

1ST EDITION

E-EXTENDED
ABSTRACT

**INTERNATIONAL
AGROTECHNOLOGY
INNOVATION
SYMPOSIUM (i-AIS)**



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INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

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ABOUT FACULTY OF PLANTATION AND AGROTECHNOLOGY

The Faculty of Plantation and Agrotechnology was established in 2010 at Universiti Teknologi MARA (UiTM). The mission of the faculty is to play the vital role of producing well-trained professionals in all areas of plantation and agriculture-related industries at national and international levels.

Bachelor of Science (Hons) Plantation Technology and Management is a three-year program that strongly emphasizes the various aspects of Production Technology, Management, and Information Technology highly sought after by the agricultural and plantation sectors. Students in this program will be fully trained to serve as professionals in the plantation sector and related industries. They will have ample opportunities to fulfill important positions in the plantation industry such as plantation executives. This program provides a strong balance of technology and management courses essential for the plantation industry such as management of plantation crops, soil fertility, plantation management operation, plantation crop mechanization, and agricultural precision. As an integral part of the program, students will be required to undergo industrial attachment to gain managerial skills in the plantation industry.

The faculty is highly committed to disseminating, imparting, and fostering intellectual development and research to meet the changing needs of the plantation and agriculture sectors. With this regard, numerous undergraduate and postgraduate programs have been offered by the government's intention to produce professionals and entrepreneurs who are knowledgeable and highly skilled in the plantation, agriculture, and agrotechnology sectors.

HAND SANITIZER FROM FRUIT WASTE

Muhamad Hakimi, Hussin¹, Ahmad Nur Hairul, Hadzari¹, Muhammad Zharfan, Ab Razak¹

¹*Faculty Plantation and Agrotechnology, University Technology MARA, Malaysia*

Corresponding author e-mail: hakimihussin2@gmail.com

ABSTRACT- Eco-enzyme is a multifunctional liquid produced from the fermentation of waste or organic waste, water, aloe vera as a thickness and moisturizer. Fermentation of eco-enzymes is carried out for 2-3months. The length of time fermentation effect is colour, aroma and pH. The fermentation times of the eco-enzymes utilized range between 2.5 months and 3 months. pH testing is a part of eco-enzyme analysis. pH duration for a fermentation that lasts 2.5 months is 3, compared to 1.5 for a fermentation that lasts 3 months. For each sample, a different dilution ratio was used: 1:40, 2:40, 3:40, 4:40, and 5:40. Based on the results and discussion of the analysis, the best samples obtained in hand sanitizer with an eco-enzyme fermentation length of 3 months and a dilution ratio of 5:40. It's because not all hand sanitizer samples is meet to standard. Aloe vera as a thickness and moisturizer is better than brown sugar because of some factors.

Keywords: Hand sanitizer, Fruits waste hand sanitizer, eco-enzyme, fermentation

INTRODUCTION

Agricultural waste can be described as the products of the cultivation and first processing of agricultural products, including fruits, vegetables, meat, poultry, livestock, and crops. Although the phrase "agricultural waste" is used to refer generally to garbage released on a farm by various farming activities, these activities can also include other activities like seed production. Fruit peel such as apple peel, papaya peel residue is among the household organic wastes that can be used to make eco-enzymes. You can use the eco-enzyme as a hand sanitizer. Hand Sanitizer is an alcohol-based hand sanitizer that can be applied without being rinsed with water in order to destroy bacteria. Hand sanitizer preparations are hand sanitizers with antibacterial properties that are convenient, portable, and easy to carry. Alcohol is not necessary in eco-enzyme hand sanitizers since the eco-enzyme already contains alcohol and acetic acid, which work together to kill bacteria. The fermentation process of eco-enzymes produces these alcohols and acetic acid, therefore the hand sanitizer made from this eco-enzyme does not irritate hands.

OBJECTIVE

The first objective in this study is to reduce food waste from home. second, the objective of this study is to save the community's cost of buying hand sanitizer.

SCOPE OF STUDY

This study will be conducted using organic materials from the home kitchen such as fruit skins. This study also uses the fermentation method and does not need to use alcohol. This study is to test the suitability of consumers to use hand sanitizer based on fruit waste.

MATERIAL AND METHOD

Material

½ cup of aloe vera, 5 -10 drops of essential oil and put the fruit waste such as papaya and apple peel.

Method

The peel of the fruit and aloe vera that has been finely cut is mixed into a jar that has contained water and stirred homogeneously. Your skin will be thickened and moisturized by the aloe vera. Add a few drops of essential oil and then blend all this thing. Essential oils are to make it smell is very nice. We use oils with citrus scents, like lemon. After that, combine all the ingredients and pour them into a container. After everything has been mixed,

the jar is carefully shut and ferments for around three months. The finished level of the product is also determined by lighting and equipment sterilization. During fermentation, the jar is kept at room temperature. The liquid is filtered to remove the dregs, and the filtered products are put in clean bottles to be used as hand sanitizers.

