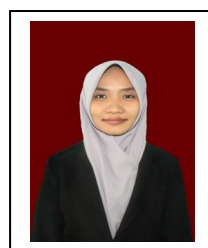
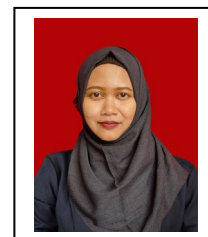


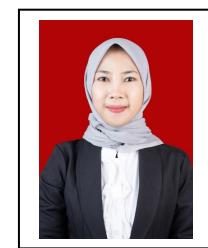
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SOCIALIZATION ACTIVITIES ON THE USE OF ORGANIC WASTE (RICE HUSKS, CORN HUSK WASTE, AND COCONUT SHELLS) INTO ENVIRONMENTALLY FRIENDLY ORGANIC COLOR PIGMENTS IN MAKING MARKER INK AT SMP NEGERI B. SRIKATON

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Abstract: Making marker ink from organic waste is one way to reduce the amount of waste that goes to landfills. Students will learn that organic waste can be reutilized into valuable products. Making marker ink from organic waste involves innovation and creativity in solving environmental problems. This socialization can encourage students to think critically and find alternative solutions to everyday problems. This implementation activity involves lecturers and heads of study programs in the Bioengineering study program of the Muhammadiyah Sumatera Institute of Technology.

The place and time of the activity at B. Srikaton State Junior High School on October 14, 2024. This socialization activity consists of material delivery, discussion, making markers using organic materials, evaluation, and closing. We hope this knowledge will encourage participants to care more about their surroundings and take small steps to reduce waste and use it creatively.

Keywords: Socialization, Markers, organic matter waste, environmentally friendly.

INTRODUCTION

The Muhammadiyah Sumatra Institute of Technology (ITMS), precisely the bioengineering study program, conducted socialization at SMP Negeri B, Srikaton, about the "Utilization of organic waste (rice husks, corn husk waste, and coconut shells) into environmentally friendly organic color pigments in making marker ink." This socialization is carried out to grade 8 students, aiming to increase students' awareness of environmental issues, including the negative impact of organic waste on the environment and how to reduce it.

Dyes, varnishes, and additives are some ingredients that makeup ink. There are two types of coloring agents: pigments and dyes. Organic and inorganic pigments are the former. To become a binder, pigments require an interrupt, which can be either a solution or a liquid. Usually, the ink is black and contains carbon. In addition, using some natural materials around us as the main ingredient to make marker ink is also advantageous (Anova et al., 2017). Processed coconut shells are an example of this. Good whiteboard marker ink should be solid black and dry quickly (Rengganis et al., 2017). Making marker ink from organic waste is one way to reduce waste in landfills. The amount of waste that goes to landfills. Students will learn that organic waste can be reused to make useful products. Making marker ink from organic waste involves innovation and creativity in solving environmental problems. Creativity in creating solutions to environmental problems. This socialization can encourage students to think critically and find alternative solutions to everyday problems. Everyday problems.

Through this socialization, students will have direct experience making marker ink from organic waste. Practical learning like this can help students understand scientific concepts better. Making marker ink from organic waste can be an exciting and useful educational project for students. They can learn about various aspects, from introductory chemistry to waste management.

This socialization can also increase students' awareness as consumers about the importance of choosing environmentally friendly products. They will learn that there are alternatives to conventional products that can help reduce negative environmental impacts. With this background, socialization at SMP Negeri B. Srikaton on making marker ink from organic waste can be the first step in building environmental awareness and sustainable skills for future generations.

A. Purpose of Socialization

The purpose of socialization at SMP Negeri B. Srikaton about making marker ink from organic waste:

Educating students about the importance of organic waste management and its positive environmental impact. By demonstrating that organic waste can be turned into valuable products such as marker ink, students can better appreciate the importance of recycling and waste reduction practices.

Introduce students to environmentally friendly and simple technology concepts that can be applied in everyday life. Making marker ink from organic waste is a good example of how technology can be used to turn simple materials into useful products.

Encourage students to think creatively about how to use and utilize existing resources to create new products. Making marker ink from organic waste can give students hands-on experience in developing ideas and innovations.

B. Benefits of Socialization

Socialization at SMP Negeri B. Srikaton about making marker ink from organic waste has several significant benefits, including:

Showing students that organic waste can be processed into valuable products, such as marker ink, will increase their awareness of recycling and managing waste wisely.

