

UNIVERSITI TEKNOLOGI MARA

**FORMULATION OF NATURAL
PAPAYA SOAP WITH PAPAIN
ENZYME**

NUR SYAHIRAH BINTI MAT DENG

**Bachelor of Engineering (Hons)
Chemical**

JULY 2019

ABSTRACT

This research was done to formulate the natural papaya soap by adding papain enzyme and papaya pulp without any fragrance and to determine the concentration of vitamin c present in the sample of soaps. Natural papaya soap is formulated by adding crude papain enzyme and pulp of papaya juice. Nowadays, people are very concern about the ingredients of skincare especially cleanser and soap. The use of papain enzyme in the natural papaya soap is to prevent skin from irritation. The soap was produced using melt and pour soap, while papain enzyme and papaya pulp were added with different formulation. The amount of the crude papain enzyme is 0.5,1 and 1.5 %wt/volume of the soap. Moreover, 15,25, 30 %wt/v of the pulp papaya juice in the soap. Then the vitamin C concentration in each formulated soap was determined using High Performance Liquid Chromatography (HPLC). The highest concentration of vitamin c (120.25 µg/mL) was found in sample formulated with 30% (w/v) papaya pulp and 1% (w/v) papain enzyme.

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my final year project and for completing this challenging journey successfully. My gratitude and thanks go to my supervisor Nurul Asyikin binti Md Zaki.

My appreciation goes to the University of Technology Mara that provided the facilities and assistance during laboratory. Special thanks to my colleagues and friends for helping me with this project.

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CHAPTER ONE

INTRODUCTION

1.1 Research Background

Biodiesel is an alternative fuel that have a same to convectional and also fossil diesel. It also renewable, biodegradable, oxygenated and non – toxic free (Wu et al., 2010). Basically, biodiesel can be made from animal fat, vegetable oil, tallow and waste from cooking oil (Probudha, Wakil, & Kafy, 2014). Attention of biodiesel is increasing in worldwide due to their excellent environmentally- friendly attributes. The product that come from biodiesel can minimize environmental pollution and global warming. Biodiesel contains of alkyl esters of fatty acids derived from renewable lipid feedstocks includes animal fat and vegetable oil (Wu et al., 2010). Some of crude oil or vegetable oil has high viscosity and high molecular weight, which cause poor fuel flow and thus leading to incomplete combustion and severe engine deposits, injector coking and piston ring sticking. Alkali catalysed transesterification reaction is the most commonly used method for producing biodiesel due its higher yield extracting capability. Formulation of natural soap is one of the biodiesel products. Soaps are sodium and potassium salts or fatty acids derived from vegetable and animal oils (Sutheimer, Caster, & Smith, 2015). The transesterification process is influenced by several process parameters such as reaction temperature, type of alcohol used and their oil to methanol molar ratio, reaction time and agitation speed (Girgis, 1999).

The uncontrolled formation of free radical formation released to the air especially in the high urban area lead to negative effects on the air quality. This condition may cause human skin continuously contacts to those radicals in the air. Therefore, to prevent the problem in soap formulation which provide a new function of its ingredient as radical scavenger or to keep the healthy skin (Setiadi, Putri, & Anindia, 2018). Natural soap is one of the important thing to the skin barrier. Basically, the natural soap contains of enzyme and nontoxic substances. It does not irritate skin and also allergic to the consumer's skin. This research is about formulation of natural papaya soap by addition of papain enzyme (Walters, Mao, Gunn, & Hornby, 2012). Papain can be found in latex of outer papaya skin that rich in antioxidant activity. Papaya's soap has high activity in