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Processing of Garlic and Lemon as a Supplement in The Village of Meureubo

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Abstract

Food supplements are finished products consumed to supplement daily meals. Health foods are derived from natural ingredients without chemicals and are derived from herbal ingredients. Herbal supplements are one of the products that are consumed externally and have high antioxidant activity to prevent free radicals in the body. Garlic and lemon contain antioxidants that can support the body's defense mechanisms. This community service activity aims to introduce and explain the processing techniques of garlic and lemon as beverage supplements to the people of Meurebo Village. The Community Service method used is to first describe the types of ingredients and their functions that will be used as raw materials for supplements, then explain the correct formulation of garlic and lemon to produce a good supplement. Then, the practice of making herbal supplements. Listening to the presentation of material and practice of making beverage supplements by the speaker, the community gained a better understanding of the benefits and processing technology of garlic and lemon for health. In general, the community also understood the role and function of agricultural commodity processing technology for food products in meeting food and public health needs.
Keyword: *Garlic, Lemon, Supplement, Meureubo*

INTRODUCTION

Food supplements are finished products consumed to supplement daily meals. Food supplements contain one or more of the following ingredients: vitamins, minerals, plants or plant-derived ingredients, amino acids, ingredients used to increase the Nutrient Adequacy Rate (NAR). In Indonesia, food supplements are classified as food or registered as traditional medicines. Food supplement products, in accordance with the Decree of the Directorate General of Drug and Food Control (BPOM) No. HK 00.063.02360, were originally known as products used to supplement food (BPOM, 1996).

Health foods are made from natural ingredients without chemicals and usually come from herbs. According to BPOM Public Relations (2020), the consumption of safe, beneficial, and high-quality herbs and health supplements is one of the preventive measures that needs to be cultivated by the community. Nowadays, the use of dietary supplements tends to increase. Although the necessity of consuming supplements is still debatable, the reality shows an increase in the number of supplement users. This may be due to changes in diet and lifestyle, where people now tend to prefer practical, fast food, and high-fat foods that are widely available on the market (Wahlqvist, 2002).

In addition, an environment with increasingly high levels of pollution can be a consideration in increasing the body's intake of vitamins and minerals through the use of supplements. Dietary supplements are also needed by workers who do not have time to exercise regularly and workers with high levels of stress (Ramadani, 2007).

Herbal supplements are products that are consumed externally and are derived from a mixture of herbal ingredients that have high antioxidant activity to prevent free radicals in the body (Rahmi, 2020). Most people use herbal plants to treat various diseases. Traditional medicine derived from herbal plants has long been known, such as red ginger, garlic, apples, lemons , and honey (Mantiri et al., 2013). These plants can be used as food ingredients and also in medicine.

Garlic (Allium sativum) contains antioxidants that can support the body's protective mechanisms and can be used therapeutically (Prasonto et al., 2017). Garlic not only has complete nutritional content but also contains non-nutritional chemicals that are beneficial to health and can be used as a natural disease vector repellent. The chemical compounds found in garlic include allixin, adenosine, ajoene, flavonoids, saponins, tuberholoside, and scordinin (Sukma, 2016).

Lemon fruit is a plant that has benefits as a natural antioxidant because it contains vitamin C, citric acid, essential oils, bioflavonoids, polyphenols, coumarins, flavonoids, and volatile oils in its skin, such as limonene (±70%), α- terpinene, α-pinene, β-pinene, coumarins, and polyphenols (Nizhar, 2012).. Antioxidants from locally grown lemons in Iran have higher activity than lemons purchased at supermarkets (Hajimahmoodi et al., 2012). Another study conducted by Suja et al. (2017) revealed that extracts from the peel of Citrus limon and Citrus sinensis have antioxidant activity.

Public knowledge about various techniques for processing garlic (Allium sativum) and lemon into beverage supplements is still very limited. Therefore, material and practical guidance on the application of beverage supplement production is needed for the community.

