

**3<sup>rd</sup> EDITION**

**E-EXTENDED**

**ABSTRACT**

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



## COPYRIGHT

### 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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# ANANAS COMOSUS LIP BALM

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**ABSTRACT** - The cosmetics industry provides a diverse choice of colors, textures, and smells for cosmetics aficionados all over the world, but the brilliant hues can raise environmental and ethical problems. Not all components are obtained ethically, and identifying which cosmetics corresponds with your ethics can be difficult for consumers who avoid animal by-products. Furthermore, an increasing number of individuals are worried about the rights and safety of the employees who farm and manufacture these cosmetic items. In 2021, Malaysia's pineapple production was approximately 525,097 metric tons, with a total planted area of 11,760 hectares. One of the primary fruit crops, (*Ananas comosus* (L.) Merrill), pineapple is mostly utilized for raw consumption and industrial juice manufacturing, which generates enormous amounts of wastes. All of the pineapple parts leftover is have their own uses for human because a few of compounds and in every parts of pineapple from stalk until crown have own enzymes. This review conduct the innovation of pineapple waste which is leftover core and peel of pineapple MD2 to transform a lip balm.

**Keywords:** *Ananas Comosus*, Lipbalm, cosmetic, pineapple core, MD2.

## INTRODUCTION

Pineapple by-products are no exception; they include residual pulp, peels, stems, and leaves. The increased manufacturing of pineapple-processed foods resulted in huge waste generation. This is mostly due to the selection and elimination of components that are not acceptable for human consumption. Besides, rough handling of fruits and exposure to adverse environmental conditions during transportation and storage can cause up to 55% of product waste (Nunes et al., 2009). In Malaysia, the most common pineapple types are 'Moris,' 'N36,' 'Sarawak,' 'Gandul,' 'Yankee,' 'Josapine,' 'Maspine,' and, most recently, 'MD2'. For this product, we use MD2 waste.

MD2 is known by its trade names as "Golden Ripe", "Super Sweet", "Rompine" or "Gold". Compared to other pineapple cultivars, MD2 is better in several qualities. Among them are uniform bright gold color, sweeter taste, fourtimes Vitamin C content, lower fiber, lower acidity, thinner skin, smaller fruits at an average of 1.5 kg each, and longer shelf life (Amar et al., 2015). According to Amit Kumar (2021) peel and core have height bromelain, which is 24.13 µm/ml and 13.158 µm/ml respectively. All parts of pineapple have bromelain, but we use part peel and core because they are suitable for lip balm use. Bromelain also has certain anticancer activities and promotes the death of apoptotic cells (Ayuni, Manan, and Yousif 2020). (Manohar, 2020).

## Objectives

The objectives of this innovation are:-

1. To minimize the production waste of pineapple in the post harvest sector especially at the canned fruit factory.
2. To raise awareness among consumer about the benefit of pineapple core and peel that high in bromelin ezymes that can prevent cancer.
3. To promote the secondary crop among citizen and in the global market.

## **MATERIAL AND METHOD**

The materials using in this project are for Bees wax, Shea wax, coconut oil, and with raw pineapple of MD2 while the equipments are spatula, weighing scale, hot plate, beaker, filter paper, filter tunnel, and lip balm container.

### **Procedure boiled water of pineapple**

1. Cut pineapple into the pieces and take only part core and peel, before that prepared water 200ml.
2. Then, boiled the pineapple for about 40 minutes using a hot plate at 300°C.
3. After that, filter using a funnel to remove dirt. Take 50 ml.

### **Procedure lip balm.**

1. Melt the accurately weighed wax, shea butter, and coconut oil in a beaker in order of their melting point with continuous stirring/heating until it melts completely. Make sure it dissolved.
2. Then, add the pineapple broth and continuously stirred to get a homogenized mixture. The mixture should be stirred vigorously until a smooth emulsion forms.
3. After that, put a little pineapple that we have smashed into the lip balm container to increase nutrients in the lip balm.
4. Finally, this mixture could be poured into an empty lip balm container and allowed to cool to achieve contraction of the waxes to facilitate easy removal of the balm.

