Building an Entrepreneurship Through Innovation of Healthy Noodles from Various Vegetables

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Abstract. Noodles are food products made from wheat flour which are very popular in the community. Instant noodles are especially popular because they are easy to cook, considerably cheap, and can be stored for a long time. Additionally, they are popular because of their practicality. However, they pose health issues. Most of the noodles sold in the market do not meet the balanced nutritional needs of the body. This condition opens up opportunities to make healthier noodles. Efforts that can be made to increase the nutritional value of noodles include adding vegetables to making noodles. The people's high need and interest in noodle consumption and the relatively small number of healthy noodles on the market that meet people's expectations both in terms of quality and food safety are opportunities for healthy noodle entrepreneurship. This community service activity aims to provide knowledge and skills on how to make healthy noodles from various vegetables and foster an entrepreneurial spirit to develop this healthy noodle business from various vegetables to empower the family economy.

Keywords: various vegetables, entrepreneurship, healthy noodles, empowerment

1 Introduction

Noodles are loved and consumed by almost all people in the world. The growth of the instant noodle industry in the world is very rapid (Owen, 2001). Until recently, the fastest-growing noodles were instant noodles. This is because instant noodles are relatively easy to make, easy to cook, relatively inexpensive, and can be stored for a long time. Dry noodles are usually eaten after being cooked or soaked in boiling water for 3-5 minutes which is then eaten straight from the package (Fu, 2008).

Instant noodles are popular because of their practicality, but they pose health issues. Most of the noodles sold in the market cannot be considered real food because they do not meet the balanced nutritional needs of the body. Noodles made from wheat contain large amounts of carbohydrates but little protein, vitamins, and minerals (Park et al., 2016). This is coupled with spices that may contain a lot of unhealthy substances, such as flavoring and chemical preservatives which can harm the health of the body. Even several noodles are

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indicated to contain dangerous compounds, such as formalin. As referring to BPOM's findings, there are noodles on the market that contain formalin. Formalin is a 40% solution of formaldehyde, belonging to the group of aldehydes or alkanals. The United States Environmental Protection Agency (EPA) and the International Institute for Research on Cancer (IARC) classify formaldehyde as a carcinogenic compound, namely a compound that triggers the growth of cancer. According to the International Program on Chemical Safety (IPCS), the threshold for formalin in the body is 1 mg in food, meaning only 1.4 to 14 mg of formalin can enter the body. When wet noodles are given formalin, they usually last up to 2 days at room temperature and have a chewy taste. If formalin enters the body beyond the threshold, it can cause disturbances in the organs and systems of the body. Formalin, which accumulates in cells, reacts with cellular proteins (enzymes) and DNA (mitochondria and nucleus) (Widyaningsih-Erni, 2006).

Noodles are a very popular food product and are widely consumed by Indonesian people. The world recognizes noodles in a variety of products, such as wet noodles, dry noodles, vermicelli and vermicelli (Qumbisa et al., 2020). Each type of noodle is different in terms of its raw materials and processing systems. Wet noodles and dry noodles are made from wheat flour as the raw material. The difference between the two is that at the end of the process, dry noodles undergo a drying stage before being marketed, while wet noodles do not need to be dried and therefore sold in semi-dry form. There are several advantages of noodles compared to other main food ingredients, including their distinctive taste and their practical package (Farzana et al., 2021). (Santoso et al., 2018). Even though there are advantages of noodles, the nutritional value is very low, especially its protein content. As the main raw materials are wheat flour, tapioca flour or rice flour, the biggest nutrient content in noodles and their processed products is carbohydrates (Ratnasari & Wirawanni, 2012; Arianto, 2013).

Noodles are not only liked by teenagers and adults but also liked by children as the taste is easily liked by all groups. Noodles, especially those that children like, are usually consumed without the addition of other ingredients. Human needs other nutrition besides carbohydrates such as fiber and protein. Fiber can be sourced from vegetables or fruit, both of which are often disliked by children and some people in general. The people's high need and interest in noodle consumption and the relatively small number of noodles on the market that meet people's expectations both in terms of quality and safety is a huge opportunity for entrepreneurship in the healthy noodle business.

