

## UTILIZING BANANA PEEL WASTE TO BE USED AS LIQUID ORGANIC FERTILIZER FOR MIGRANTS' SUPERIOR PRODUCTS

Wan Khairina Azhar<sup>1\*</sup>, Jelita<sup>1</sup>, Cherry Julida Panjaitan<sup>1</sup>, Para Mitta Purbosari<sup>2</sup>, Dyah Nugrahani<sup>3</sup>, Robiatul Adawiyah<sup>4</sup>, Hamal<sup>5</sup>

<sup>1</sup>Pendidikan Guru Madrasah Ibtidaiyah, Fakultas Tarbiyah Ilmu Keguruan, Institut Agama Islam Negeri Langsa (IAIN) Langsa

Jalan Meurandeh, Meurandeh, Langsa Lama District, Kota Langsa, Aceh 24416 - Indonesia

<sup>2</sup>Universitas Veteran Bangun Nusantara, Jawa Tengah - Indonesia

<sup>3</sup>Universitas PGRI Semarang, Jawa Tengah - Indonesia

<sup>4</sup>STAI La Tansa Mashiro, Banten - Indonesia

<sup>5</sup>Sekolah Tinggi Ilmu Tarbiyah Muhammadiyah (STITM) Tanjung Redeb, East Kalimantan - Indonesia

\*Corresponding Author: [wankhairinaazhar88@gmail.com](mailto:wankhairinaazhar88@gmail.com)

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**ABSTRACT** Organic waste management, particularly banana peels, is becoming an important topic in a global context because of its impact on the environment and economic potential. In this study, community service was carried out to provide knowledge to Indonesian migrants in Malaysia about processing banana peel waste into liquid organic fertilizer. Banana peels contain essential nutrients such as potassium, phosphorus, and calcium that are beneficial for plant growth. This processing has great economic potential considering the high demand for fertilizer in Indonesia. In addition, organic waste treatment also provides new opportunities for migrants to improve their skills and incomes, as well as contribute to the local environment and economy. The results of the training activities showed that migrants showed high enthusiasm and understood the benefits and business potential of banana peel liquid organic fertilizer. Thus, the management of banana peel waste into liquid organic fertilizer is a step that has the potential to benefit both economically and environmentally, as well as provide new opportunities for migrants to contribute to sustainable development.

**Keywords:** *Utilization of Banana Skin Waste, Featured Products, Migrants*

## 1. INTRODUCTION

According to Hilmansyah (2024) Waste is a material or object that is disposed of from the results of human and natural activities, waste has various forms that vary, starting from solid, liquid, and even gaseous forms. One type of waste that is often encountered is the rest of the fruits that are often disposed of openly without further management processes. To overcome this, processing is needed that can turn waste into something useful (Andesta et al., 2023).

Organic waste management is an important issue in the global context because many countries face similar challenges in increasing the volume of waste and its impact on the environment. Waste treatment is one way to keep the environment healthy. One organic waste that is often overlooked is banana peels. Therefore, banana peel waste must be utilized properly, by processing banana peels into liquid organic fertilizer.

Banana peel has many substances that are beneficial to plants if recycled into liquid organic fertilizer. Banana peel contains about 42% potassium, which can strengthen the stem of the plant, fight diseases, as well as fertilize flowers and fruits. In addition, potassium helps plants to be more resistant to drought, so they do not wilt easily.

Liquid organic fertilizer from banana peels is also rich in other nutrients such as phosphorus and calcium. Phosphorus is important for accelerating the growth of roots, flowers, and ripening of seeds or stems. Calcium plays a role in strengthening plant cell structure, improving fruit quality, and preventing flower and fruit loss. In addition to increasing plant resistance to adverse environmental conditions, liquid organic fertilizer from banana peels adds nutrients to the soil (Putri et al., 2022)

Processing banana peels into liquid organic fertilizer has great economic potential because the need for fertilizer in Indonesia is very high every year. According to APPI 2017 data, fertilizer needs include 5,970,397 tons of urea, 860,271 tons of phosphate, 980,505 tons of ZA, 3,116,924 tons of NPK, and 688,134 tons of organic fertilizer. Thus, business opportunities in the innovation of making liquid fertilizer from banana peels are very possible to grow rapidly (Aji et al., 2020).

Processing banana peels into liquid organic fertilizer can provide significant benefits to migrant communities. This processing can provide new jobs and skills training for migrants because they can earn additional income, improve their welfare, and reduce dependence on irregular work. In addition, skills in organic waste treatment can empower migrant communities to contribute positively to local economies and promote sustainable practices.

Migrants can make maximum use of banana peel waste to produce value-added products, because liquid organic fertilizer from banana peels can be sold to farmers, planters, and urban farming activists who can create new sources of income. In addition, the production cost of banana peel organic fertilizer tends to be lower compared to chemical fertilizer, thus allowing for larger profit margins.

Environmentally friendly products are also one of the advantages of organic banana peel fertilizer so that it becomes a promising market opportunity. Based on this, innovations have emerged that can utilize banana peel waste to be used as liquid organic fertilizer that can be used as a superior product for migrants.

