

Community Empowerment through Strengthening Students' Competence through the Production of Eco-Enzymes at Al-Mashum Mardiyah Islamic Boarding School, Cugenang District, Cianjur Regency, West Java

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Abstract: Al-Mashum Mardiyah is an Islamic educational institution located at Jalan Simpang Galudra number 76, Cugenang District, Cianjur Regency, West Java, 79.6 KM from the Faculty of Industrial Technology, Jayabaya University. This pesantren was founded because many children in Galudra Village dropped out of school, illiterate and married at a young age even though Galudra Village is not far from Jakarta. This pesantren has a junior high school, high school and vocational school, where graduates from this pesantren are expected to be experts in religion, science and technology based on the Qur'an. SMK Al- Ma'shum Mardiyah has a curriculum about agrotechnology that has an entrepreneurial spirit. The results of discussions with partners at the pesantren, there are problems regarding the production aspect, where the types of products produced by SMK students are still limited. In this PkM which was carried out on July 22 and August 26-30, partners were taught to produce eco-enzymes. The eco-enzyme is made from vegetable waste collected by vocational students around the school. The benefits of this activity are felt by the community because it can increase the type of production. The material presented was understood by 95% of the participants who attended the training.

Keywords: Eco-Enzymes; Green House; Training; Pesantren

Introduction

Al-Mashum mardiyah is an Islamic educational institution located at Jalan Simpang Galudra number 76, Cugenang District, Cianjur Regency, West Java, 79.6 KM from the Faculty of Industrial Technology, Jayabaya University (Figure 1). This pesantren was founded because many children in Galudra Village dropped out of school, illiterate and married at a young age even though Galudra Village is not far from Jakarta. This pesantren has a junior high school, high school and vocational school (Figure 2), where graduates from this pesantren are expected to be experts in religion, science and technology based on the Qur'an. SMK Al- Ma'shum Mardiyah has a curriculum about agrotechnology that has an entrepreneurial spirit (Figures 3 and 4). The

results of discussions with partners at the pesantren, there are problems in the production aspect.

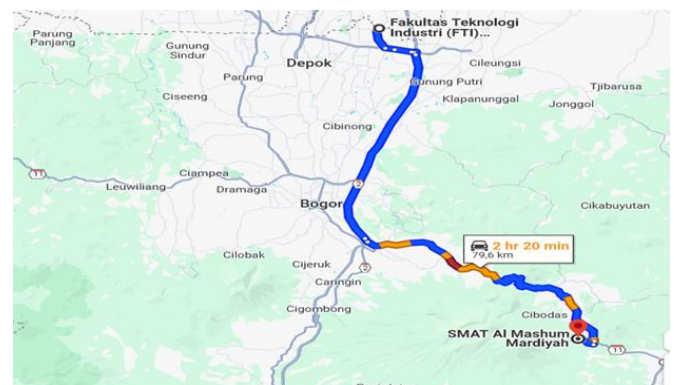


Figure 1. Distance Map of SMK Al-Ma'shum Mardiyah with the Faculty of Industrial Technology, Jayabaya University

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The problem of the Production aspect, namely students of SMK Al-Ma'shum Mardiyah, have limited skills in producing products to be sold as a business. Currently, the products made are food products and ornamental cactus cultivation. For food products, students utilize agricultural products produced from the plantations around the school, but production is limited when there are orders.

The objectives of this activity are (1) to solve partner problems, namely increasing the variety of types of economic value products produced by students of SMK Al-Ma'shum Mardiyah through the manufacture of Eco-enzymes and eco-enzyme-based soaps.

Method

Based on the previous description, as well as the results of discussions with partners, the priority problems that must be resolved with partners at stages. Stage 1. Socialization of activities to interested parties in pesantren.

Stage 2. Training Activities and Application of Eco-Enzyme Production Technology; (1) Eco-Enzyme production assistance; (2) Assistance in the production of floor soap from Eco-enzymes

Stage 3. Assistance and Evaluation of Eco-enzyme Production.

Result and Discussion

Result

The large amount of plantation land around the pesantren (Figure 6) is an advantage of the pesantren to make products that can be made and sold.



Figure 2. Photo of Al-Ma'shum Mardiyah Islamic Boarding School



Figure 3. Picture of SMK Pesantren Al-Ma'shum Mardiyah



Figure 4. Classroom photo of SMK Pesantren Al-Ma'shum Mardiyah



Figure 5. Photo of the Plantation around SMK Pesantren Al-Ma'shum Mardiyah

One of the products that can be made is utilizing vegetable waste from farmers around the SMK that has been disposed of carelessly (Figure 6-9). Farmers throw agricultural waste into ditches and rivers, causing siltation of the ditches. When it rains, the sewers overflow and agricultural waste litters the streets. Agricultural waste can be utilized to make eco-enzymes to be used as antibacterials (1) that can be used for the daily needs of boarding schools such as dishwashing soap. The remaining dregs of the eco-enzyme can be used as organic fertilizer for plants around the vocational school.