RESULTS AND DISCUSSION

A multipurpose liquid called eco-enzyme is created when garbage or organic waste, sugar, and water are fermented. Eco-enzyme production is carried out using an anaerobic fermentation technique. Anaerobic fermentation, which can produce alcohol or acetic acid depending on the kind of microbe, is an effort by bacteria to acquire energy from carbohydrates under anaerobic circumstances (without oxygen). The table 1 shows that fermentation lasting 2.5 months produced a pH value of 3, whereas fermentation lasting 3 months produced a pH value of 1.5. This demonstrates that the pH decreases with fermentation time since a larger degree of acidity is also created. As a result, compared to the pH value with a fermentation duration of 2.5 months, the pH indicator in eco-enzyme fermentation has a lower pH value. The effect of time fermentation is colour, aroma and pH.

Figure 1 illustrates how the pH value of the hand sanitizer fluctuates depending on the factors examined. One of these is demonstrated by changes in pH values caused by variations in eco-enzymes, where the pH value achieved falls or becomes more acidic as more eco-enzymes are employed. Figure 1 demonstrates that hand sanitizers with a 2.5-month time variation have a pH value that ranges from 3-5, with 3 out of 5 tested samples failing to fulfill the pH quality standard criteria. The pH range of the eco-enzyme-based hand sanitizer for three months is between 4.5 and 5.5, and this pH value satisfies the standards for hand sanitizers of standard quality. The pH test and an emulsion stability test are also carried out, and the results demonstrate that the hand sanitizer formulation is stable and does not clump. For each sample, a different dilution ratio was used: 1:40, 2:40, 3:40, 4:40, and 5:40.

Fermentation Time	Observation	Test Results
2.5 months	Observation	Liquid, brown color
	Sensory	Fresh lemon aroma
	pH	3
3 months	Observation	Liquid, brown color
	Sensory	Fresh lemon aroma
	pH	1.5

Table 1: Eco-enzyme Characteristic

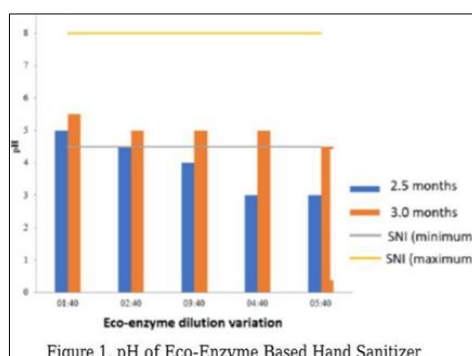


Figure 1: pH of Eco-Enzyme Based Hand Sanitizer

CONCLUSION

Due to the recent development of global food production, which has resulted in the formation of significant amounts of food co-products and trash, there has been significant societal and environmental pressure for the

effective reutilization of agricultural industry residues. Lack of regulation over such agri-economy practices is the cause of the massive food waste. Because they are nutrient-rich byproducts of the food industry, they provide numerous health advantages. These byproducts are a good source of nutraceuticals, bioactive chemicals, and other functional foods. Utilizing byproducts provides businesses with an additional revenue stream, which boosts economic output. Therefore, the ways mentioned above are some of the simple methods that make the best use of the fruits and vegetables that businesses and people waste the least. The raw materials used and the amount of time the fermentation takes have an impact on the colour and aroma. Eco enzymes that have been fermented for 2.5 months have a pH value of 3, whereas those that have been fermented for 3 months have a pH value of 1.5.

REFERENCES

- [1] Rusdianasari, R., Syakdani, A., Zaman, M., Zaman, M., Sari, F. F., Nasyta, N. P., & Amalia, R. (2021, September 24). Utilization of Eco-Enzymes from Fruit Skin Waste as Hand Sanitizer. *AJARCADE / Asian Journal of Applied Research for Community Development and Empowerment*, 5(3). <https://doi.org/10.29165/ajarcde.v5i3.72>
- [2] Trevisan Weber, C., Ranzan, L., Menz Liesegang, L. L., Ferreira Trierweiler, L., & Trierweiler, J. O. (2020, September 23). A circular economy model for ethanol and alcohol-based hand sanitizer from sweet potato waste in the context of COVID-19. *Brazilian Journal of Operations & Production Management*, 17(3), 1–12. <https://doi.org/10.14488/bjopm.2020.028>
- [3] *How To Make Homemade Hand Sanitizer*. (n.d.). Franciscan Missionaries of Our Lady Health System. Retrieved January 11, 2023, from <https://fmolhs.org/coronavirus/coronavirus-blogs/how-to-make-homemade-hand-sanitizer>



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