

# Community Empowerment Through PKK Harjosari I Medan Namely The Utilization Of Separated White Waste Into Dish Soap

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## ABSTRACT

Banana trees are known as highly beneficial plants because almost all of their parts can be used for various purposes, including processed foods. However, many people are still unaware that besides the fruit, heart, and leaves, other parts such as the stem, stump, and even the banana peel can also be utilized. Most people only use the commonly used parts of the banana. However, banana peels have great potential, such as being used as dish soap. Banana peels contain compounds like saponins (foaming agents), tannins, and flavonoids, which have antibacterial properties, making them suitable as a soap base. This community service activity was conducted in Harjosari 1, Medan, using outreach methods and hands-on practice in making dish soap from banana peels with local residents. The success of this activity was measured by increased community understanding and successful home-made soap production, which was monitored regularly through a WhatsApp group.

**Keywords:** Banana Peel, Dishwashing Soap, Community Service

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## INTRODUCTION

Indonesia has one of the highest banana production countries worldwide. High banana consumption also generates a significant amount of organic waste, particularly banana peel. Unfortunately, most people are still unaware that banana peel contains

beneficial substances such as saponins, flavonoids, and tannins. These substances have antibacterial properties and can be used as bases for cleaning products that are natural and harmless to the environment (Putri, 2023).

One innovative way to utilize banana peels is to make dish soap. Commercially available soaps generally contain chemicals such as synthetic fragrances and surfactants, which can be harmful to the environment and cause skin irritation. In contrast, soap made from natural ingredients such as banana peels is safer and more environmentally friendly (Ramdani & Sari, 2022).

Previous studies have shown that banana peel extract has antimicrobial properties and can act as a natural cleanser. Its saponin content can help remove dirt and oil from the surface of cutlery because it functions as a natural surfactant (Nugroho et al., 2024). Furthermore, the utilization of organic waste such as banana peels also supports the concept of sustainable waste management and a circular economy (Anindita & Lestari, 2025).

In addition to banana peels, lime juice has great potential. Lime juice contains high levels of essential oils, with limonene levels of approximately 94%. This essential oil has a distinctive aroma and is highly valued in the perfume and cosmetic industries (Muhtadin et al., 2013). By adding lime juice to soap making, the resulting natural aroma can improve product quality (Kartika Fitri & Proborini, 2018). Making soap from bananas and orange peels is highly relevant for educational and community empowerment activities in both schools and communities. This activity can be both a form of environmental education and business opportunity based on local potential (Wulandari, 2023).

Against this backdrop, this research aimed to examine the use of banana peels as a primary ingredient in dishwashing soap and assess its effectiveness compared to commercial products. These results are expected to provide a solution to reduce household waste and encourage the use of more environmentally friendly products.

## METHOD

This study used a participatory applied research method, implemented through outreach activities, demonstrations, and hands-on practice with residents of Harjosari 1 Village, Medan. The aim of this activity was to increase the community's knowledge and skills in processing organic waste, specifically banana peels and lime juice, into environmentally friendly dishwashing soaps.

### 1. Activity Stages

The activities were conducted in three main stages

- **Socialization:** The socialization activities carried out included delivering materials related to the potential of banana peels, the content of active compounds, and the dangers of synthetic chemical soaps for the environment and health.
- **Demonstration:** The demonstration activity was carried out by the implementing team to demonstrate how to make dishwashing soap from banana peels using simple tools and materials.

- Direct Practice: After the demonstration activity is completed, the team invites participants to actively soap in groups to gain real experience in the manufacturing process.

## **2. Data Collection Techniques**

Data collection was performed as follows:

- Direct observation during practice to observe participant involvement and understanding.
- Short interviews with several participants as an evaluation of feedback on the activity.

## **3. Data Analysis**

Pretest and posttest data were analyzed quantitatively using percentage knowledge increase calculations. Observation and interview data were analyzed descriptively and qualitatively to illustrate the success of the training process and participants acceptance of eco-friendly soap innovation.

## **4. Location and Time of Implementation**

This activity was held at the Village Hall of Harjosari 1 Village, Medan Amplas District, on May 9, 2025.

# **RESULTS AND DISCUSSION**

A training session on making dish soap from banana peel waste and lime juice was held in Harjosari 1 Village, Medan, and involved women from the Family Welfare Movement (PKK) as primary participants. The event occurred in a lively and enthusiastic atmosphere. Participants were highly engaged as the material directly touched on household needs and environmental issues relevant to everyday life.

