

Socialization and Training on Ecoenzyme Manufacture in the Enviromoms Community, in Bojong Depok Baru II Housing, Sukahati, Cibinong, Bogor District

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Abstract: Enviromoms is a community created to improve virtual community-based community empowerment programs into solutions to overcome waste problems. One strategic role that has the potential to reduce the amount of waste generated by housewives. The aim of this program is to form a virtual community of Enviromoms housewives that focuses on the environmental sector, educate Enviromoms members and the community regarding zero waste homes, and form a waste-free Rukun tetangga pilot area. This program was attended by 20 mothers. Solution offered by the university, in this case the Chemistry Study Program, Faculty of Mathematics and Natural Sciences, Pakuan University, is to provide counseling about making ecoenzymes. The lack of knowledge of the community, especially the Enviromoms community group, in processing and optimizing the potential of organic waste from the kitchen needs to be improved through outreach and training. The output targets of proposal grant to be achieved include publication in the JPMI journal at Pakuan University, publication in the Jabar Online mass media, videos of the implementation of service activities which can be accessed online and improving skills in making ecoenzymes for mothers who are members of the Enviromoms community. The planned activities that will be carried out include socialization about ecoenzymes and their benefits, and training in making ecoenzymes from organic waste in the kitchen and practice by the participants.

Keywords: ecoenzymes, organic waste, fermentation

1. INTRODUCTION

Enviromoms is a community created to improve virtual community-based community empowerment programs into solutions to overcome waste problems. One strategic role that has the potential to reduce the amount of waste generated by housewives. The aim of this program is to form a virtual community of Enviromoms housewives that focuses on the environmental sector, educate Enviromoms members and the community regarding zero waste homes, and form a waste-free RT pilot area. This program was attended by 20 housewives who are interested in environmental issues and live in the city of Bogor. With online training, field visits, implementing waste sorting challenges from home, as well as regular online monitoring and evaluation, it can be proven that there has been an increase in knowledge and changes in

members' behavior in managing waste. Apart from that, through the implementation of zero waste home socialization challenge to the community in their respective domiciles, it can be proven that housewives can become community mobilizers in the environmental sector. This can be proven by the members' success in establishing a waste bank and creating a waste-free pilot RT area. Therefore, this program can be a strategy to achieve the 5th, 6th and 12th points of the Sustainable Development Goals (SDGs) in realizing zero waste in Indonesia.

Indonesia is one of the 3 countries with the largest biological resource potential, but our human resources (HR) have not been able to optimize the wealth of natural resources and the environment, especially existing organic waste. Common obstacles encountered in this case include the low priority of public attention to the potential for organic waste in the kitchen. The lack of public knowledge in managing and utilizing organic waste in the kitchen is also a major obstacle to diversifying waste utilization. Seeing the various obstacles mentioned above, a change will be made in the form of empowerment whose main focus is providing counseling and training. In order to minimize these obstacles, it is necessary to carry out community service activities, especially for mothers who are members of the Enviromoms community who need knowledge and skills. in managing and utilizing organic waste in the kitchen as raw material for making ecoenzymes. This training is proof of the efforts of the Chemistry Study Program, Faculty of Mathematics and Natural Sciences, Pakuan University in realizing the tridharma of higher education, namely community service by supporting the Healthy Indonesia program through outreach, counseling and training activities. It is hoped that the community can better understand the importance of utilizing organic waste so that more economic value for society in general. In this case, we as academics will provide training. Ultimately, the community can increase their insight and skills, especially in making ecoenzymes (Yulistia,et all,. 2021).

Ecoenzymes or garbage enzymes are complex solutions resulting from fermentation of organic waste such as fruit and vegetable waste with brown sugar or molasses and water with the help of selective microorganisms from the fungal and bacterial groups for 3 months. The resulting fermentation solution has a dark brown color and a strong sweet-sour odor typical of fermentation products. Ecoenzymes were developed by a researcher from Thailand, namely Dr. Rosukon Poompanvong in 2006. Ecoenzymes are said to contain protein chains (enzymes), organic acids and mineral salts which are easily obtained from the fermentation of organic waste. Ecoenzymes are similar to enzymes in that they have a high degradation rate in a short time. Researchers suggest that this ecoenzyme can be used in 4 categories: decomposition, composition, transformation and catalysis (Novianti et al., 2021).

