



اَبُو سَيِّدِي تَيْكُو لَو كِي وَنَا
UNIVERSITI
TEKNOLOGI
MARA



PROCEEDINGS OF JOHOR INTERNATIONAL INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2024 (JIIICaS 2024)



*“Flourish and Nurturing Sustainable
Innovation for a Prosperous Nation”*

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e ISBN: 978-967-0033-25-9



**Published in Malaysia by
Universiti Teknologi MARA Cawangan Johor
Kampus Pasir Gudang
81750 Masai**



Preface

In the name of Allah, the Almighty who gives us the enlightenment, the truth, the knowledge and with regards to Prophet Muhammad (peace be upon him) for guiding us to the straight path. We thank to Allah for giving us guidance and strength to write this e-book.

This e-book compiles the extended abstracts that submitted to Johor International Innovation Invention Competition and Symposium 2024 (JIIICaS2024), where JIIICaS2024 is a virtual platform for all creative minds to share and present their invention and innovation. Each abstract gives a brief background on the innovation or project.

We hope that this e-book will help the readers to get to know the innovation done by the students and get some ideas to develop future innovation products.

Foreword Rector



Assalamualaikum warahmatullahi Wabarakatuh,
Salam Sejahtera, Salam Malaysia MADANI and
Salam UiTM Dihatiku.

In the name of Allah, the Most Gracious, the Most
Merciful.

It is a great honor to welcome you to the Johor
International Innovation, Invention, Competition, and
Symposium 2024 (JIIICaS 2024). This event

connects various disciplines, focusing on education and engaging educators,
students, researchers, and innovators from all walks of life.

Innovation is not just about ideas; it demands perseverance, creativity, and
determination to turn those ideas into reality. The remarkable projects
showcased today highlight the dedication and spirit of all participants.
Initiatives like this not only explore new technologies but also cultivate skills
and leadership among our youth. At Universiti Teknologi MARA (UiTM) Johor
Branch, we are fully committed to fostering a dynamic culture of innovation,
promoting the commercialization of new products, and encouraging
meaningful collaborations with industry and society.

As we celebrate this event, I would like to extend my heartfelt gratitude to all
sponsors, judges, the College of Computing, Informatics and Mathematics,
UiTM Pasir Gudang Campus as the event organizer, as well as to the
researchers and participants for their hard work in making this event a
success. Let us continue striving for innovation and excellence. May the
ideas presented today inspire us and lay the groundwork for future
achievements.

Thank you.

Associate Professor Dr. Saunah Zainon
Rector
Universiti Teknologi MARA (UiTM)
Johor Branch

(A-PP013) LIPBLUSH LIP BALM: AN INNOVATIVE INTEGRATION OF PHYTOCHEMISTRY AND APICULTURE FOR ADVANCED LIP CARE

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ABSTRACT

This innovative lip balm introduces a revolutionary lip care product in response to the growing demand for natural and eco-friendly cosmetics. This lip balm is produced from an organic plant source, *Antigonon leptopus* flower and beeswax from the honeycomb. Each main ingredient provides antioxidant, antibacterial and anti-inflammatory properties that are good for lip care products. The honeycomb is mostly made of beeswax and various organic components. They provide breeding sites and storage of honey. But after they are no longer needed, these honeycombs frequently will be thrown away or burned. Such acts unleash hazardous substances and worsen global waste worries. Extraction of beeswax from these abandoned honeycombs can reduce the waste produced by honey production industries. In addition, less than 20% of the more than 12,000 synthetic and industrial-based chemicals used in cosmetics have been approved as safe. To develop lip balm for cosmetic and lip care from fruit beeswax and flower extract of *Antigonon leptopus* plant. The main ingredient of this LipBlush lip balm is extracted from natural sources which have been neglected for their beneficial properties. *Antigonon leptopus* is one of the neglected plants in Malaysia that poses antioxidant and anti-inflammatory properties. Beeswax has been proven to have antibacterial and anti-inflammatory properties. This product can be a potential and safe cosmetic product that is being produced from neglected sources available in Malaysia. LipBlush lip balm is a promising cosmetic product developed in Malaysia, that is produced from abandoned beeswax from honeycombs and neglected plant, *Antigonon leptopus* flowers.

