

3rd EDITION

E-EXTENDED

ABSTRACT

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



COPYRIGHT

INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

19 June 2023

Faculty of Plantation and Agrotechnology UiTM Cawangan Melaka Kampus Jasin

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) (3rd 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

Patron

Prof Ts Dr Azhan Hashim @ Ismail

Advisors

Prof Madya Ts. Dr. Fazleen Abdul Fatah

Ts. ChM Dr. Wan Zuraida Wan Mohd Zain

Dr. Noer Hartini Dolhaji

Editors

Dr. Mohd Zuli Jaafar

Dr. Wan Zuraida Wan Mohd Zain

Dr Noer Hartini Dolhaji

Muhammad Aidil Ikhwan Kamarudin

Abdul Quddus bin Puteh

Nurul Izzatiafifi Ismail

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

| | |
|--|-----|
| 1. COPYRIGHT | i |
| 2. ORGANIZING COMMITTEE..... | ii |
| 3. STUDENT COMMITTEE | iii |
| 4. EDITORIAL BOARD | iv |
| 5. ABOUT FACULTY OF PLANTATION AND AGROTECHNOLOGY..... | v |
| 6. PREFACE..... | vi |
| 7. TABLE OF CONTENTS | 1 |
| 8. CHIRETTA CREAM | 2 |
| 9. SMART WATER TANK FOR SUSTAINABLE IRRIGATION..... | 5 |
| 10. PURPLE SWEET POTATO ICE CREAM | 8 |
| 11. ORGANIC PLANT FOLIAR AS AN ALTERNATIVE WAY TO SAVE FERTILIZER COSTS..... | 12 |
| 12. NATURAL LIQUID SOAP | 17 |
| 13. SUGARCANE AND CORN COB PARTICLE BOARD | 20 |
| 14. NUTRITIOUS PAPAYA CHIPS WITH ZERO SUGAR AND PRESERVATIVE..... | 23 |
| 15. INFLUENCE OF SOYBEAN RESIDUE FLOUR IN WHEAT BATTER FORMULATION ON PHYSICAL PROPERTIES OF FRENCH FRIES | 27 |
| 16. FLAKES INCORPORATED WITH BOTTLE GOURD POWDER (<i>Lagenaria leucantha rysby</i>)..... | 31 |
| 17. VARIOUS PROTEIN-BASED COATING TOWARDS POSTHARVEST QUALITY OF PAPAYA (<i>Carica papaya</i>) | 36 |
| 18. SMART SHALLOW MACHINE | 41 |
| 19. Utilization of Eco-enzyme promoting growth and production of Kembang Telang plant (<i>Clitoria ternatea L.</i>)..... | 43 |
| 20. COCOA PULP: AN AGRO-INDUSTRIAL WASTE THAT BECOME A JAM PRODUCT..... | 47 |
| 21. ANANAS COMOSUS LIP BALM | 50 |
| 22. TECHNOLOGY OF SCAN REMINDER PRO IN COOLING ROOM..... | 57 |
| 23. EFFECT OF SALINITY ON MICROBIAL POPULATION AND ITS CHARACTERIZATIONS IN PADDY SOIL..... | 61 |
| 24. EFFECT OF CHEMICAL FERTILIZER ON THE BACTERIA POPULATION AND ITS CHARACTERIZATION IN PADDY SOIL..... | 64 |
| 25. PINEAPPLE FIBRE PELLET AS BIODEGRADABLE CAT LITTER..... | 68 |
| 26. EXTRACTION OF SILICON CARBIDE PARTICLES FROM RICE HUSK | 72 |
| 27. BRAZILIAN SPINACH FISH PATTIES (IKAN PATIN)..... | 75 |
| 28. PAPER FROM PINEAPPLE LEAF FIBRE | 79 |
| 29. COCOA BUTTER KERNEL BODY SCRUB | 83 |

PURPLE SWEET POTATO ICE CREAM

Muhamad Azrul Danial Bin Zubir¹, Mohammad Nazri Bin Ab Pattah¹, Mohammad Syafie Bin Malik¹

¹*Faculty of Plantation And Agrotechnology, Universiti Teknologi MARA Jasin, Melaka*

