Salus Publica: Journal of Community Service
ISSN: 2987-9299 (Media Online)
Vol 1, Issue 1, April 2023, Page 23-27
DOI: https://doi.org/10.58905/saluspublica.v1i1.99

Training on Making Antiseptic Liquid Soap for Mangrove Type Pedada (*Sonneratia cassiolaris*) to the Community in Tani Baru Village, Anggana District, Kutai Kartanegara Regency, East Kalimantan Province

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Abstract. One of the efforts to increase public awareness of the importance of preserving mangrove ecosystems in the Mahakam Delta is by developing the capacity of the community to be able to take advantage of the potential of existing mangroves in the Mahakam Delta region. When the community is able to obtain economic value from the utilization of non-timber mangrove forest products, it is hoped that public awareness of the existence and sustainability of mangrove forests will increase. One of the mangrove products that has economic value and is a daily need for the community is an antiseptic liquid soap with the addition of pedada (*Sonneratia cassiolaris)* mangrove fruit extract. Antiseptic liquid soap with pedada fruit extract can be utilized and meet the sanitation needs of the community in Tani Baru Village, Anggana District, Kutai Kartanegara Regency as one of the villages in the Mahakam Delta region in particular. With the training on making bacada fruit antiseptic liquid soap, the aim is for the community to be able to increase their creativity in exploring pedada-type mangroves into a product that provides added value and high economic value. The results that have been achieved in this training are that the community is able to make their own antiseptic liquid soap for their daily needs and can open up business opportunities in entrepreneurship.

Keywords: Antiseptic, Liquid Soap, Pedada

1 Introduction

The Mahakam Delta has abundant natural wealth potential with dominance of river, sea and coastal ecosystems with mangrove forest vegetation. However, the natural preservation in the Mahakam Delta region has experienced quite massive environmental degradation, especially in the mangrove ecosystem. Most of the degradation of the Mahakam Delta mangrove ecosystem was caused by the clearing of ponds by the local community. Judging from the area of land use, the Mahakam Delta area is mostly dominated by ponds with an area of 54,865 ha (43.7%), which can be said to be the cause of mangrove damage in the Mahakam Delta [1]. Communities in the Mahakam Delta region have not been able to optimize the potential of non-timber mangrove forest products so they lack concern in preserving the Mahakam Delta mangrove ecosystem.

Mangrove forest is a tropical coastal vegetation community dominated by several types of mangrove trees that are able to grow and develop in tidal muddy coastal areas. This plant community also functions to protect the coastline and become a habitat for various aquatic animals. Mangroves are true plants because they have roots, stems, leaves and fruit [2]. One type of mangrove that produces fruit is pedada (*Sonneratia cassiolaris*). Some food products that can be processed from pedada fruit are jam, syrup, dodol, instant granules, jelly candies and marshmallows [3,5]. The high antioxidant content in pedada fruit can also be beneficial for increasing endurance [6]. With these benefits, many people process them into functional food products.

One of the efforts to increase public awareness of the importance of preserving mangrove ecosystems in the Mahakam Delta is by developing community capacity so that they are able to take advantage of the potential of existing mangroves in the Mahakam Delta region. When the community is able to obtain economic value from the utilization of non-timber mangrove forest products, it is hoped that public awareness of the existence and

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sustainability of mangrove forests will increase. One of the mangrove products that has economic value and is a daily need for the community is an antiseptic liquid soap with the addition of pedada (*Sonneratia cassiolaris*) mangrove fruit extract. Antiseptic liquid soap with pedada fruit extract can be utilized and meet the sanitation needs of the community in Tani Baru Village, Anggana District, Kutai Kartanegara Regency as one of the villages in the Mahakam Delta region in particular.

Pedada fruit is a mangrove fruit that lives in brackish waters which grows a lot in coastal areas, especially in Tani Baru Village, Anggana District, Kutai Kartanegara Regency as one of the villages in the Mahakam Delta region. The bottom part of the pedada fruit is wrapped in flower petals, and is not poisonous [4].