This community service activity aims to introduce and explain the techniques for processing garlic and lemon as beverage supplements to the community of Meurebo Village. After this community service activity is completed, it is hoped that the community of Meureubo Village will know and understand the techniques for processing garlic and lemon as herbal supplements and know the benefits of herbal supplements for health

METHOD

This community service was carried out on February 20, 2019. The target participants of this community service activity were the people of Meureubo Village, consisting of housewives and young people aged 20 to 50 years old in Meureubo Village, Meureubo District, West Aceh Regency. A total of 20 people participated in this community service activity. Several stages were carried out in this activity, including investigation, planning, and program implementation. The initial investigation sought to obtain information and collaborate with the Meureubo Village government in order to receive recommendations regarding the implementation of the activity. At the same time, the recruitment of participants for the activity was also carried out during the investigation, in accordance with the targets set by the activity implementation team. During the preparation stage, the tools and materials used in the community service activity were arranged. Next, the materials to be presented were also prepared, particularly the procedure for making supplements.

The execution phase began with a general explanation of the background of the activity. Next, the participants were provided with information related to the process of processing garlic

and lemon as supplements. The involvement of the implementing members was not only during the preparation and demonstration. The delivery of community service material was also carried out by the members involved. The material provided in this Community Service program included:

1. Describing the various types of ingredients and their functions that will be used as raw materials for supplements.
2. Explaining the proper formulation of garlic and lemon to produce good supplements.
3. Demonstration of herbal supplement production
4. Practice of herbal supplement production. The supplement processing process is shown in Figure 1.

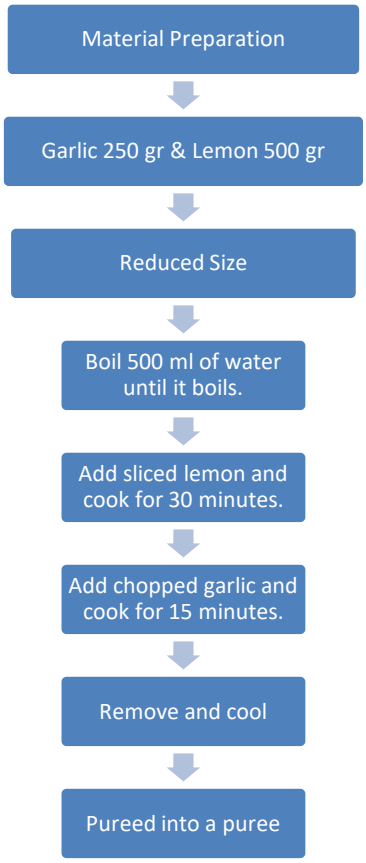

Figure 1. Flowchart of Supplement Processing

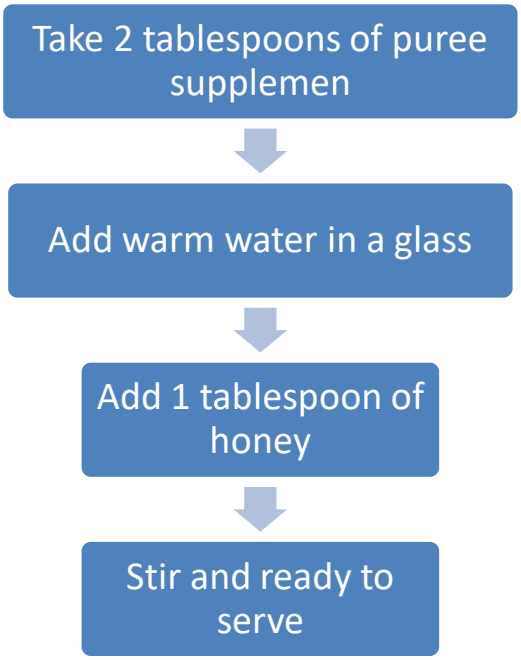

Figure 2. Flowchart of how to serve supplements.

RESULTS AND DISCUSSION

This activity was held at the Village Hall, Meureubo Village, Meureubo Subdistrict, West Aceh. There were 20 participants, consisting of the village chief of Meureubo, housewives, and teenagers from Meureubo Village. Participants were invited through invitation letters sent by the village chief of Meureubo. The attendance of the training participants showed the interest and appreciation of the Meureubo Village community towards community service activities.