In this training, participants were given an explanation of the potential of banana peels, which are often considered waste, even though they contain important compounds such as saponins, flavonoids, and tannins. Lime juice was added to the process as a natural ingredient containing limonene, which functions as an antibacterial agent and natural fragrance. Following the explanation, the session continued with a demonstration of how to make simple soaps, followed by a hands-on practice.

During the practical session, participants were enthusiastic. Most of the women were able to follow each step of the soap-making process. They actively mixed the ingredients, stirred the solution, and observed the physical changes throughout the process. Observations showed that the resulting soap had good consistency, produced abundant lather, and had a fresh scent from lime juice. It also did not cause irritation when used to wash hands or eat utensils.

Beyond the soap itself, there was an important nonmaterial outcome: increased participant awareness of the importance of household waste management. During the discussion and Q&A sessions, several women expressed that they had never learned about the benefits of banana peels. Some even expressed a desire to try to make soap at home, even turning it into a small business opportunity based on local ingredients.

## Discussion

This training demonstrated that a practice-based and experiential learning approach is highly effective in increasing the public understanding of organic waste processing particularly for housewives. Compared to theoretical approaches, this method allows participants to understand and directly experience the benefits of the innovations taught more quickly.

Utilizing banana peels in soap making is not only a solution to the problem of organic waste but also a concrete example of a zero-waste approach and a circular economy. Banana peels are a daily waste product that has not been properly managed in many Indonesian households. Through this training, participants learned that what is usually thrown away has a high utility value. This is an important part of environmental education that can be continuously instilled in the community.

The addition of lime juice not only improved the soap aroma but also enhanced the antibacterial effect of the resulting product. This is in line with the literature, which states that limonene in lime is effective against microorganisms and provides a refreshing scent that users appreciate (Kartika Fitri & Proborini, 2018). Thus, the resulting soap is not inferior to commercial cleaning products but is far safer and more natural.

The event included a 30-minute presentation on the use of banana peels, followed by a two-hour demonstration and hands-on practice by PKK women. How to make dish soap using banana peels

1. 200g banana peel, cut into small pieces
2. The banana peel was placed in a blender and 200 ml of water was added. Turn on the blender and wait until the banana peel changes shape and becomes smooth.
3. A basin was then prepared using a clean cloth filter on top.
4. The mashed banana peel was poured into a bowl until the banana peel extract was obtained without pulp.
5. Then, 100 g of texaphone was added to the extract and stirred until homogeneous.
6. Once homogeneous, enough salt is added to produce more foam, but if there is already a lot of foam before adding the salt, there is no need to add salt.
7. The processed extract was added to lime to speed up the removal of fat and dirt, and then filtered until it was no longer foamy.
8. The dishwashing soap from banana peel was then packaged in bottles.

There is some documentation of socialization activities for making dishwashing soap from banana peels as the basic ingredient, which can be seen in pictures 1 to 9 below:



Figure 1 Delivery of Socialization Material



Figure 2 Presentation of materials



Figure 3 Demonstration performed by the implementation team



Figure 4 Direct Practice with Socialization Participants



Figure 5 Question and Answer activity between the team and participants after the soap making process was complete.



Figure 6 Documentation with participants and village office staff



Figure 7 Results of dish soap made

From a social perspective, the involvement of Family Welfare Movement (PKK) women in this activity also has a positive impact. PKK is a strategic group that empowers families and communities. When this group is equipped with skills based on local materials, the potential to disseminate knowledge to a wider community is greatly enhanced. This activity also strengthens the PKK's role not only as a routine

program implementer but also as an agent of change in environmental issues and household economic independence.

Economically, making soap from banana peels and lime juice does not require large investment. These ingredients are readily available locally, and this process does not require complex technology. This opens opportunities for local residents to turn this soap into a valuable small business (MSME) product while simultaneously supporting their family income.

Finally, from an educational perspective, this activity emphasizes the importance of applicable and relevant environmental education. Participants not only received information but also directly practiced and experienced the impact. This has the potential to foster environmental awareness and creativity for managing local resources.

## CONCLUSION

A training session on making dish soap from banana peels and lime juice in Harjosari 1 Medan went well and received a positive response from PKK women. This activity successfully increased residents' knowledge and skills in utilizing household waste to create useful and environmentally friendly products.

From the activity result, it was found that banana peels can be used as an active ingredient in dishwashing soap during the activity process.

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