Figure 1. Pedada fruit

The people of Tani Baru Village rarely directly consume the pedada fruit because it tastes sour. The fruit contains nutrients that have not been utilized. Pedada fruit can be processed into food products such as jam and syrup, because the vitamin C content is quite high. In addition to processing food products, pedada fruit can also be processed into antiseptic liquid soap, because the chemical content of flavonoids and polyphenols in pedada fruit can kill and inhibit the growth of bacteria [3].

By seeing this potential, an idea emerged to make the technology for processing Pedada fruit liquid soap as an antiseptic. The purpose of this community service activity is to provide great added value in terms of the technological results of the antiseptic liquid soap product, thereby adding economic value and income to the Kampung Laut community and increasing the knowledge of the community.

PT Pertamina Hulu Mahakam (PHM) – The NPU Field as a company unit in the oil and gas exploration sector operates in the Mahakam Delta region and has made Tani Baru Village a Ring 1 community development area that has sufficient power and interest strong to contribute to environmental preservation and community empowerment in the region. Therefore, the University of Jambi Pharmacy Study Program intends to support the implementation of activities in the community development program carried out by PT Pertamina Hulu Mahakam, namely Training in Making Antiseptic Mangrove Liquid Soap Type Pedada.

The objectives of the training activities for making mangrove antiseptic liquid soap pedada (*Sonneratia cassiolaris*) include providing knowledge of the ingredients and how to use mangrove fruit, developing community capacity so that they are able to utilize pedada mangrove fruit into derivative products of mangrove antiseptic liquid soap, encouraging improvement in the quality of community PHBS , education and campaigns for the preservation of the Mahakam Delta mangrove ecosystem to the public.

2 Method

Technical implementation of online training using the Zoom Meeting application, video tutorials for making mangrove soap as material for disseminating skills by online training participants. Participants are the community of Tani Baru village, totaling 25 people and divided into 5 groups of 5 people each. This training activity was held during the Covid 19 pandemic in 2020. PT Pertamina Hulu Mahakam (PHM) as the executor of Community Service activities for Tani Baru village. The equipment and ingredients for making antiseptic liquid soap of fruit pedada were entirely prepared by PT PHM. This activity was held at the Balai Tani Baru Village Office. This activity was opened directly by the head of CSR from PT PHM.

The training series was held for 2 days. The stages of this activity were carried out on the first day of the socialization of the benefits of pedada fruit by the resource person and continued with training on making pedada fruit liquid soap paste. Making a liquid soap paste using ripe pedada fruit separated from the seeds and peeled aloe vera is extracted. The two ingredients are boiled with boiling water after which they are removed and filtered. Add the boiled pedada fruit and aloe vera and add 3 tempe yeast into the blender. After blending

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the pedada and aloe vera pulp, it is fermented for 3 days until a white, odorless paste is formed. The fermentation method is carried out as follows: the slurry is put into plastic and then put in a black bag, tied tightly until no air enters, then placed in a dark room that is not exposed to sunlight. After 3 days observe the liquid soap paste that is formed.

The stages of training activities on the second day were carried out after an interval of 3 days the liquid soap paste was formed. The training begins with a briefing by the resource person about the stages in making liquid soap. Prepare liquid soap-forming ingredients such as potassium hydroxide, sodium carboxyl methyl cellulose as a thickener, sodium lauryl sulfate as a foam former, stearic acid as a foam stabilizer and to maintain the consistency of liquid soap, sodium benzoate as a preservative, olive oil or palm oil, coloring and fragrance according to your needs. taste and aquadest. All the ingredients mentioned above are dissolved respectively with aquadest and then heated over the boiler until all the ingredients are completely dissolved. Mix all the ingredients in a hot state and stir homogeneously. After it is completely mixed, add the liquid soap paste that has been formed and flavored and colored according to taste. Antiseptic fruit pedada liquid soap is ready to be packaged.

At the end of the implementation of the community service activities, a monitoring evaluation was carried out by looking at the skills of the community to produce liquid bacteri soap using the tools and materials provided by PT PHM. In addition, it also looks at the effectiveness and side effects of using liquid papaya liquid soap when applied directly as dishwashing soap or hand washing soap.