The outreach event began with a speech from the village chief of Meureubo, which was then followed by a presentation of material by the outreach speaker. The speaker introduced the nutritional content of garlic and lemons to the community, which are agricultural commodities that are easily obtained by the community. Garlic and lemons are usually used by the community only as food seasonings in households. However, during the outreach, the presenter explained that garlic and lemons are agricultural commodities that have high efficacy in maintaining public health when processed into beverage supplements.

Garlic supplements have advantages over raw garlic, namely minimal mouth and body odor and prevention of possible damage to active components due to the cooking process. Because garlic is very well tolerated by the body, garlic supplementation can be an acceptable alternative or additional therapy for patients with hypertension (Ried et al, 2008).

Garlic is an antibiotic that can kill bacteria and protect the body from toxins that cause infection. The deadly bacterium Bacillus Anthracis produces the toxin Anthrax (D. Gray, 2010). Similarly, according to Muhlisin (2011), the allicin content in garlic can address health issues such as lowering high blood pressure, acting as an antiviral and antioxidant, reducing bad cholesterol levels, aiding weight loss, improving iron metabolism, and helping prevent cancer and diabetes.

Lemons and their processed products are a source of phenolic compounds (especially flavonoids) and nutrients necessary for human growth and physiological function (Guerra et al., 2013).

Lemon fruit contains acids that contribute to its sour taste. Lemon fruit is a source of vitamin C and antioxidants that are beneficial to human health, and is often used as a flavoring agent in cooking and to remove fishy odors. Lemons are known as a source of vitamin C, but they also contain other essential nutrients, including carbohydrates (sugars and dietary fiber), potassium, folate, calcium, thiamine, niacin, vitamin B6, phosphorus, magnesium, copper, riboflavin, pantothenic acid, and phytochemicals. The carbohydrates in citrus fruits are simple carbohydrates, namely fructose, glucose, and sucrose. Complex carbohydrates are non-starch polysaccharides (commonly known as dietary fiber) that are good for health (Nizhar, 2012).

In addition to knowledge about the nutritional content of garlic and lemons, the presenter also explained the techniques for processing garlic and lemons into beverage supplements. Figure 3 shows the supplement processing techniques used by the Meureubo village community.

Figure 3. Process of processing beverage supplements

After listening to the presentation and watching the demonstration of how to make beverage supplements by the speaker, the community gained a better understanding of the benefits and processing technology of garlic and lemon as herbal supplements for health. In general, the community also understood the role and function of agricultural commodity processing technology for food products in meeting the food and health needs of the community. During the implementation of the activity, there were no problems found in the cooperation with the village, nor in the reception and participation of residents in this community service activity. The results of the processing of garlic and lemon supplements were tested for consumption by the participants of the extension program. The participants were very enthusiastic in participating in this activity until the final stage. The raw materials for these garlic and lemon supplements are very easy to obtain and easy to process. In addition, garlic and lemon herbal supplements are also very rich in vitamin C and have antioxidant content. As in Rahmi's (2020) research, the results show that the compounds that have antioxidant power in herbal supplements are flavonoids, which are polyphenol compounds. Organosulfur and polyphenol content are important factors that play a role in antioxidant activity. Herbal supplements from a mixture of herbs, namely garlic (Allium sativum), ginger (Zingiber officinale), lemon (Citrus limon L), and

honey (Apis), can be an alternative source of natural antioxidants for the body. Similarly, the overall acceptance of the hedonic test for herbal supplements showed that, on average, the panelists liked the herbal supplements with a score of 5 (like).

CONCLUSION

The conclusions from this community service activity include:

1. This community service activity has run smoothly.
2. The Meureubo Village community now understands the content and benefits of garlic and lemon as herbal supplements.
3. The community has gained a better understanding that the processing of garlic and lemon can be one of the functional food products for the community.

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