Corresponding author e-mail: azruleyoy19@gmail.com

ABSTRACT- Sweet potato or ipomoea potatoes are from tropical America and were extensively farmed before Europeans arrived. It's a staple cuisine in regions of Brazil, where it's mashed, fried, or baked. Purple sweet potatoes' anthocyanins prevent ageing, cancer, and degenerative disorders. It reduces liver dysfunction, decreases blood sugar, and has other benefits. The purpose of this study is to create a dessert menu for kids, teenager and adults by using vegetable which is purple sweet potato. The ingredients used to make the are purple sweet potato as the main ingredient, sugar, fresh milk, cornstarch, and ovalette. Then, chocolate rice was added as topping of the ice cream. Look, texture, mouthfeel, and flavour of the ice cream characterise the outcomes. This Purple Sweet Potato Ice Cream uses fresh purple sweet potato with little to no preservatives. High-quality ice cream contains components. High-quality ice cream has diverse tastes and textures. A purple sweet potato has 30–40% amylose and 60–70% amylopectin as its main sources of starch. Additionally, it has a lot of food fiber—4.72% per 100 grammes, to be exact. Additionally, purple sweet potatoes are a rich source of antioxidants made of anthocyanin, vitamin C, vitamin E, and beta-carotene. The work's presentation and effort to systematize ice cream innovation are outstanding. Ice cream manufacture is limited by new ingredients and technology.

Keywords: Purple sweet potato, ice cream, anthocyanins, antioxidant, ingredient

INTRODUCTION

Sweet potato or also known as ipomoea potatoes comes from tropical America and was widely cultivated throughout the continent before the arrival of Europeans and is a staple food in parts of Brazil where it will be served mashed, fried, or baked. Next, sweet potato was introduced to Europe, Africa, and Asia and became one of the main crops of the main root type in the world where more than 90% of its production is found. Sweet potatoes have several skin colors, namely yellow, orange, red, and purple. Meanwhile, purple sweet potatoes have anthocyanin levels that function as antioxidants and free radical scavengers, thus preventing aging, cancer, and degenerative diseases. In addition, it prevents liver dysfunction, is antihypertensive, and lowers blood sugar levels and many other functions or advantages. Meanwhile, the ice cream we make can be eaten by everyone, but our focus is more on children and teenagers [1].

Next, sweet potato has been widely cultivated because it has many nutrients and good value in health and food. In addition, sweet potato is also a healthy food because it contains beneficial nutrients such as vitamins B1, B2, C, and E and there are minerals in it such as Ca, Mg, K, and Zn. Meanwhile, there are also contents such as carbohydrates, proteins, lipids, carotenoids, anthocyanins, conjugated phenolic acids, and minerals in other parts of the sweet potato, namely leaves, stems, and stalks. In the meantime, there is also a unique composition in the sweet potato which in terms of health is anti-oxidative, hepatoprotective, anti-inflammatory, anti-tumor, anti-diabetic, antimicrobial, anti-obesity, and anti-aging effects. Therefore, the innovation of producing ice cream based on purple sweet potatoes is due to the health benefits of sweet potatoes being related to the properties of various bioactive components such as dietary fiber, polyphenols, proteins, and minerals found in sweet potatoes.

MATERIAL AND METHOD

Procedure for Making Purple Sweet Potato Ice Cream

The ingredients used to make the smoothie are purple sweet potato as the main ingredient, sugar, fresh milk, cornstarch, and ovalette. Then, chocolate rice was added as topping of the ice cream.

Ingredients Purple Sweet Potato

- 250g purple sweet potato
- 250g sugar
- 200g fresh milk
- 3 tablespoon cornstarch
- 1 tablespoon ovalette

Processing

1. Choose good purple sweet potato and wash it.
2. Peel purple sweet potato from the base skin using fruit peeler
3. Cut the purple sweet potato into small size to speed up the steam process.
4. Steam purple sweet potato around 20 minutes
5. Mash up the potatoes to get a better texture before blend
6. Enter the mashed purple sweet potato, sugar, fresh milk cornstarch and ovalette into blender and blend them around five minutes
7. Poor them into container and freeze for 7-9 hours to retain the taste.

