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Empowering Community Entrepreneurship Through Salt-Based Mouthwash Production

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Abstract:
In this PKM program, our partner is residents in Sedayulawas, Lamongan, East Java, Province. This community has generated the production mouthwash derived from salt. Salt is a mineral composed primarily of sodium chloride (NaCl). Diversification of salt products with various derivative products is very possible for salt farmers to do as an effort to empower the economy of the Lamongan community as well as increase food security through the provision of quality salt and downstream technology to produce salt derivatives that have more value for example mouthwash. Mouthwash containing saltwater rinses work by increasing the pH- balance inside the mouth, creating a much more alkaline oral environment in which the bacteria are no longer able to thrive. Efforts to increase salt production and salt purification technology as well as alternative diversification of salt derivative products can be a model that can drive the economic sector of the community of salt farmers and women who boil salt so as to initiate the opening of new job opportunities and create superior salt products and derivative products, namely mouthwash in Lamongan Regency.
Keywords: Alkaline oral environment, Bacterial growth inhibition, Salt purification technology, Salt derivatives, Economic empowerment

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Introduction

Salt is known to have great potential in various fields such as food, medical and fisheries. Indonesia, which is a tropical country with an archipelago geography, has great potential as a country for producing salt. Improving the quality of domestic salt production is a major necessity to limit imported salt products entering Indonesia. One way that can be done is by conducting product innovation. Product innovation can open the insight of salt farmers that salt is a useful and valuable product if managed properly and optimally. Salt can be used as a variety of alternative products ranging from cosmetics, health, pharmaceuticals, and food. Maintaining oral health is important for humans. A healthy mouth will prevent dental plaque and bad breath as well as mouth infections caused by bacterial growth. Bad breath (Halitosis) will have a negative influence on an individual's life, especially in social interactions, which can cause a lack of self-confidence (Ariani and Pindobilowo, 2023).

Mouthwash is a liquid or solution that contains ingredients that can freshen breath and clean the respiratory tract. Commercial mouthwashes currently circulating in the community mostly use chemical ingredients in their formulations such as propylene glycol, poloxamer 407, and sodium lauryl sulfate which are certainly not safe if swallowed by humans continuously. It is also known that commercial mouthwash can trigger oral cancer because some have an alcohol content of more than 20% (Handayani et al., 2016). Herbal mouthwash that is free from alcohol will increase public awareness in choosing products that do not have adverse effects that can occur in prolonged use by not using hazardous chemicals in treating bad breath and maintaining oral health (Oktanuali et al., 2017). Sodium chloride (NaCl) is a natural ingredient that has long been known to have good benefits for oral health. Research conducted by Ballini et al, (2021) with the type of salt used, namely sea salt with a combination of xylitol and lysozyme, showed that the use of salt-based mouthwash in everyday life can reduce the level of streptococcus mutans bacteria in the human oral cavity.

Lamongan Regency, Brondong District has the potential for traditional salt production such as in Sedayu Lawas Village, Rengkok Village, Labuhan Village, Sidomukti Village and Logung Village, where the total area of salt land reaches 234,122 Ha. Traditional salt production in 2020 was 7947 tons and in 2021 it reached 22,149 tons. However, in 2022, traditional salt production only reached 2538 tons (achievement until October 2022) due to extreme weather changes. The price of traditional salt at the salt farmer level in 2020 was only IDR 600/kg during harvest, even in 2021 the price of traditional salt fell to IDR 100/kg to IDR 200/kg. Therefore, education is needed for the community to be able to process salt into derivative products in the form of mouthwash. Salt is chosen because this raw material is easy to obtain at an economical price but has high added value to be used as mouthwash. Therefore, with the advantages of salt connected to the problems of partners, it produces an action that needs to be implemented in the form of Community Service by the Faculty of Fisheries and Marine Sciences, Universitas Airlangga.

Research Methodology

Approach and Design

The initial efforts that have been made in this Community Service activity are to coordinate with the Head of the Fisheries Resources Empowerment and Supervision Division, Mr. Chairil, ST., MM. Coordination and discussion have been carried out to ensure the mechanism for running Community Service activities and to collect aspirations and problems of partners. In addition, the time and place for carrying out counseling are also coordinated so that the facilities and infrastructure needed can be met and Community Service activities can run according to plan and comply with health protocol regulations. Thus, the transfer of knowledge from the Community Service Team can run well.

This community service activity includes diversification of salt products and its derivatives into mouthwash. Before the presentation of the material and practice of making

the product, the salt boiling women will be given a questionnaire to find out about the identity, level of education, age and knowledge of the participants regarding salt processed products. Furthermore, the Head of Community Service will provide an explanation regarding the raw materials of salt, namely an explanation of its characteristics, uses, potential and how to process it. Then, it will be practiced how to make salt-based mouthwash. Training participants will be divided into 3 groups with 10 members each. The group is given time to practice with their group members so that it is hoped that participants will be able to make their own processed products after the counseling and community service training ends. During the practice, participants are given assistance in the material preparation process until the final procedure in making mouthwash. After completing the practice, participants take part in a question and answer session and a second questionnaire after the practice to find out whether there is an increase in participants' understanding regarding the mouthwash production process. Monitoring and evaluation will be carried out after the counseling and training process with the aim of determining the increase in participants' understanding of the process of making processed products and their implementation so that they can be sold to the public

Research Location

The implementation of this community service activity was attended by women salt boilers from Sedayulawas Village, Lamongan Regency with a total of 30 participants.

