2ND EDITION

E-EXTENDED
ABSTRACT

INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

COPYRIGHT

Published 2023
Faculty of Plantation and Agrotechnology
Universiti Teknologi MARA Cawangan Melaka Kampus Jasin
77300 Merlimau Melaka.

E-EXTENDED ABSTRACT of the INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS) (2nd EDITION)

Mode of access Internet

https://sites.google.com/view/ais2023/publication

Perpustakaan Negara Malaysia Cataloguing -in – Publication Data

ORGANIZING COMMITTEE

Program Advisor	:	Ts. ChM. Dr. Wan Zuraida Wan Mohd Zain
Program Director	:	Dr. Noer Hartini Dolhaji
Program Secretary	:	Nurul Izzatiafifi Ismail
Program Treasurer	:	Nur' Amira Hamid
Program Registration	:	Siti Aisha Na'illa Che Musa
Program Judging	:	Nur Atiqah Zaharullil
		Nur Wajihah Mohd Nawi
Program Webmaster	:	Ts. Dr. Siti Fairuz Nurr Sadikan
Program Certificate		Nurul Wahida Ramli
Program Human Contribution		Nur Nabila Huda Aziz
Program Protocol		Siti Nur Atikah Abu Samah
Program Publication		Dr. Mohd Zuli Jaafar
Program Logistic		Muhammad Nuruddin Mohd Nor
Program Technical		Khawarizmi Mohd Aziz

STUDENT COMMITTEE

Mohammad Ali Kamaruddin

Nurul Huda Nabilah Ramlee

Siti Nor Arifah Abd Halim

Nuraliah Aqilah Ayuni Mohamed

Mohamad Khairul Haziq Mohamad Fauzi

Nur Wajihah Mohd Nawawi

Mohammad Hafis Ayub

Aiman Haziq Arifin

Amyra Hazwani Ghazali

Mohamad Syamil Mohd Nor

Mohammad Najmuddin Suriani

Nur Syafiqah Aina Azmi

Muhammad Aidil Ikhwan Kamarudin

Nur Muhammad Ameiriqwan Ahmad Faiza

Muhammad Faiz Zulazmi

Mohd Azri Aiman Zulkifli

Diana Asykin Kamaruddin

Nor Elin Balqis Ismail

Nursyasya Razalil

Muhammad Ismadanial Rozi

Muhammad Amir Asyraf Azman

Mohamad Zairy Zailan

EDITORIAL BOARD

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.

PREFACE

International Agrotechnology Innovation Symposium (i-AIS) is a platform to be formed for students/lecturers/ staff to share creativity in applying the knowledge that is related to the world of Agrotechnology in the form of posters. This virtual poster competition takes place on the 1st of December 2022 and ends on the 8th of January 2023. This competition is an assessment of students in determining the level of understanding, creativity, and group work for the subject related to agrotechnology and being able to apply it to the field of Agrotechnology. The i-AIS 2022 program takes place from December 1, 2022, to January 8, 2023. The program was officiated by the Dean of the Faculty of Plantation and Agrotechnology, namely Prof. Madya Ts. Dr. Azma Yusuf. The program involves students from faculties of the Faculty of Plantation and Agrotechnology (FPA)and HEP participating in i-AIS 2022, namely, the Faculty of Education and Pre-Higher Education. This program involves the UiTM student and some of the non-UiTM students which come from the international university and the local university. Two categories are contested, namely UiTM and non-UiTM. To date, students from these programs have shown remarkable achievements in academic performance and participation in national as well as international competitions.

This competition is an open door for the students and lecturers to exhibit creative minds stemming from curiosity. Several e-content projects have been evaluated by esteemed judges and that has led to the birth of this E-Poster Book. Ideas and novelties are celebrated, and participants are applauded for displaying ingenious minds in their ideas.

It is hoped that such an effort continues to breed so that there is always an outlet for these creative minds to grow.

Thank you.