3 Results and discussion

At the end of the implementation of the community service activities, a monitoring evaluation was carried out by looking at the skills of the community to produce liquid bacteri soap using the tools and materials provided by PT PHM.

This training provides extraordinary benefits, one of which is as an effort to increase public awareness of the importance of preserving mangrove ecosystems in the Mahakam Delta by developing community capacity so that they are able to utilize the potential of existing mangroves in the Mahakam Delta region and are able to obtain economic value from the utilization of mangrove forest products. one of them is pedada fruit, it is hoped that there will be increasing public awareness about the existence and sustainability of mangrove forests. Making mangrove products into liquid antiseptic soap has economic value and makes people's daily needs as hand washing soap or dish soap and clothes.

This activity was guided by a trainer or resource person who came from Jambi remotely, but even though this training activity was guided online, the people of Tani Baru village were very enthusiastic and understood and followed the trainer's directions sequentially so that they succeeded in obtaining a breast-feeding antiseptic liquid soap product (*Sonneratia cassiolaris*).

The training begins with making pedada soap paste, where the community peels the ripe pedada fruit and separates it from the seeds, if the seeds are not removed it will result in black pedada soap paste due to the influence of the oxidation process of the pedada fruit if it is exposed to heat friction during the smoothing process using blender. To increase the density and thickness of the paste, the flesh of the peeled aloe vera is added. The process of making pedada cuah soap paste can be seen in the picture below.

Figure 2. Making a pasta soap Pedada

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Each group from the Tani Baru village community has succeeded in making a paste of white pedada fruit soap which is white and odorless, so that it can proceed to the next process of making liquid pedada soap. The making of fruit pedada liquid soap uses potassium hydroxide, stearic acid, olive oil, sodium lauryl sulfate, fragrances and dyes. The process of making liquid soap as a whole uses heat, where each ingredient is melted in a boiler until it melts completely. Mixing all the ingredients that have melted are combined in a hot state and then stirred continuously until a thick liquid soap is formed. If foam forms, leave it overnight until the foam disappears and the liquid soap is ready for use.

The community is very enthusiastic about the process of making Pedada liquid soap. Success in the process of making liquid soap is an experience and knowledge that can be applied to everyday life so that it can open up business opportunities or jobs. The process of making liquid soap can be seen in the picture below.

Figure 3. Briefing by resource persons on the stages of making pedada liquid soap

The product pedada liquid soap produced is very useful and its legality can be developed into a UMKM business in Tani Baru village by having product legality in the form of PIRT, BPOM distribution permit, trademark copyright and so on so that it can be sold and distributed outside the province of East Kalimantan. It is hoped that this pedada fruit liquid soap product will become a superior product in the Desa Tani Baru area which can be recognized throughout Indonesia.

Figure 4. Antiseptic liquid soap from Pedada fruit

At the end of the event, a group photo was taken with the people of Tani Baru village, carrying the Pedada fruit antiseptic liquid soap they had made. The community is very happy with the results that have been achieved where the community has become skilled in making Pedada liquid soap.

Figure 5. Group photo of the Tani Baru Village Community

This activity does not and here, but monitoring the evaluation of the process and the sustainability of this activity are still monitored through the establishment of a whatsapp group. The next day, the community made their own liquid pedada soap without being accompanied by a trainer or resource person. If the community has problems, they can be asked directly via the WhatsApp group.

4 Conclusion

With the end of the community service activities, the objectives of the training activities for making liquid soap for mangrove antiseptic type pedada (Sonneratia cassiolaris) have been achieved, including that the community has knowledge of the contents and how to use mangrove fruit, the community is able to develop capacity in utilizing mangrove type broiler to become a soap derivative product liquid mangrove antiseptic and the community can improve the quality of PHBS and be able to educate and campaign for the preservation of the Mahakam Delta mangrove ecosystem to neighbors or the community around Tani Baru village.

Acknowledgements

Thank you to the CSR PT Pertamina Hulu Mahakam (PHM) who has funded the entire community service activity event in Tani Baru Village.

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