Showing students how to turn organic waste into valuable items can encourage them to reduce the amount of waste generated, as they realize that waste can be a source of raw materials for other products.

Through socialization about making marker ink from organic waste, students will be invited to think of ways to solve problems and optimize the production process. This can improve their critical thinking skills.

Socialization about making marker ink from organic waste can encourage students to be innovative and creative in creating new solutions to environmental and social problems.

METHOD

1. Implementation of Activities

A. Activity Organizer

This implementation activity involves lecturers and heads of study programs in the Bioengineering study program of the Muhammadiyah Sumatra Institute of Technology

B. Activity Place and Date

Place : SMP Negeri B. Srikaton

Date: Saturday, October 14, 2023

Time: 08.00 - End

Activity Goals: Students of SMP Negeri B. Srikaton

C. Series of Activities

1. Introduction and Concept Introduction (30 minutes)

- Greeting from the school (Principal) : Sugih Busono, S.Pd.
- Explanation of the concept of making marker ink from organic waste and its positive impact on the environment.

2. Presentation and Demonstration of Inkmaking Steps (60 minutes)

- A brief presentation of the necessary materials and the ink-making process.
- Demonstration with step-by-step video tutorial by facilitator or speaker.

3. Discussion and Q&A (20 minutes)

- Q&A sessions for students to ensure their understanding of ink-making concepts and processes.
- Discussion on how to reduce waste at school and at home.

4. Evaluation and Concluding (10 minutes)

- A brief reflection of the student about their experience in the activity.
- Closing with a reminder of the importance of environmentally friendly practices in everyday life.

Let's together be agents of change for a better environment by harnessing creativity and awareness of organic waste!

RESULTS AND DISCUSSION

Organic waste is the remains of organic matter derived from plants or animals that can usually be decomposed naturally by microorganisms. Examples are the remains of vegetables, fruits, and paper. Today, organic waste is increasingly becoming a concern because if not managed properly, it can cause environmental problems such as air and water pollution. Therefore, we need to find ways to reduce organic waste and use it creatively.

The use of marker ink continues to grow, and the printing industry is racing to find more environmentally friendly inks. One component of organic ink can be used in materials such as leaf litter, fruit skin, etc. According to Farida (2020), dragon fruit skin can be used as magenta and white ink material, and according to Novitasari (2020), black ink can also be made from coconut shell charcoal. In addition to coconut shells, rice, and corn can also be used as components to make black ink. Currently, not many use corn husk waste, rice husks, and coconut shells, which, when they have accumulated, result in the waste being wasted or burned, and the carbon waste is no longer used.

Innovations that can be made include using corn husks, rice husks, and coconut shells as an alternative to organic ink in making marker ink. Corn husks, rice husks, and coconut shells contain cellulose, which, when burned, produces carbon that carries a black color and can be used as a pigment. Organic pigments found in corn, rice, and coconut shells can be recycled into ink such as printing ink, writing, stamping, and marker ink made by Rengganis et al. (2017) in coffee grounds processing.

Table 1. Tools and Materials

Tools:	Materials:
Used Cans	Plastic Sieve Organic waste (corn husk, rice husk, and coconut shell)
Matches	
Pestle and mortar	Gum Arabic
Spatula	Alcohol 96%
Stirring rod	Aquades
Dropper pipette	
250 mL beaker	
100 mL beaker	
25 mL measuring cup	
Digital balance sheet	
Weighing Paper	

How it Works

Gum arabic grinding stages:

- 1) Prepare chunks of gum arabic
- 2) Put it in a pestle and mortar
- 3) Puree gum arabic until obtained gum arabic with a smaller particle size

Stages of Making Organic Waste Carbon

1. Prepare organic waste that will be processed into carbon; in this experiment, there are three types of organic waste used, namely rice husks, corn husks, and coconut shells
2. Prepare three used cans as a place to burn the organic waste, then label them to distinguish them