Dean
On behalf of the Organizing Committee
Conference Chair
Universiti Teknologi MARA
Faculty of Plantation and Agrotechnology
http://fpa.uitm.edu.my

TABLE OF CONTENTS

MUSHROOM BLOCK FROM CRUDE PALM OIL (CPO) DREGS

Muhammad Ammar Jamal Luddin. Ahmad Batrisha Azrinul Hisham, Muhammad Azri Moroji

[1]*Faculty of Plantation and Agrotechnology, University Teknologi MARA (UiTM), Jasin Campus, Malaysia*

Corresponding author e-mail: Muhammadammarjamalluddin00@gmail.com

ABSTRACT - The palm oil plant (*Elaeis guineensis*) is one of the industrial plants that was introduced commercially in Malaysia around 1870 that is 150 years ago and is now one of the main commodities capable of generating national income. However, the country's oil palm industry, which is currently growing rapidly, especially in the fresh fruit production sector, will have an impact on the management of oil palm waste. Agricultural waste management is one of the important agendas under the government through MAFI's environmental considerations, the concept of agricultural waste management and others. This research aims to innovate waste from crude palm oil (CPO) dregs to mushroom blocks. Crude palm oil dregs that have been discarded or only explained by reputation can be used as plant medium material. Usually, the medium used in mushroom blocks is rubber wood powder, but in this study the dust from the decay of crude palm oil dregs was used as a medium. The results show that the remains of the part of the crude palm oil dregs that rots and will eventually rot and can be used as organic fertilizer and then used as compost material for mushroom plant media. The design used in the study is the original design of the existing mushroom mound. The results of the study concluded that crude palm oil dregs have physical and mechanical properties that are suitable for use as mushroom plant medium.

Keyword: Oil palm, Mushroom blocks, Crude Palm Oil Dregs, Medium

INTRODUCTION

The most significant Malaysian export that has altered the country's agricultural and economic landscape is oil palm. Oil palm businesses create lignocellulosic biomass, which includes oil palm fronds, empty fruit bunches, palm pressed fibres, palm shells, and palm oil mill effluent palm (POME). But the existence of these oil palm wastes has brought about a significant disposal issue. Garbage minimization and recycling, energy recovery, and waste disposal are the three main tenets of waste management. The same principles that apply to urban waste also apply to agro-industrial wastes such residues from palm oil. When there is a more practical and economically viable option, we can simply no longer afford to dispose of the waste. Before discussing the potential for energy recovery in the palm oil sector, it is important to first consider the ways in which mill residues are currently used and disposed of. The palm oil mill in Malaysia is self-sufficient in energy, using PPF, EFB, and shell as fuel to generate steam in waste-fuel boilers for processing, and power generation with steam turbines as stated in Section 2.2. This is one of the distinctive features of Malaysian renewable energy sources.

The use of palm oil to produce oil on a large-scale leaves behind a lot of empty palm kernels. In fact, only 10 percent of oil can be produced, while the other 90 percent is agricultural waste known as biomass. Realizing the situation, gave us the idea to carry out a study on the production of mushroom blocks from crude palm oil dregs This palm kernel dregs is already suitable for use as a plant medium and is anticipated to replace land-based goods with high-quality alternatives. Perhaps many do not know if palm kernel dregs can still bring great economic benefits. Trees that have been considered useless if processed in such a way can produce products worthy of export. In this study, an experiment was carried out on palm kernel dregs dust used as a mushroom growing medium, which usually uses rubber wood dust.