Data Processing Technique

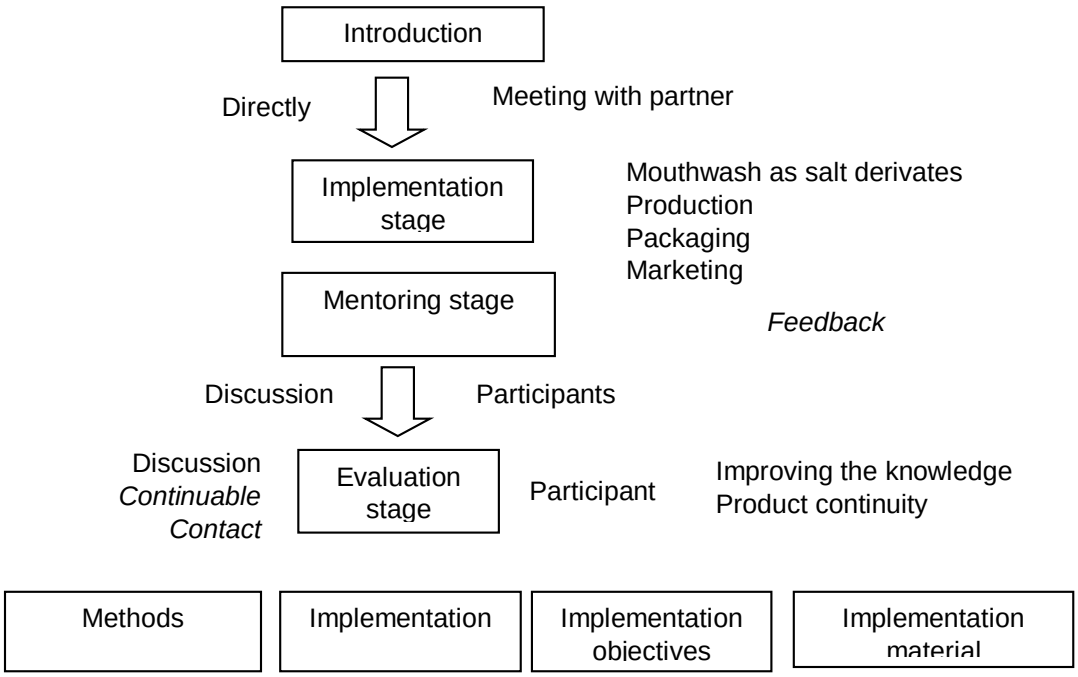

Figure 1. Methods of Implementing Community Service Activities

Results and Discussion

Salt is a solid object that has a white crystal color. Salt is an ionic compound consisting of positive ions (cations) and negative ions (anions), thus forming a neutral compound. Salt is formed from the reaction of acids and bases. The quality of salt depends on the level of NaCl content in the salt, the higher the percentage, the higher the quality. Improving the quality of domestic salt production is a must, especially to limit imported salt products entering Indonesia. One way that can be done is by carrying out product innovation. Salt can be used to make various alternative products ranging from cosmetics, health, pharmaceuticals, and food. Maintaining oral health is important for humans. A healthy mouth will prevent plaque and bad breath and oral infections caused by bacterial growth. Bad breath (Halitosis) will have a negative impact on an individual's life, especially in social interactions which can cause a lack of self-confidence. Mouthwash is a product that is often used by humans to maintain oral health. Mouthwash is a liquid or solution that contains ingredients that can freshen the breath and clean the respiratory tract, these ingredients are breath fresheners, antibacterials, astringents, demulcents, and surface active agents, its use is done by gargling. Table salt or sodium chloride (NaCl) is one of the natural ingredients that has long been known to have good benefits for oral health (Anastasia et al., 2017).

Tools and Materials: beaker glass, spatula, scales, measuring pipette, measuring cup, benzoic acid, saccharin, peppermint, glycerin, distilled water. How to make: Add 5 grams of salt to the beaker glass, followed by Na Benzoate (0.1 grams) and saccharin (0.5 grams), Add 2 ml of glycerin and 0.2 ml of peppermint/lemon oil, Homogenize with the help of a magnetic stirrer (200 rpm) for 15 minutes, After homogenizing, put/pack in a 100 ml bottle, then label/identify the Mouthwash product

Mouthwash derived from salt has antibacterial properties and it can cause osmotic changes that result in disruption and death of bacterial cells. The antibacterial properties of salt are obtained by drawing water from bacteria through osmosis causing the bacteria to shrink and die (Sholekhah, 2021). The participants of this community service were very enthusiastic and grateful to have been given education related to the production of salt-based mouthwash. They also want a similar program for the following years with various kinds of cosmetics that can be made from salt as the raw material. By holding this community service, it is hoped that the community will have an increase in terms of ability, willingness and skills in producing mouthwash in Sedayulawas Village, Lamongan Regency.

Conclusion

The community service that has been carried out to residents in Sedayulawas, Lamongan, East Java Province has received high enthusiasm which is shown by high enthusiasm and motivation to participate in workshop and training activities. The participants synergize with the community service team of the Faculty of Fisheries and Marine,

Universitas Airlangga in innovating product from seaweed into jelly candy and natural soap, developing the creativity of the partner as well as improving the social welfare.

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