Efforts that can be made to increase the nutritional value of noodles include adding vegetables to the raw materials for making noodles (Qumbisa et al., 2020). The fulfilment of the nutritional needs in instant noodles can only be obtained if there are additional vegetables and protein sources. Types of vegetables that can be added are spinach, carrots, mustard greens, tomatoes, cabbage, or bean sprouts. Sources of protein can be eggs, meat, fish, tempeh, or tofu. Noodle ingredients can come from rice, wheat, and starch from potatoes, sweet potatoes, and beans (Yalchin and Basmani, 2008; Tan et al., 2009).

Vegetables are important commodities in supporting national food security. This commodity has a wide variety and acts as a source of food fiber, carbohydrates, vegetable protein, vitamins, and minerals with high economic value. Indonesia's vegetable production increases every year and the consumption is recorded at 44 kg/capita/year. The growth rate of vegetable production in Indonesia ranges from 7.7-24.2% per year. One effective way of preventing disease is through improving community nutrition. The provision of nutritious food can increase immunity against a disease. A popular food among the people that are at the same time liked by children is noodles. Noodles are factory-processed products with factory-standard processing ingredients. The training on processing healthy vegetable-based noodles is expected to increase the nutritional value composition by adding more natural ingredients and manufacturing processes. Increasing the nutritional value obtained from
vegetable-based noodles can provide nutritious intake thereby increasing the body's immunity (Roitt, 2002; Baratawidjaja, 2004).

Healthy noodles are made from natural ingredients, without preservatives, without dyes, and contain vitamins, minerals, and natural fiber. The color of healthy noodles comes from the original color of vegetables. Additionally, the nutritional value of healthy noodles is low in fat. The addition of vegetables to the noodles will certainly add to the nutritional value of the noodles. The nutritional value of each healthy noodle will vary according to the type of vegetables used as noodle raw materials. Among the vegetables that are often added to making noodles is spinach.

The partner in this community service activity was the mother and child monitoring organization of Asma Karima. The problem faced by Asma Karima is that this organization has not been active in holding activities to provide various activities for the community for a while. Additionally, members of this organization do not yet have broad insights and varied skills in making innovations, especially in improving family nutrition. One of the innovations that can be developed is making noodles from various vegetables. Therefore, it is necessary to increase the knowledge and skills of Asma Karima administrators so that they can disseminate their skills to the community in making healthy noodles from various vegetables. If the innovation of making healthy noodles from various vegetables is developed into a business, it will help the family income.

Problems with partners based on the conditions and situation of the community organization of Asma Karima in Gamping District, several problems that arise and must be resolved immediately include: a. How do you increase the knowledge and insight of the management of Asma Karima so that they can play an active role in society again? b. How to improve the skills of Asma Karima administrators through innovation in making healthy noodles from various vegetables? c. How do you manage the innovation of making healthy noodles from various vegetables into a business that can generate income for the family? How do you increase the knowledge and insight of the management of Asma Karima so that they can play an active role in society again? c. How do you manage the innovation of making healthy noodles from various vegetables into a business that can generate income for the family?

Solutions offered to Asma Karima in making healthy noodle innovations from various vegetables were carried out through several stages: 1. Increasing awareness, knowledge and insight conducted through counseling, learning or education methods from resource persons to target partners 2. Increasing skills in making healthy noodles from various vegetables through training for target partners with competent trainers in the fields 3. Making innovation by starting a business of healthy noodles from various vegetables to increase family income. Vegetables were chosen as additional ingredients in making noodles because vegetables have high nutritional value, are easy to obtain and are affordable.

2 Methodology

To achieve the targeted output according to the problems faced, several methods were used which included counseling and introduction of technology, training and practice of applying the technology of making healthy noodles from various vegetables, mentoring, monitoring and evaluation of community service activities.

Counseling and introducing technology included counseling about the correct
consumption of noodles because people still consume instant noodles.

3 Result and Discussion

Potency of Nguntuk-untuk Hamlet

The implementation of the community service activities in Gamping District, Sleman Regency on February 21, 2023, involved the administrators and members of the mother and child monitoring organization of Asma Karima.

The first stage was a material elaboration presented by the community service team through a presentation. The materials presented were as follows: (1) an explanation of the dangers of consuming instant noodles so they have to be replaced with healthy noodles, (2) an explanation of the nutritional content and benefits of mustard greens, carrots, beets and pumpkin as a mixture in making noodles, (3) an explanation of the management of mustard greens into products that have a longer shelf life and higher economic value such as green noodles/mustard greens. The following stage was a question-and-answer session when participants were allowed to ask questions about various things they did not understand about the material. It turned out that the participants had prepared several questions for the community service team. The community service team handled any questions from participants well. The team was able to elaborate and provide feedback to participants who asked satisfactorily. This community service activity provided new knowledge to PKK mothers. The enthusiasm of the residents in participating in this activity should be appreciated. The participants could understand the process of making green noodles well.

