is comparison between achieved amount and total production cost or cost balance and revenue. This comparison criteria will be achieved if:

R/C ratio > 1 means profitable venture.

R/C ratio = 1 means unprofitable or profitable venture.

R/C ratio < 1 means unprofitable venture.

c) B/C ratio

B/C ratio use to know the comparison or the profit amount based on total cost issued.

3. Result and Discussion

Considering to seaweed production around MSSB location is huge so this location is very ideal to become development location of processed products diversification using seaweed as raw material. Seaweed processed products which has been developed, i.e., latoh noodle, crackers and cheese stick, and also it has participated in various exhibition events.

Based on Table 1, we got data as follow:

1) Income and profit

If production running 20 days in a month, it will produce 720 pcs latoh noodle with sale price 2.500 IDR/pc, so income in a month will be:

$$\text{Income} = 2.500 \text{ IDR} \times 720 \text{ pcs} = 1.800.000 \text{ IDR}$$

Profit which will be achieved in a month is the difference between income and total production cost, profit for a month is:

$$\begin{aligned} \text{Profit} &= 1.800.000 \text{ IDR} - (2.870 \text{ IDR} + 1.502.800 \text{ IDR}) \\ &= 294.20 \text{ IDR} \end{aligned}$$

2) BEP

$$\begin{aligned} \text{Production BEP} &= \text{total cost} : \text{price} \\ &= 1.505.670 \text{ IDR} : 2.500 \\ &= 602.268 \text{ IDR} \end{aligned}$$

Table 1 Calculation of business latoh noodle production feasibility for each month.

No.	Component	Amount	Price (IDR)	Technical age	Depreciation per month
A. Fixed cost					
1	Blender	1 pc	500.000	1	20.800
2	Stove and gas cylinder	1 pc	1.000.000	10	8.400
3	Knife	2 pcs	50.000	3	1.400
4	Basin	3 pcs	150.000	2	6.250
5	Kitchen set	1 pc	500.000	5	8.400
6	Winnowing	6 pcs	90.000	2	3.750
7	Steamer	1 pc	300.000	3	8.400
Total			2.590.000		57.400
B. Operational cost					
1	Seaweed	12.000 g	180.000		
2	Wheat flour	40.000 g	320.000		
3	Salt	600 g	2.400		
4	CMC	200 g	16.000		
5	White eggs	80 pcs	40.000		
6	Lemon/lime	80 pcs	2.400		
7	Drinking water	8.000 mL	80.000		
8	Packaging	720 pcs	144.000		
9	Sticker	720 pcs	108.000		
10	Man power		500.000		
11	Freshwater		10.000		
12	Electricity		100.000		
Total			1.502.800		
C. Income					
1	Production	720 pcs			
2	Sale per month	2.500	1.800.000		

It's mean with sold price 2.500 IDR, hence the latoh noodle business will have break event when produce as much 602 pcs.

3) B/C ratio

The number of B/C ratio obtained from deviding the profit with production cost, so we got result:

$$\begin{aligned}\text{B/C ratio} &= \text{profit: production cost} \\ &= 294.20 \text{ IDR: } 1.505.670 \text{ IDR} \\ &= 0.195\end{aligned}$$

B/C ratio as much 0.195 showing that with capital 1.00, we will get profit as much 0.195 times of its capital.

4) R/C ratio

Based on calculation result for a month sales, MSSB latoh noodle processed will get total revenue of 1.800.000 IDR and average total production cost is as much 1.505.670 IDR, so the calculation of R/C ratio are as follow:

$$\begin{aligned}\text{R/C ratio} &= 1.800.000 \text{ IDR: } 1.505.670 \text{ IDR} \\ &= 1.19\end{aligned}$$

That R/C ratio amount showing that average of MSSB latoh noodle processed is already efficient and profit because of the R/C ratio amount is more than 1.

4. Conclusion

Utilization rate of sea grape (*Caulerpa* sp.) by public is still low due to public's lack of understanding especially housewives related to nutritional value and various benefits or usage of sea grape for health so with efforts to diversify processed latoh noodle made from

seaweed will have more value and make additional income.

From business feasibility calculation result, obtained that noodle processing business of seaweed *Caulerpa racemosa* gives profit as much 294.20 IDR for each month if operating 20 days within a month with total production as much 720 pcs. Based on calculation of BEP production, 602 pcs is the break event point, while total production of MSSB are 720 pcs.

Latoh noodle processing can give promising business opportunity. With business capital as much 1.505.670 IDR with total noodle production 720 pcs will produce profit 294.20 IDR for a month. Therefore, it needs to be developed and given further training so it can compete with other products that are manufacturer.

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