

ECO-ENZYME TRAINING: BIODEGRADABLE WASTE MANAGEMENT

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Abstract

The increasing amount of trash that is increasing and complex can cause many problems. Waste disposal sites are sometimes unreliable for their carrying capacity, so educating the public about the importance of waste management and processing is an urgency. One method of managing and processing waste that can be done is to make an eco-enzyme solution. Eco-enzyme solution is made by utilizing waste from fruit and vegetable peels. Eco-enzyme solutions also have many household uses. Eco-enzyme training is important as a form of optimism for the community to care more about the environment.

Keywords: sampah, eco-enzyme

1. INTRODUCTION

Waste is the residue of a human activity and is considered useless (Sujarwo et al., 2014; Mahyudin, 2014). Waste itself can be organic or non-organic which can be decomposed or not decomposed. Because waste is the remains of human activities, it can contain various things, such as insecticides, heavy metals, and so on (Umayana & Cahyati, 2015). Its nature can ultimately be harmful to human health and safety, so waste management and processing is urgent.

An increase in the amount of waste results in an increasingly complex waste problem. Waste problems will continue to be a concern if people do not have awareness and knowledge about waste management and processing. Garbage disposal sites (TPS) are sometimes unreliable for their carrying capacity and capacity, so educating the public about the importance of waste management and processing is urgent. Waste management is identified with engineering functions, so it requires a lot of technology and scientific disciplines.

In more detail, as much as 70% of the total type of waste in the TPA Piyungan Yogyakarta is organic waste. Organic type waste often causes an unpleasant odor. If left for a long period of time, it will disrupt water quality and the health of the surrounding

community. This is of particular concern, so it is necessary to take steps to overcome this problem and at the same time produce more useful products.

One form of waste management that can be done is by making eco-enzyme. Eco-enzyme is a fermented liquid from biodegradable waste of fruits, vegetables and other organic waste which is very useful for agriculture, health and for households. The purpose of this community service is to educate students as agents of change regarding the use of eco-enzymes from household waste as liquid organic fertilizer and disinfectants. The implementation method used is training and practice of making eco-enzyme and its benefits.

2. IMPLEMENTATION METHOD

To increase public literacy on the importance of waste management and processing based on the manufacture of eco-enzyme solutions, training and practice of making eco-enzymes is very important. Training is carried out by involving several resource persons who are experts in their fields. Training is a planned effort to facilitate the learning process to acquire the desired knowledge, competencies, skills, and behaviors (Raymond A. Noe, 2017). Traditionally, training can be held through a specific course program or event.

The speaker in this eco-enzyme training is an administrator from the Arjuna Garbage Bank in Yogyakarta. The form of training consists of several aspects, including socialization, education, and hands-on practice on how to make eco-enzyme. The Arjuna Garbage Bank is an environmentally concerned community that actively socializes the importance of waste management and processing, especially by making eco-enzyme solutions which have many benefits.

3. RESULT AND DISCUSSION

Eco-enzyme was first introduced by Dr. Rosukon Poompanvong (founder of the Thai Organic Agriculture Association). Eco-enzyme is a liquid produced from fermenting organic waste such as fruit and vegetable peels mixed with sugar and water which produces a disinfectant content due to the presence of alcohol or acidic chemical

compounds. The eco-enzyme production training began with a direct presentation by Drs. Sigit Kuncoro, S.Pd. The speaker explained in detail about what eco-enzyme is, the origin of eco-enzyme, the pioneer and inventor of eco-enzyme, the development of eco-enzyme in Indonesia, the beginning of eco-enzyme activities at the Arjuna Garbage Bank, as well as how to make and characteristics of eco-enzyme the good one. After the presentation of the material was completed, the activity continued with the practice of making eco-enzyme directly by the participants. The training participants totaled 15 people divided into 5 groups with each group having one supervisor from the Arjuna Garbage Bank. Following are the steps for making eco-enzyme (Hasanah, 2021):

1. The materials used for making eco-enzyme consist of 500 ml of water; 50 g of molasses (brown sugar); 150 fruit waste. Tools used: 1000 ml plastic bottles; digital scales; funnel; knife.
2. Prepare a used plastic bottle/container that can be closed tightly. Do not use metal containers as they are less elastic. The fermentation process will produce gas, so it requires a clean container.
3. Put 500 ml of water into a plastic bottle/container, followed by 50 g of molasses.
4. Put the remaining fruit peels or vegetable scraps into the container.
5. Please leave it in the room from the fermentation process. Do not fill the container full. Stir or turn your plastic bottle/container upside down until the water and sugar/molasses solution is mixed well. Please don't shake it.
6. In the first month, gas will be produced from the fermentation process. Stir or turn the plastic container/bottle upside down, unscrewing the plastic container/bottle every day for the first month. Sometimes there is a white coating on the surface of the solution. If worms appear, add a handful of sugar, mix well and then cover.
7. Store in a cool, dry, and ventilated place. Avoid direct sunlight and do not store it in the refrigerator. Fermentation lasts for three months (for tropical areas) and six months (for subtropical regions).
8. After three months, filter the eco-enzyme using a strainer. The residue can be reused for a new batch of eco-enzyme production by adding fresh bins. The residue can also be dried, then blended, and buried in the soil as the fertilizer or disinfectant.

4. CONCLUSION

Eco-enzyme training is needed and needs to be known by the public because the eco-enzyme solution product itself has various benefits. Eco-enzyme is used as a multi-purpose liquid, including for cleaning floors, as a detergent for washing clothes, as soap and shampoo that can be used for bathing, as an ant, cockroach, and even rat exterminator, as a well water purifier. In addition, the eco-enzyme solution is also very good for skin and facial health. By utilizing waste such as fruit and vegetable peels, eco-enzyme solution can be used as a product that can be reused for everyday life. This is clear evidence that waste can still be reused and even become products that are richer in benefits, if you know the knowledge and methods of processing and managing waste properly and correctly.

5. REFERENCES

- Hasanah, Y. (2021). Eco-enzyme and its benefits for organic rice production and disinfectant. *Journal of Saintech Transfer*, 3(2), 119–128. <https://doi.org/10.32734/jst.v3i2.4519>
- Mahyudin, R. P. (2014). STRATEGI PENGELOLAAN SAMPAH BERKELANJUTAN. *EnviroScientiae*, 10, 33–40.
- Raymond A. Noe. (2017). *Employee Training and Development* (Seventh Edition). McGraw-Hill Education.
- Sujarwo, Trisanti, & Widyaningsih. (2014). *PENGELOLAAN SAMPAH ORGANIK & ANORGANIK*.
- Umayana, H. T., & Cahyati, W. H. (2015). DUKUNGAN KELUARGA DAN TOKOH MASYARAKAT TERHADAP KEAKTIFAN PENDUDUK KE POSBINDU PENYAKIT TIDAK MENULAR. *Jurnal Kesehatan Masyarakat*, 11(1), 96. <https://doi.org/10.15294/kemas.v11i1.3521>