Institution Logo

Title of the Product/Project

Hygienic Travel Soap from Dabai Fruits Oil

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PRODUCT ID
75

Group member

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ABSTRACT

Malaysia is truly one of the blessed country in this world as it is enriched with tropical and beneficial fruit such as Dabai fruit (*Canarium odontophyllum*) which can be prominently found in Sarawak. Dabai fruit has been extensively studied and utilized for health and beauty, owing to its richness in antioxidant compounds. However, there has been no report on the utilization of Dabai fruit for production of soap. In this research, pure oil of Dabai was successfully extracted using solid-liquid extraction and mixed with NaOH for saponication (soap-making) process. The characterization of antioxidants from Dabai fruits oil was conducted using attenuated total reflectance-Fourier transform infrared spectrometers (ATR-FTIR). Dabai fruits oil soap was designed like a small ball size to avoid spreading of germs between users and to optimize the coverage area during hand-washing as it can be rolled in between fingers. Moreover, the soap has been innovated with fast-dissolving feature to facilitate hand washing activity with no residue. This can also create a portable and user friendly soap for people to enhance frequent hand-washing culture during travelling. This invention has been awarded with Gold Medal at International Research Invention, Innovation and Exhibition 2021 (I-RIE 2021)

INTRODUCTION

- *Canarium odontophyllum* which commonly known as “Dabai” and ‘Sarawak olive’ is abudantly found in Sibu, Malaysia (Chua et al. 2015).
- Dabai fruit is found to be a very good source for high energy, protein and fat, as well as minerals such as calcium, magnesium, phosphorus (Voon and Kueh 1999; Azrina et al. 2009; Faridah et al. 2009).
- Dabai fruits exhibited high antioxidants such as phenolic acids, flavonaids and anthocyanians. Phenolic compounds have been found to be very beneficial for chronic diseases such as cancer, heart disease and diabetes and possessed excellent anti-inflammatory, cholesterol-lowering, plague-reducing and anti-microbial agents (Azlan et al. 2012).

METHODOLOGY (PART B)

5 mol dm^{-3} sodium hydroxide solution was poured into the beaker containing extractant dabai oil. The mixture was heated using Bunsen burner until boiling.

When the mixture is then left to cool, a white precipitate will be formed floating on the surface of the mixture.

The soap obtained was left for 24 hours in between two filter papers to dry it up. When the solid is dry, it is rolled into small ball around 1cm diameter by using sanitized gloved hand.

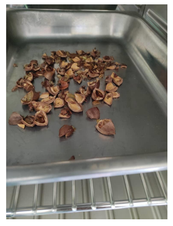
The identification of the functional group of travel soap was performed using ATR-FTIR analysis

PRODUCT DESCRIPTION/ INNOVATION IN BRIEF

- The saponification process is very simple because it is related to neutralisation. For soap making process, we need oil from the dabai fruits because the oil contains fatty acid and we will react the fatty acid with alkali which is sodium hydroxide.
- Dabai fruit has been proved to have high level of antioxidants compound such as phenolic acids, flavonaids and anthocyanians. Phenolic acid has a very special characteristic as it can inhibit the formation of cancer cells and it can also prevent heart disease.
- Other than that, it can act as anti-inflammatory agent and lower the cholestrol level of patient. It is also good to prevent the spreading of virusses and bacterias because it has anti-microbial agents. Therefore, after we found a lot of advantages in dabai fruits, we applied the dabai's oil for soap making process.

METHODOLOGY (PART A)

Dabai’s pulp, and seed were separated using a scalpel and knife.



They were left in oven at 39°C for 24 hours to dry them up

The dried dabai pulps are mashed using mortar and pestle.

The dried dabai pulps and kernels were extracted using solid-liquid extraction

The solvent mixture was then removed from extractant oil using rotary evaporator

SYARIAH COMPLIANCES

Dabai travel small ball soaps are simple, easy to use, user friendly and have antibacterial capacity. This hygienic travel soap obeys Syariah law as it can maintain our hygiene during travelling. Moreover, the eco-friendliness and non-toxicity of the materials used for making Dabai soap ensures its safeness for the environment

“LEADING INNOVATION”

SIGNIFICANCES

This research project is expected to aid travellers during their trip while maintaining their hygiene through Dabai travel small ball soaps.

Due to the global pandemic phenomena, personal hygiene is one of the most crucial habit in order to stop spreading of disease. With the invention of portable, single used, and antimicrobial soap , this will enhance the inculturation of hand washing activities and public awareness on the importance of hygiene

NOVELTY/ ORIGINALITY

The invented travel soap will be the first travel small ball soap using pure oil from Dabai fruit which exhibited antioxidant compound (flavonoid).

AWARDS :: PUBLICATION :: PATTERNS

- Melaka International Intellectual Exposition 2019 -**GOLD AWARD**
- CREATIONS de UiTM: Mega Innovation Carnival 2020 - **GOLD AWARD**
- International Research Invention, Innovation and Exhibition 2021 (I-RIE 2021) – **GOLD AWARD**