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Education and Assistance to Residents Regarding Organic Waste Processing Using the Ecoenzyme Method

Vincencius Surani[1], Lilik Pranata[2*], Bangun Dwi Hardika[3], Novita Elisabeth Daeli[4], Ketut Suryani[5], Maria Tarisia Rini[6], Tezi Kharina Aprezia[7], Lezi Mayang Sari[8], Sri Indaryati[9], Keristina Ajul[10]

Universitas Katolik Musi Charitas, Indonesia[1]
Universitas Katolik Musi Charitas, Indonesia[2]
Universitas Katolik Musi Charitas, Indonesia[3]
Universitas Katolik Musi Charitas, Indonesia[4]
Universitas Katolik Musi Charitas, Indonesia[5]
Universitas Katolik Musi Charitas, Indonesia[6]
Universitas Katolik Musi Charitas, Indonesia[7]
Universitas Katolik Musi Charitas, Indonesia[8]
Universitas Katolik Musi Charitas, Indonesia[9]
Universitas Katolik Musi Charitas, Indonesia[10]
Corresponding Email: lilikpranata390@yahoo.co.id

Abstract

The increase in population in Indonesia means that the amount of food consumption also increases, if not accompanied by good environmental problems, will have a major impact, especially the problem of waste produced by the community, one of which is organic waste consisting of vegetables, fruits, and others; therefore there must be useful activities in managing the waste. The purpose of community service activities is to increase public knowledge about the processing of organic waste into coenzymes. The method educates and simulates exoenzymes made from vegetables processed from household waste. Participants in the activity were 15 people gathered in one place; the activity was carried out on May 15, 2024. The activity process began with planning, activities, and evaluation. The activity results showed that the participants were enthusiastic and very interested in participating in this education; there was an increase in public knowledge about managing organic waste into coenzymes. The conclusion of the activity shows that the community must often be given education and direct assistance to improve its ability, one of which is the processing of household waste in the form of vegetables, fruits, and other things.

Keywords: Education, organic waste, ecoezym

Introduction

Food waste management is one of the main issues in maintaining the sustainability of the urban environment (Nirmalasari Zebua et al., 2023). Garbage is a problem that has not been resolved until now. Garbage is a consequence of human activity (Mirawati et al., 2023). Organic waste is the waste that is most produced by the community, but there are still many people who cannot process organic waste properly, even though organic waste can be processed into Eco Enzyme (Hallisa et al., 2024). Processing organic waste into eco-enzymes. In addition, there needs to be training in processing non-organic waste and making it have added productive value for the group so that it can overcome the problem of waste accumulation, maintain environmental sustainability and be able to provide economic benefits to the community (Suryani & Sinuraya, 2024). Educating the local community about utilizing organic waste to make multifunctional products is good (Agnestisia et al., 2024). the success of the program in transferring valuable knowledge to the community. This initiative reduces the accumulation of organic waste and contributes to economic growth and community empowerment (Yasir et al., 2023).

One of the efforts to overcome the waste problem is to recycle waste into something useful by making eco-enzymes that can be used in various fields through the fermentation process (Permatananda & Pandit, 2023). Ecoenzyme is a processed product from the fermentation of organic waste, such as fruit and vegetable waste, as an effort to reduce waste disposal into the environment. The lack of skills in processing organic waste into coenzyme is a problem because there are still many piles of organic waste, which have the potential to pollute the air, water, and soil (Apindiati, 2024). Eco-enzyme is processed from organic waste that we usually throw in the trash (Rachmadani et al., 2023). Organic waste will produce methane, one of the household gases that plays a major role in global warming (Fitria et al., 2023). Ecoenzyme is also used to make environmentally friendly cleaning products such as dishwashing liquid, hand soap, and bath soap (Aryani et al., 2020).

Households are one of the sources of waste, and their utilization has been minimal. Household waste tends to end up in landfills (TPA) even though the waste can be processed into materials with economic value. Waste materials such as vegetable waste or fruit peels can be processed into multi-purpose eco-enzyme liquids. Making eco-enzymes is easy and can be done by anyone (Nengah Muliarta & Darmawan, 2021). Ecoenzymes are a natural alternative to harmful synthetic chemicals in the home. Converting organic kitchen waste from vegetable and fruit waste into household and environmental recycling materials can help solve the waste problem (Hasan & Setiawati, 2024). The creation of ecoenzymes not only helps reduce waste disposal in landfills but also serves as an alternative to reduce the use of synthetic chemicals (Hoya et al., 2024). The problem of waste is not only in urban and rural areas. It is a major environmental problem (Yanti et al., 2023).

