

2ND 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.

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>

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FOOD CONTAINER BY CORN STARCH

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ABSTRACT - Over the past five decades, a tremendous increase in daily usage of plastic has been observed worldwide. To address this particular problem, immense efforts have been devoted to the preparation of biodegradable plastics material. The purpose of this innovation report is to create a new food container with stackable sections made of biodegradable materials like corn starch. This will help create an eco-friendlier environment. Since corn is the main raw material for corn starch, it is a resource that can be used multiple times. Corn starch can also be used as an organic fertiliser because it breaks down completely. Because of this, there is much less likely to be pollution in the environment. Corn starch packaging doesn't have dioxin or polyvinyl chloride, which are both harmful pollutants, and it gives off less greenhouse gas than traditional plastics. So, both quantitative and qualitative methods were used to collect data for this survey. A questionnaire made with Google Form was also used to collect information. The questions were meant to find out what the respondents thought about our product, which could lead to them buying it. It seems likely that people will find our product valuable because it is very useful, easy to use, and safe because of the materials used. This will help people learn more about nature.

Keywords: biodegradable, corn starch, ecosystem, environment, food container, innovation

INTRODUCTION

We produce a product which is deployed to make it easy to people to use in daily life. Other than that, it is deployed to reduce the environmental issue such as global warming, environmental degradation, climate change and many more. Besides that, it is also helping to save the earth where the product is made from biodegradable substance which is very important to the environment. Corn starch is a renewable resource since the main raw ingredient for corn starch is corn. Furthermore, because corn starch is fully biodegradable, it may be used as an organic fertilizer. As a consequence, pollution in the environment is much less likely. Corn starch packaging does not contain harmful pollutants such as polyvinyl chloride or dioxin, and it emits fewer greenhouse gasses than traditional plastics.

Corn starch, maize starch, or corn flour is the starch derived from corn (maize) grain. The starch is obtained from the endosperm of the kernel. Corn starch is a common food ingredient, often used to thicken sauces or soups, and to make corn syrup and other sugars. Corn starch is versatile, easily modified, and finds many uses in industry such as adhesives, in paper products, as an anti-sticking agent, and textile manufacturing.

Problem Statements

Every plastic item that has been thrown away has long-term effects for the environment. Everything is affected, from the soil to landfills to the water we drink from the oceans. If we do not reduce our use of plastics, the oceans will soon have more plastics than fish. Plastic pollution threatens the function of the world's terrestrial, ocean and freshwater ecosystems, which serve as sanctuaries for biodiversity, vital food sources and major carbon sinks (CDP, 2022). Plastic leads to destroying the marine life and polluting the earth. Millions of tons of plastic are in the environment as waste, especially in the oceans and seas.

Objectives

The goal of this innovation product is to develop a new food container with stackable compartments which made of biodegradable substances such as corn starch to promote eco-friendly environment.

MATERIAL AND METHOD

The methodology that has been used in the work project was taking survey by using '3 individuals and societies' (Philpot Education, 2020). Thus, method used to collect data in this survey which are quantitative and qualitative methods. Besides that, the instrument used to gather data was a questionnaire created via Google Form. The purpose of the questions was designed to gain the opinion from the respondents about our product which will become a potential buyer. The questionnaire is divided into two parts which the first part is demographic that consists of gender, age and marital status while for the second part of the questions gather a point of view of respondents regarding the feedbacks of the product. We also provide 2D picture on the Google Form to give the clear picture on how products will look like. The survey will be distributed to 20 respondents which consists of people age above 19 years old and they were required to answer all the questionnaires. The data was collected and will be analyzed using basic frequency analysis which include pie charts which are useful for providing an overview of responses. Besides that, we also using concept testing for our new product since it is the initial test for most new products before moving on to the next step which is prototype preparation. This concept required for examining the customer's acceptability for our product using the quantitative and qualitative approaches to determine the potential buyers. Hence, the newness materials that we innovated were corn starch and also polypropylene (pp) for the food container's materials and it is reusable and biodegradable. We converting the existing plastics food container to a new eco-friendly material with low cost of raw materials and did not harm the environment when decompose them.

RESULTS AND DISCUSSION

Regarding to the survey or questionnaire and opinions from the society, they very much agree and believe that the innovation we made, which is food container with stackable compartments made of biodegradable materials which is corn starch, has been able to help ease their daily affairs, as can see on Figure 1. Also, for a takeaway lunch, every restaurant will typically utilise a standard and ubiquitous plastic food container. This type of food container is difficult to clean, especially when it comes to fatty foods. People sometimes take the easy route and simply toss out the food container, despite the fact that the food container is reusable. This issue is concerning since it will destroy our natural environment. As a result, this invention would solve the problem since corn starch food containers are reusable and biodegradable.

One of the most extensively discussed and prominent issues of the twenty-first century is the potential toxic impacts of non-biodegradable plastics. Massive attempts have been made to develop biodegradable polymers in order to solve this specific issue. Corn starch-based materials are biodegradable and decompose in three months. Aside from that, corn starch products do not emit any toxic gasses as they decompose and break down easily, implying that the product is bio compostable. This product not only helps the environment, but it also helps working people save time, especially during lunch hour, when they typically have less idle time. This green method mitigates main problems such as poor waste management, low degradation rates, trash accumulation in water reservoirs, and hazardous chemical reagents, hence providing a natural, cheap, and biodegradable alternative to non-biodegradable plastics that are currently used.

Based on product description, do you agree that material that we used?
41 responses



Figure 1: Pie Chart of Based on Product Description Survey

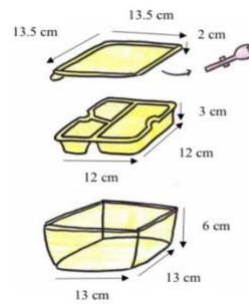


Figure 2: Rendering Compact Food Container

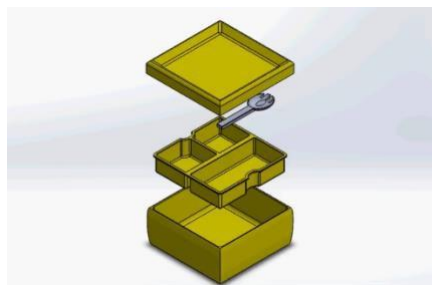


Figure 3: 3D Prototype



Figure 4: Corn Starch

CONCLUSION

In summary, it is reasonable to state that consumers will find our product valuable because it is highly practical, convenient, and safe to use due to the materials employed. This will help raise people's awareness of nature. Aside from that, the user-friendly and eco-friendly properties of this product allow it to be utilised by all consumers, regardless of age. In general, all products can develop to a new product using raw materials sourced from agriculture in order to have a safe product and save waste. The desire to improve environmental awareness while also making it simpler for everyone to enjoy their meal, regardless of their busy schedule or lack of complete dishware to dine with. We also guarantee that our goods satisfy the features and quality standards of our customers.

REFERENCES

- [1] CDP. (2022). *Plastics*. Retrieved from CDP: <https://www.cdp.net/en/plastics>
- [2] Philpot Education. (2020). *Extended Essays Support Site*. Retrieved from [www.philpoteducation.com: http://philpot.educaation/mod/page/view.php?id=440](http://philpot.educaation/mod/page/view.php?id=440)

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