Keywords: Natural product, Lip balm, Lip care, Sustainability

1.0 INTRODUCTION

Since 2011, as reported by Barbalova, 2011, the average annual growth rate for the global beauty products market has been around 5%. It is an intriguing truth that the market for makeup and personal hygiene goods has expanded steadily. This is primarily because people are more aware of ways to improve their physical appearance (Arshad et al., 2020). The beauty products like skincare products, hair products, oral hygiene, fragrances, and nail products are used daily by the consumer. Because of this, the consumer may be exposed to any harmful chemicals that may be

present in the beauty products. Moreover, the continuous exposure of humans to a wide range of beauty products may cause a “cocktail effect” because of synergistic contact of different substances or the “additive effect” because of the presence of the same ingredient in many products. Particularly, mineral pigments are frequently employed in the production of coloured cosmetics, which causes heavy metals (HMs) like Cu, Ni, Co, Pb, Cr, and Cd, among other elements, to contaminate cosmetic products. In addition, there are other harmful chemicals like paraben, PEGs (polyethylene glycols), acrylate copolymer and fragrance (Panico et al., 2019). The harmful effects of the chemicals may cause contact dermatitis, reproductive toxicity, neurotoxicity, and cancer (Palacios et al., 2016; Arshad et al., 2020). Therefore, in search for cosmetic products that are based on natural sources is in high demand. Natural-based products are safer and more convenient for the consumer.

In our attempt to contribute to the development of a new natural-based lip balm from a potential plant, *Antigonon leptopus*, belonging to the buckwheat family, Polygonaceae. It is known as air mata pengantin or bunga pengantin by the Malaysian (Ramadan, 2018). Pharmacologically, *A. leptopus* plant extract has been reported to exert antidiabetic, hepatoprotective, anti-microbial, anti-helminthic, analgesic, anti-inflammatory, antioxidant, and cytotoxic activity (Bhalerao, Kalode, & Doifode, 2023).

2.0 OBJECTIVE

The objective of this study is to develop a natural-based lip balm, Blush which uses the natural pigment of the *Antigonon leptopus* flower. Interestingly, the flower was reported to have anti-inflammatory and antioxidant properties. Thus, in addition to cosmetic use, this lip balm also can be applied for lip care.

3.0 METHODOLOGY

Blush is made from the natural ingredients available in Malaysia which reduces the production cost. The main ingredient includes pigment synthesized from *A. leptopus* flower and beeswax which usually been abandoned after the processing of honey. Beeswax has been proven to have antibacterial and anti-inflammatory properties. Blush lip balm will be produced by the moulding method.

Flower petals will be washed and dried in an oven at 40°C until a constant weight is obtained, and then the dried petals will be ground in a blender. Later, the petal powder will be stored in a freezer until pigment extraction. Extraction of the pigment will be done by conventional solid-liquid extraction method (Gomez et al., 2022). Beeswax collected from the honey processing industry, will be added to the preheated mixture of oils and pigment from *A. leptopus*, and heated to 60–67°C until melting. The mixture was homogenized together and coconut butter was added and melted. All the ingredients will be homogenized and poured into clean and lubricated moulds.

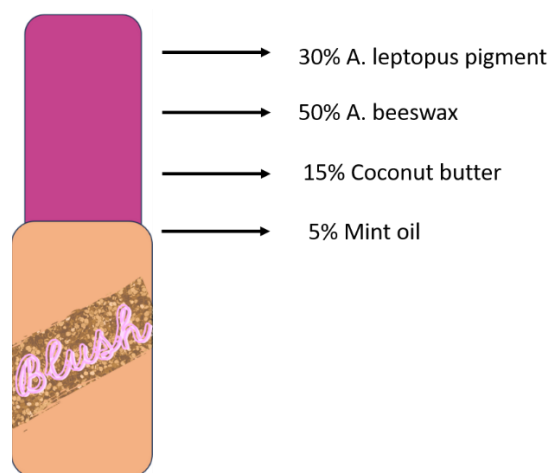


Figure 1: Blush Lip balm composition

4.0 RESULTS

Lip balm produced will replace the chemical-made lip balm products. Additionally, for cosmetic use, this lip balm is also good for lip care products as both main ingredients possess anti-inflammatory and antioxidant properties. The pigment from the natural source will not be harmful to the consumer to use daily. The shelf life of this natural product maybe differs compare to the chemical-made products as it is not added with any preservatives.

5.0 CONCLUSION

It is proposed that this invention could contribute to a safe product for the cosmetic user. The advantage is the pigment of the lip balm made from one of the neglected plants in Malaysia that has a lot of useful phytoconstituents. In addition, beeswax which is waste from honey production can be used for the development of beneficial products for consumers. Upcycling of waste is a good alternative for supporting the nation's mission in supporting the Sustainable Development Goals.

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