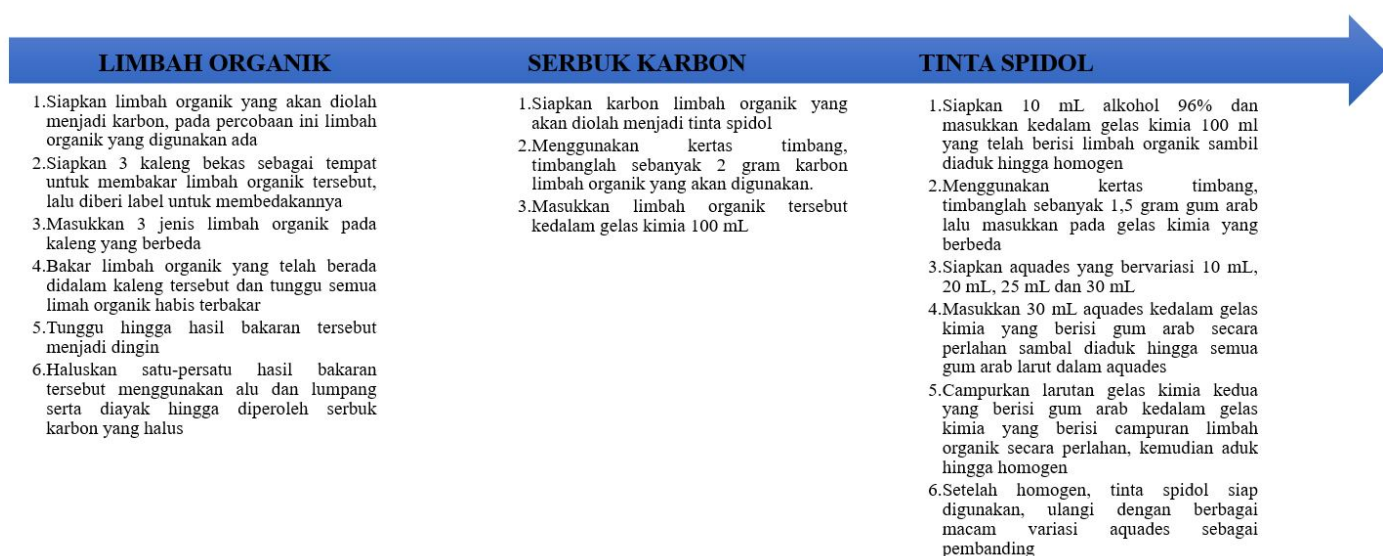
3. Put rice husks in the first can, then coconut shells in the second can, and corn husks in the third can
4. Burn the organic waste that has been in the can and wait for all the organic limes to burn out and become carbon
5. Wait for the carbon to cool
6. Puree the carbon one by one using a pestle and mortar until a fine carbon powder is obtained
7. Sift the carbon powder using a plastic sieve until a finer carbon powder is obtained
8. Carbon powder ready for use

Stages of processing organic waste carbon powder into marker ink:

1. Prepare organic waste carbon to be processed into marker ink
2. Using weighing paper, weigh as much as 2 grams of organic waste carbon (rice husks, corn husks, or coconut shells) to be used.
3. Put the organic waste into a 100 mL beaker
4. Prepare 10 mL of 96% alcohol and put it in a 100 ml beaker containing organic waste while stirring until homogeneous
5. Using weighing paper, weigh 1.5 grams of gum arabic and place it in a different beaker
6. Prepare equates that vary from 10 mL, 20 mL, 25 mL, and 30 mL
7. Put 30 mL of equates into a beaker containing gum Arabic, slowly stirring until all gum Arabic dissolves in equates
8. Mix a second beaker solution containing gum arabic into a beaker containing a mixture of organic waste slowly, then stir until homogeneous
9. After homogeneous, the marker ink is ready for use. Repeat with various variations of equates as a comparison

D. Activity Documentation

ALUR PEMBUATAN TINTA SPIDOL



Picture 1. Socialization about Making Markers from Organic Waste



Picture 2. Discussion about organic waste



Gambar 3. B. Srikaton State Junior High School

CONCLUSION

Thus, the socialization community service activity of making marker ink from organic waste has been held at SMP Negeri B. Srikaton. This activity aims to better understand creative efforts in managing organic waste and promote environmental awareness among our students. Through discussions and demonstrations, we have successfully conveyed helpful information on making marker inks from readily available and environmentally friendly materials. We hope this knowledge will encourage participants to care more about their surroundings and take small steps to reduce waste and use it creatively. Thank you to all parties who have contributed to organizing this event.

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