Objectives:

1) To utilizes waste from oil palm trees
2) To test the ability of Crude Palm Oil dregs to become a mushroom growing medium

METHODS & MATERIALS

Materials

1) Crude palm oil (CPO) dregs
2) Paddy bran
3) Agricultural lime
4) Polypropylene plastic 30cm x 10cm x 10cm (PP)

Methods

Figure 1

Combine CPO dregs, paddy bran, and agricultural lime in a bowl with a ratio (100:10:1). Combine these items in a mixing bowl. Add water and stir one more. Make careful that none of the elements in this combination get too liquid or melt. Water accounts for approximately 75% of the whole mixture of CPO dregs, paddy bran, and agricultural lime. Fill a polypropylene plastic container 30cm X 10cm X 10cm with the mixture's components and compact them. Steam the PP bag that has been filled with the combined substances for 4- 6 hours at 95 º C - 100 º C. The PP bag should then be chilled for two days at 28 º C. Hygiene procedures include the use of disinfectant solution sprays such as Dettol, Lysol, and Jeypine. Personal hygiene, appropriate ventilation, and the absence of dirt or dust are all examples of hygiene practices that should be implemented. For each PP bag, inject 5-8 grammes of mushroom seeds. Close and position the PP bag for marinating until your mushroom blocks are mature. The white tint on the entire block indicates the stone's maturity.

RESULT AND DISCUSSION

Using CPO dregs as a binder can help to not only produce a turgid block that can stand on its own, but also to help increase the yield of the mushrooms, from the mass, weight, and the diameter of the largest cap. Using CPO dregs, paddy bran, and agricultural lime in the making of the block also results in a higher number of mushrooms that are harvested. According to Tables 1 and 2, the average number of mushrooms harvested in the experimental samples was larger than the average number of mushrooms harvested in the control samples

($p<0.05$). While this was going on, the average mass of mushrooms harvested per sample in the experimental samples was greater than the average mass of mushrooms harvested per sample in the control samples ($p<0.05$). However, the average diameter of the largest mushroom cap harvested per harvest was smaller in the experimental samples than it was in the control samples ($p<0.05$).

Table 1: The analysis data of the control samples (n = 3)

No. of Mushrooms	Mass (g)	Colour	Diameter of largest cap (cm)	Time taken to grow (days)
5 ± 3	74.33 ± 20.85	Light brown	9.50 ± 0.50	60

Table 2: The analysis data of the experimental samples (n = 3)

No. of Mushrooms	Mass (g)	Colour	Diameter of largest cap (cm)	Time taken to grow (days)
11 ± 1	91.33 ± 29.85	Light brown	9.07 ± 1.80	67

Even though using CPO dregs as a binder result in an increase in the yield of mushrooms, in particular the number of mushrooms, due to the way mushroom spawn grows, the mass and diameters of the mushrooms and mushroom caps are inconsistent.

CONCLUSION

In conclusion, all agricultural waste from plants may be used as best as possible with knowledge and the proper methods, and it should not be thrown away or left alone due to the numerous advantages we can obtain. Materials derived from processed agricultural waste will aid in pollution reduction. The environment will be clean, and the process of environmental protection will be possible. Pollution-related issues of all types will be resolved. The aquatic and terrestrial environments will not be contaminated, and all pollutants, such as water and air pollution, will be decreased.

REFERENCES

[1] de Almeida, V. F., García-Moreno, P. J., Guadix, A., & Guadix, E. M. (2015). Biodiesel production from mixtures of waste fish oil, palm oil and waste frying oil: Optimization of fuel properties. *Fuel Processing Technology*, *133*, 152-160.

[2] Manjit, S. 2011. Mushroom production: An agribusiness activity mushroom cultivation, marketing and consumption, 1-11.

[3] Patil, S. S., Ahmed, S. A., Telang, S. M., & Baig, M. M. V. (2010). The nutritional valueof Pleurotus ostreatus (Jacq.: Fr.) Kumm cultivated on different lignocellulosic agro- wastes. Innovative Romanian food biotechnology, 7, 66

E-EXTENDED ABSTRACT of the INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS) (2nd EDITION)

e ISBN 978-629 -97220-4-5

9 786299 722045

FAKULTI PERLADANGAN DAN AGROTEKNOLOGI UiTM JASIN

(online)

UNIVERSITI TEKNOLOGI MARA

Fakulti Perladangan dan Agroteknologi

ais2023.fpa@gmail.com