Figure 6. Photo of people cleaning harvested carrots in the plantation around SMK Al-Ma'shum Mardiyah.



Figure 7. Carrot waste thrown into the ditch by residents



Figure 8. Cabbage waste discharged into the sewer



Figure 9. Piles of vegetable waste on the riverbank.

Discussion

Eco-enzyme Making Training

Vegetable waste generated by the community can be utilized to make Eco-enzyme. Eco-enzyme is the invention of a researcher and environmentalist from Thailand named Dr. Rosukon Poompanvong. He is also a founder of the Organic Agriculture Association of Thailand and was awarded by the FAO Regional Thailand in 2003 (Megah et al, 2018). Eko enzyme is a multifunctional liquid produced from a 3-month fermentation process with simple ingredients, brown sugar / cane sugar, waste or organic waste using a composition of 1:3:10 (Imelda et al, 2022). During the fermentation process, Eco-Enzyme will produce ozone and oxygen equivalent to that produced by 10 trees. Some of the benefits of Eco-Enzyme are that it can clean polluted rivers, antiseptics, fertilize the soil and replace daily household chemical products. In this PkM, vocational students were taught how to make Eco-

Enzyme from community waste that they collected. The training began with an explanation of the basic theory of Eco-enzymes explained by Mrs. Lubena, MT as shown in Figure 10. After being explained, the participants practiced making eco-enzymes from the vegetable waste they collected as shown in Figure 11.



Figure 10. Eco-Enzyme material explanation by Ir. Lubena, MT



Figure 11. Eco-Enzyme Making Process by Vocational School Students



Figure 12. Eco-Enzyme Fermentation Process for 3 months

Training Evaluation

To determine the understanding of the training provided, an evaluation was conducted as shown in Figure 13.

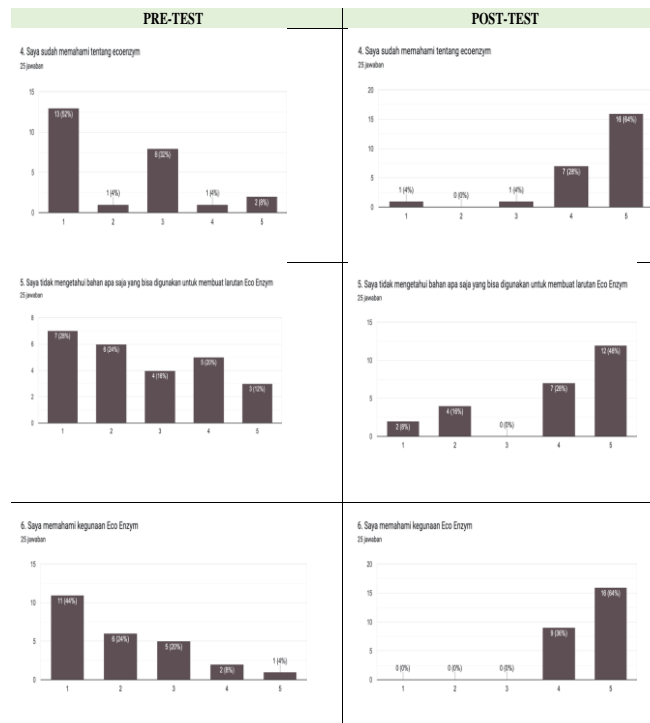


Figure 13. Evaluation results of participants' understanding of the training conducted

Participants' understanding of ecoenzymes, understanding ecoenzymes, increased from 4% to 28%. Very understanding ecoenzymes, increased from 8% to 64%. Conclusion: 92% of the participants had a good understanding after the training. Participants' understanding of what materials are commonly used to make Eco Enzym solution, increased from 20% to 28%. Very aware of what materials are commonly used to make Eco Enzym solution, increased from 12% to 48%. Conclusion: 76% of the participants knew or were very aware of the ingredients commonly used to make Eco Enzymes solution. Participants' understanding of the use of Eco Enzymes, increased from 8% to 36%. Strongly understand the use of Eco Enzymes, increased from 4% to 64%. Conclusion: 100% of participants understood or strongly understood the use of Eco Enzymes.

Conclusion

This PkM activity succeeded in solving the problems of SMK Al-Masum Mardiyah students, where the benefits of this activity were felt by the community because it could increase the type of production. The understanding of the material presented was understood by 95% of the participants who attended the training.

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