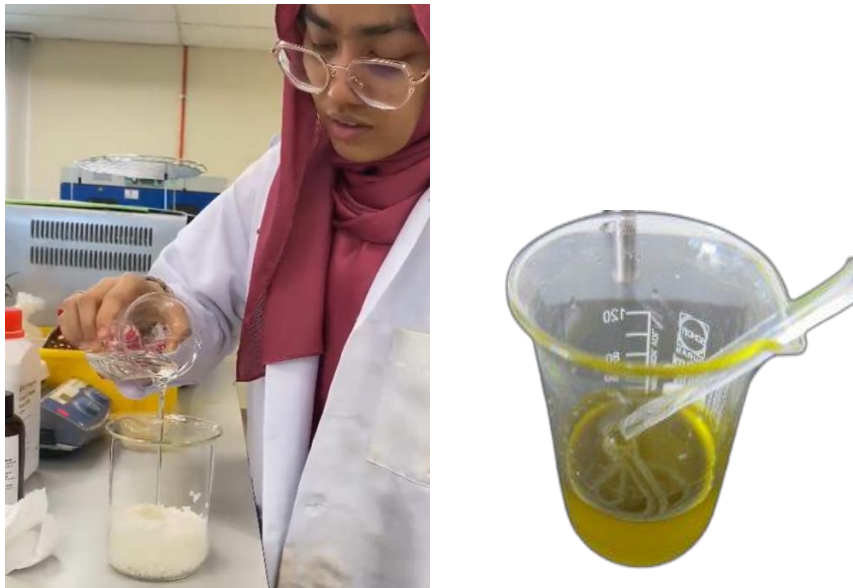
## **RESULTS AND DISCUSSION**

The result that we got from our innovation by using the waste of pineapple is the pineapple lip balm. In making of this lip balm, we need to get the mixture of beeswax, coconut oil, shea butter, and the most important ingredient is the pineapple water. The melting point for the mixture was found to be in the range of 68°C - 70°C, which matches with appropriate melting point of between 65 and 75°C. The mixture that we got is weighed 220 grams where it can fit for 25 sticks which is weighed 5 ml each. The lip balm that we got had a white colour with a marble-like pattern which came from the pineapple fruit that we had smashed to put in the lip balm for the design and also to provide more nutrient to the lip balm. It also got a pleasant odour that came from the pineapple water. We tried to avoid in using any chemical ingredients so we can say that our product is an organic lip balm. We had tried the lip balm and it has a very smooth characteristic where it glide smoothly when we applied it to our lips. Furthermore, pineapple is one of the fruit that contain the high percentage of vitamin C which can help in brightening and even out the skin tone or the lip tone.

One of the most widely consumed tropical fruits commercially, pineapples are mostly grown in Southeast Asia and Latin America. Crown, peel, stem, and core make up the majority of the waste produced by pineapple. Each component contains a distinct bioactive substance. For instance, the leaves of the pineapple include citric acid, the stem and peel contain bromelain, the leaves contain ferulic acid, and the core contains ascorbic acid. The protease bromelain, which is present in pineapples, is widely valued after in the pharmaceutical, cosmetic, and food sectors. It is used as a meat tenderizer, an anti-browning agent, and in the creation of infant formulae. On the other hand, research has indicated that the polyphenols in pineapple wastes, including ferulic acid and syringic acid, are what give the fruit its antimicrobial and antioxidant properties. It also had a powerful antioxidant vitamin E, which will neutralise free radical and soothe and heal dry, irritated lips.

## TABLE, IMAGE AND FIGURE

The figure shows the texture of smashed core pineapple to add into the lip balm mixture, the melted of materials such as Beeswax, Shea butter and Virgin Coconut oil and the pineapple boiled solution.



**Figure 1: The figure shows the mixture of Beeswax, Shea butter and Virgin Coconut oil**



**Figure 2: The already lip balm**

## CONCLUSION

In conclusion, this innovation is one of the main factor in the way to reduce the pineapple disposal that actually bring a lot of benefits in every angles such as pharmaceutical or cosmetic, economy, environment and also the income for smallholder or stakeholder. In the way to spread awareness of an important to focus on the cosmetic elements that cause harm such as cancer to the lips of users in Malaysia especially. Clinically the pineapple part of fruit such as core, peel, crown and stem high in bromelin enzymes that can help prevent cancer.

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