## **2. METHOD**

The ingredients used for the manufacture of liquid organic fertilizer are waste banana peels, scissors, 1 liter of water, 2 tablespoons of granulated sugar, 2 used bottles. Community Service is carried out by training methods. This community service activity is carried out online with several stages, namely:

1. Preparatory stage, service, digging information on training needs, determining material, determining participants, and completing material aids.
3. Test stage of making liquid organic fertilizer from banana peels, this stage tests and gets the best composition of making liquid organic fertilizer from banana coolies.
4. The training stage is socialization about the potential of banana peels, the benefits of liquid organic fertilizer from banana peels, and demonstrations of its manufacture
5. The evaluation and reporting stage is carried out by evaluating the activities that have been carried out at the end then ending with reporting

The subjects of making liquid organic fertilizer from banana peels are Indonesian migrants who are at the Embassy of the Republic of Indonesia (KBRI) Malaysia. The migrants numbered 100 Indonesian migrant workers (PMI) in Malaysia and 7 from foreign migrant workers (PMA).

## **3. RESULT AND DISCUSSION**

This training in making liquid organic fertilizer is the initial basis for migrant worker communities to be independent and improve their welfare. When studying the use of organic waste such as banana peels, migrants are expected to develop their confidence in some way. First, by understanding the process of converting waste into something useful like liquid organic fertilizer, they can feel more empowered and independent. Second, these skills give them the opportunity to contribute to the environment by reducing waste and promoting sustainable practices, which can increase their sense of accomplishment. Third, the ability to produce organic fertilizer from banana peels also opens up new economic opportunities, either through more effective farming or through the sale of fertilizer products, which can provide an additional source of income.

By mastering these skills, migrants have the ability to overcome challenges and build a better future, both for themselves and their surrounding communities when they return to their home countries. Organic fertilizers are fertilizers that can increase the biological, chemical, and physical activities of the soil, so that the soil becomes fertile and good for plant growth. One type of organic fertilizer that is widely available on the market is liquid organic fertilizer, which is a solution from the decomposition of organic matter such as plant residues, animal waste, and humans (Hanafi et al., 2023)

Liquid organic fertilizers have various advantages, such as increasing the formation of chlorophyll in leaves to increase the ability of photosynthesis and nitrogen absorption from the air. It also increases plant vigor, drought resistance, and stimulates the growth of production branches, the formation of flowers and fruit buds, while reducing defoliation, flowers, and fruit buds (Adelia, Sabbrina, 2023).

**Table 1.** Characteristics of the resulting banana peel liquid organic fertilizer

<b>Parameter</b>	<b>Result</b>
Existed	Liquid
Color	Coklat Bening
Smell	Sour
Ph	4-5

Making liquid organic fertilizer from banana peels involves several relatively simple but effective steps. First, cut 1 banana peel comb into the smallest parts, then put it in an old bottle, after that dissolve 2 tablespoons of sugar with 1 liter of water, then put it in an old bottle that has been filled with banana peel, then close the bottle and wait for 7 days. The bottle cap must be opened daily so that the gas contained in the bottle can escape.

Making liquid organic fertilizer from banana peels is one environmentally friendly way to recycle organic waste into a source of nutrients that are useful for plants. Liquid organic fertilizer can be one of the business opportunities for migrants and can also be used for farming. The service activities carried out went smoothly. The migrants showed high enthusiasm in participating in training activities. They learned about the benefits of banana peels and the advantages of liquid organic fertilizer derived from banana peels. This liquid organic fertilizer is an environmentally friendly choice for growing crops and can also be a superior product in business.

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#### **4. CONCLUSION**

Community service activities provide knowledge to migrants to use banana peel waste to be used as liquid organic fertilizer. Banana peel waste treatment in addition to reducing environmental pollution, can also increase economic value. Thus, they not only learn about environmental sustainability, but also the potential to generate additional income through these eco-friendly practices.

#### **REFERENCES**

- Adelia, Sabbrina, A. (2023). The Effect of Giving Kepok Banana Skin (*Musa Paradisiaca* L.) As a liquid organic fertilizer in the growth of cayenne pepper (*Capsicum frutescens* L). *Agrisaintifika*, 7(1), 212–217.
- Aji, B. S., Triana, D. A., Listyaningrum, T. A., & Yanto, P. (2020). COSIWA Liquid Organic Fertilizer Liquid Organic Fertilizer Innovation as an effort to support SDGs 2045. *Journal of Chemical Information and Modeling*, 9, 1–63.
- Andesta, R., ZA, N., Sylvia, N., Muarif, A., & Nurlaila, R. (2023). Making liquid organic fertilizer from kepok banana peel waste and rice washing water waste using Em4 bioactivator. *Chemical Engineering Journal Storage (CEJS)*, 3(4), 581. <https://doi.org/10.29103/cejs.v3i4.10250>
- Hanafi, H., Aini, A. N., Pradipta, A. R., & Estuningsih, R. D. (2023). Training on Making Liquid Organic Fertilizer (POC) from Banana Skin Waste in Cibitung Village, Sukaraja District, Bogor Regency. *AKA Journal of Community Service*, 3(1), 31–33. <https://doi.org/10.55075/jpm-aka.v3i1.183>
- Hilmansyah, H., Murni, Maniar, & Nurdjan, N. (2024). Community Empowerment in Organic Waste Management in Krimun Indramayu Village. *Journal of National Service (JPN) Indonesia*, 5(1), 135–139. <https://doi.org/10.35870/jpni.v5i1.628>
- Putri, A., Redaputri, A. P., & Rinova, D. (2022). Utilization of Banana Skin Waste as Fertilizer Towards a Circular Economy. *Journal of MSME Service*, 1(2), 104–109. <https://jpu.uhl.ac.id/index.php/jpu>