RESULTS AND DISCUSSION

The results can be described through the look, texture and mouth-feel and taste of the ice cream. This Purple Sweet Potato Ice Cream used fresh purple sweet potato with little to no preservatives can tell that it is of higher quality. Ice cream packed with ingredients is also another way to know if it's high quality. High-quality ice cream doesn't skimp out on the ingredients and give different flavors and texture.

The look for the ice cream can be describe with the color appearance. The color of the ice cream was completely natural which was soft purple color or mauve purple result of an antioxidant called anthocyanin and other ingredients. On top of the ice cream was chocolate color because it was topped by chocolate rice. Moreover, the ice cream looks creamy because there is no other extra vegetable ingredient. Next, while the color of the ice cream shows mauve purple color, the texture of the ice cream was smooth. Ovalette act as emulsifier in this ice cream give smoothen the texture and thorough distribution of air cells. Plus, the emulsifier slower the melting of ice cream. In addition, mouth-feel and taste of the ice cream was sensational and exquisite just because of the ice cream was very rich or flavorful ice cream that dances on your tastebuds and releases a blast of dopamine, [2].

In discussion, our innovation Ipomoea batatas blackie is the common name for the purple sweet potato, which is known for its dark purple flesh and skin. Purple sweet potatoes are a form of tuber that have several advantages over other types of sweet potatoes because of their high nutritious content. Starch is the purple sweet potato's principal benefit. A purple sweet potato has 30–40% amylose and 60–70% amylopectin as its main sources of starch. Additionally, it has a lot of food fiber—4.72% per 100 grammes, to be exact. Additionally, purple sweet potatoes are a rich source of antioxidants made of anthocyanin, vitamin C, vitamin E, and beta- carotene. This ice cream also suitable for kids and teenagers because of it have a high nutritious content. [3]

For the packaging of the ice cream, we used a simple way of packaging with a plastic container. This is because after the ice cream was finished eating by the consumer, they can use the plastic back to the other purpose without throwing away the container. For example, the consumer can use the container to put coins or small things. The choice of packaging is also based on our production of ice cream. If we produce a large scale of ice cream, we need to find the other type of packaging that is suitable for our production. The other reason why we chose this packaging is this plastic container was cheap and saved budget for the production.

TABLE, IMAGE AND FIGURE



Figure 1: Choose good purple sweet potato and wash it.



Figure 2: Peel purple sweet potato from the base skin using fruit peeler



Figure 3: Cut the purple sweet potato into small size to speed up the steam

Figure 4: Steam purple sweet potato around



Figure 5: Mash up the potatoes to get a better texture before



Figure 6: Enter the mashed purple sweet potato, sugar, fresh milk cornstarch and blender and blend them around five minutes



Figure 7: Poor them into container and top the ice cream with chocolate rice



Figure 8: Freeze for 7-9 hour to retain the taste

CONCLUSION

The health-promoting anthocyanins and quinic acid found in purple sweet potatoes are in high concentrations. To keep the anthocyanins in purple sweet potatoes intact. When deciding between the steaming and boiling methods, steaming was chosen. The presentation and endeavor to systematize ice cream innovation are the work's additional value, which attests to its stunning nature. The constant introduction of new ingredients and technological advancements in ice cream production is likely the limiting factor.

REFERENCES

- [1] View of The Consumer Acceptability of Purple Sweet Potato-Based Ice Cream Product. (2023). Testmagzine.biz.
- [2] Re<http://www.testmagzine.biz/index.php/testmagzine/article/view/8501/6436>
- [3] *25 of the Best Words to Describe an Ice Cream - Tosaylib.* (2021, February). Tosaylib. <https://tosaylib.com/words-to-describe-ice-cream/>
- [4] View of The Consumer Acceptability of Purple Sweet Potato-Based Ice Cream Product. (2023). Testmagzine.biz. <http://www.testmagzine.biz/index.php/testmagzine/article/view/8501/6436>

E-EXTENDED ABSTRACT of the INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM
(i-AIS) (3rd EDITION)

e ISBN 978-629 -97220-5-2



FAKULTI PERLADANGAN DAN AGROTEKNOLOGI UITM JASIN

(online)



UNIVERSITI
TEKNOLOGI
MARA

Fakulti
Perladangan dan
Agroteknologi