Ecoenzymes use raw materials that are easily available and cheap. The fermentation process, which takes 3 months, requires patience. However, the resulting solution has many benefits. In the fermentation process alone, O₃ gas (ozone) is continuously produced which is very much needed by the earth's atmosphere. When the ecoenzyme solution is mixed with water, it will react and can be used as a cleaning

fluid for everything from dishes, floors, clothes, toilets, to hair wash and bath soap. If needed, it can also clear blocked drains. When mixed with water when used to water plants, it will produce better fruit, flowers or harvests. Reportedly it can also repel annoying insects. Fermented organic waste dregs can be used as good organic fertilizer (Lubis et al, 2022).

The many functions of this ecoenzyme make it seem like a versatile "magic solution" and of course its functions for the environment are also numerous. Because throughout its use, whether as a cleaner, fertilizer or something else, O₃ continues to be released into the air.

Efforts to make ecoenzymes from organic waste in the kitchen are intended for the purpose of utilizing and increasing the economic value of organic waste in the kitchen. Implementation of this activity uses socialization and training methods by means of counseling about ecoenzymes, their manufacture and benefits as well as training in making ecoenzymes. This activity will be carried out for women who are members of the Enviromoms community who are in the Bogor City.

2. METHOD

The method of implementing community service consists of counseling, training, monitoring and evaluation, including:

1. Provide education about ecoenzymes and their benefits. Extension is carried out using lecture and discussion methods delivered by chemists.
2. Provide an explanation about making ecoenzymes
3. Practice making ecoenzymes from organic waste in the kitchen

Tools and materials:

Use an ingredient ratio of 1:3:10; 100g brown sugar/molasses, 300g fruit peel waste or vegetable waste, 1 liter of water, Plastic bottles or closed containers. Notes: It is recommended to use more fruit peel than leftovers Vegetables, use orange peel to make the ecoenzyme liquid smell fresh, Don't use metal containers because they are less elastic.

How to make:

Pour all the ingredients into a plastic bottle or closed container, then mix sugar and water in a container but don't fill it until it's full, store in a dry and cool place at temperature. Open the lid of the storage container every day for the first week, remove fermentation gas. Open the lid of the storage container every two days in the second week and third, Stir the liquid at a storage time of one month and two months. Ecoenzyme liquid is ready to be harvested after at least three months of storage. (Dinda Rizky Amalia Siregar).
[Liputan6.com/lifestyle/read/4541153/cara-simpel-make-eco-enzyme-from-organic-waste-at-home](https://liputan6.com/lifestyle/read/4541153/cara-simpel-make-eco-enzyme-from-organic-waste-at-home)



Figure 1: Ingredients for Making Ecoenzymes



Figure 2: Ecoenzyme Making Process

3. RESULT AND DISCUSSION

Ecoenzyme production outreach activities were carried out offline for cadres of women members of the enviromoms community, Bogor Regency using lectures, discussions and demonstrations delivered by chemists and food experts on September 19 2023. This activity was attended by around 20 participants from women - members of the enviromoms community with the PKM (Pengabdian Kepada Masyarakat) chairman as a resource person.

The results of the activities carried out in the form of ecoenzymes have been handed over by the chief executive to these women, members of the environmental community, Bogor Regency, the participants knowledge and skills increase. Complementary to this PKM (Pengabdian Kepada Masyarakat) activity is publication through West Java Online Media, with the aim of making this activity known to the general public, as can be seen in Figure 3.



Figure 3: Photo of Socialisation Activities



<https://jabaronline.com/dosen-fmipa-universitas-pakuan-held-socialization-dan-bisnis-pembuatan-ekoenzim-pada-komunitas-enviromoms>

Figure 4: Publication at online media

Limited funds are an obstacle so that even though this outreach activity is carried out offline, it has limited participants. This activity is published in online media so that it is more widely accessed and reaches the wider community. As a follow-up, activities like this need to be carried out with different topics.

4. CONCLUSION

1. PKM (Pengabdian Kepada Masyarakat) activity with the title socialization and training on making ecoenzymes in environmental communities was carried out on September 19 2023
2. PKM (Pengabdian Kepada Masyarakat) activities produce outcomes in the form of increasing the insight of women members of the Bogor Regency environmental community, publication of activities on Online Media with the link <https://jabaronline.com/dosen-fmipa-universitas-pakuan-holding-socialization-and-making-training-ecoenzymes-on-community-enviromoms>

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