Effective waste management and the use of organic fertilizers contribute to environmental sustainability and social well-being, empowering seniors with active involvement, improving health, and creating economic opportunities (Putranti et al., 2024). Eco-enzyme is a solution of complex organic compounds produced from the fermentation of kitchen waste in the form of fruit peels and vegetable waste (I Nengah Muliarta et al., 2023).

Garbage is a daily problem for human life in the world because garbage production occurs every day (Dina Rizkina et al., 2023). Household waste is closely related to waste production, especially from food production to consumption. Therefore, creative solutions are needed to manage organic waste to not pollute the environment and utilize waste (Hernina & Anindyajati, 2024). If the program runs well, implementing the eco enzyme garden will provide many benefits (Situmorang, 2022).

Waste is a product of human and natural activities with no economic value and tends to pollute the environment, so if it is not handled properly, it can become a big problem (Prodyanatasari & Fernanda, 2023). Waste is a product of human and natural activities that has no economic value and tends to pollute the environment, so if it is not handled properly, it can become a big problem (Prodyanatasari & Fernanda, 2023). The observation results show that the community still has minimal knowledge about processing eco enzymes, so the Community Service team carried out activities, education and assistance to residents regarding organic waste processing using the Ecoenzyme method.

Method

The activity was implemented in one of the sub-districts in the city of Palembang, South Sumatra, involving 15 local residents by providing education and simulations on making ecoenzymes.

1. Preparation Stage

   The preparation stage with partners by recording the number of residents and problems that occur around the community.

2. Activities

   Based on the results of preliminary studies conducted by the Community Service Team, organic waste is still found that is thrown away and not utilised, so it is necessary to educate and assist community members about processing organic waste into ecoenzymes, During the education process students were conducive and all listened to the speaker.

   The material explained about the understanding of ecoenzymes, the manufacturing process and benefits, as well as the materials prepared in the form of 2 kg of molasses, organic material (in the form of kale vegetable waste, mustard greens) 6 kg and 20 litres of water. The container or storage uses a beka gallon, the organic material is chopped until soft and weighed into a ratio of 1: 3: 10.The manufacturing process on May 15 2024 and harvesting ecoenzyme July 15 2024.

3. Evaluation Stage

   After the community service activities were carried out, an evaluation was carried out by asking the community directly. The training carried out stated that the activities were very interesting and needed to be carried out continuously with the community. There was also a written evaluation of knowledge and the manufacture of ecoenzymes and a pretest and posttest were carried out using a questionnaire sheet.

The activity process is carried out with education and then direct simulation

Figure 1. Eco Enzyme manufacturing process

Result and Discussion

Table 1. The results show that before education and mentoring were carried out by the Community Service Team

Knowledge criteria	Frekwensi	Presentase (%)
Very good	0	0
Good	2	13
Not enough	13	87
Total	15	100

Table 1 shows the results of the evaluation using a questionnaire sheet before providing education and mentoring to the community regarding the processing of organic waste into ecoenzymes with the criteria of less than 13 people (87%), good 2 (13) and very good 0 (0%).

Table 2. The results show that after education and mentoring were carried out by the Community Service Team

Knowledge criteria	Frekwensi	Presentase (%)
Very good	10	67
Good	5	33
Not enough	0	0
Total	15	100

Table 2 shows the evaluation results using a questionnaire sheet after education and mentoring as well as a simulation of community knowledge about processing organic waste into ecoenzymes with the criteria of less than 0 people (0%), Good 5 people (33%), and very good 10 people (67%).

The results of the activity show that the community is enthusiastic about participating in the activity. The questionnaire results show an increase in the number of participants to very good regarding knowledge of processing organic waste into ecoenzymes.

Conclusion

Community service activities need to be carried out through education and assistance so that they can carry out activities that can be beneficial, such as processing household waste, thereby reducing the risk of environmental damage.

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