The following stage was the practice of making healthy noodles from various vegetables. The vegetables used in this community service activity were mustard greens, beets, carrots, and pumpkins. The materials needed to make wet noodles can be seen in Table 1.

<table>
<thead>
<tr>
<th>Material</th>
<th>Measurement</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>High protein flour</td>
<td>250 grams</td>
<td></td>
</tr>
<tr>
<td>Sago flour</td>
<td>30 grams</td>
<td></td>
</tr>
<tr>
<td>Sago flour</td>
<td>25 grams</td>
<td>Sprinkles</td>
</tr>
<tr>
<td>Mustard juice</td>
<td>60 ml</td>
<td>Added per noodle recipe, not all together</td>
</tr>
<tr>
<td>Pumpkin juice</td>
<td>60 ml</td>
<td></td>
</tr>
<tr>
<td>Carrot juice</td>
<td>60 ml</td>
<td></td>
</tr>
<tr>
<td>Beetroot juice</td>
<td>60 ml</td>
<td></td>
</tr>
<tr>
<td>Salt</td>
<td>1 teaspoon</td>
<td></td>
</tr>
<tr>
<td>Seasoning broth</td>
<td>(mushroom)</td>
<td>Can use mushroom broth</td>
</tr>
<tr>
<td></td>
<td>1/4 teaspoon</td>
<td></td>
</tr>
<tr>
<td>Ingredient</td>
<td>Quantity</td>
<td>Usage</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>Egg</td>
<td>60 grams of egg yolks, 60 grams of egg whites</td>
<td>Equivalent to 2 eggs</td>
</tr>
<tr>
<td>Oil</td>
<td>2 tablespoons</td>
<td>For basting</td>
</tr>
<tr>
<td>Oil</td>
<td>1 tablespoon</td>
<td>To boil</td>
</tr>
<tr>
<td>Water</td>
<td>1.5 liters</td>
<td>To boil</td>
</tr>
<tr>
<td>Salt</td>
<td>1 teaspoon</td>
<td>To boil</td>
</tr>
</tbody>
</table>

To make healthy noodles from various vegetables, the first step was to mix the flour, sago flour, salt and flavoring, then all were mixed well. Beaten eggs were then added to the flour mixture gradually while being kneaded until smooth. Water was added before being stirred until all were well-mixed and let to rest for 15 minutes. The dough was rolled until thin while being sprinkled with sago. If using a milling machine, grind materials were numbered from one to six. To adjust the thickness, the dough should be milled two to three times. If using a rolling pin, the dough should be rolled out thinly or as needed. It was then formed into a square, and folded and sprinkled with sago flour. The noodles were cut using a cutter or knife, the size can be adjusted as needed. The noodles were further boiled in boiling water with a little oil and salt and then drained. The noodles are ready to be processed.

Throughout the activity, the partner showed high enthusiasm and was directly involved in the practice of making healthy noodles.

Product innovation is needed in business development, one of the innovations made is making healthy noodles from various vegetables. Healthy noodles from various vegetables are one of the diversifications of processed noodles, it is hoped that they will be able to improve food quality, because of the addition of vegetable extracts which have many benefits compared to noodles that are already on the market (Li et al., 2014). The business potential of healthy noodles from various vegetables can be seen from interest and marketing targets, nutritional content, product quality, low production costs, and competitive prices (Jung et al., 2012).

After being cooked by boiling for 5 minutes at a temperature of boiling water (100˚C), it can produce a greenish noodle dish. Meanwhile, in terms of taste, healthy noodles made from various vegetables have a chewy texture like commercial wet noodles and a savory taste.

### 4 Conclusion

Coconut cassava can be used as a substitute for wheat flour as a basic ingredient for making noodles. Utilization of various vegetables in the manufacture of noodles as raw materials in the food industry has good prospects because their availability is quite abundant. The nutritional value of noodles is more complete and healthy noodles are guaranteed to be easily accepted by the public. Moreover, technological support in the food industry has been high.

### References


[2]. Park, S., Choi, HS, & Bae, JH (2016). Instant noodles, processed food intake, and


