UNIVERSITI TEKNOLOGI MARA

ARTOCARPUS HETEROPHYLLUS SEEDS POWDER IN SCRUB FORMULATION

NORSHAFIKA BINTI MUSTOFA

Dissertation submitted in partial fulfillment of the requirements for the degree of **Bachelor of Pharmacy (Hons.)**

Faculty of Pharmacy

ACKNOWLEDGEMENTS

First and foremost, I would like to praise Allah SWT for His guidance that made me able to finish this project. Many thanks go to our final year project coordinators, Dr Mohd Shihabuddin A Noorden and Mr Ahmad Azani Othman, whose help, stimulating suggestions and encouragement, helped me to coordinate my project especially in writing this report. A special gratitude I give to my final year project supervisor of this project, Dr Tommy Julianto Bustami Effendi for the valuable guidance and advices.

An honourable mention goes to my parents Mr Mustofa bin Mohd,

and my family. I would like to express my deepest appreciation to the laboratory assistants especially Ms Norain who helped a lot in using the equipments and apparatus involved to complete the task.

A special thank goes to my research partner, Nur Athirah binti Awang, who helped me to assemble the parts and gave suggestion about the task. Last but not least, I would like to express my gratitude to my friends for their understandings and supports on me in completing this project. Without helps of the particular that mentioned above, I would face many difficulties while doing this project.

TABLE OF CONTENTS

APPROVAL SHEET	ii
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
ABSTRACT	viii
CHAPTER 1 (INTRODUCTION)	1
1.1. Background of the study1.2. Problem statements1.3. Hypothesis1.4. Objectives of the study1.5. Limitations of the study	1 2 3 4 4
CHAPTER TWO (LITERATURE REVIEW)	5
2.1. Jackfruit	5
2.1.1. Definition	5
2.1.2. General uses of jackfruit	6
2.1.3. Benefits of jackfruit for health	7
2.1.4. Chemical and nutritional composition of jackfruit seed and uses	10
2.2. Scrub	13
2.2.1. Definition	13
2.2.2. Exfoliating agents in scrub2.2.3. Existing scrub in the market	14 16
2.3. Skin	17
2.3.1. Skin structure	17

ABSTRACT

In scrub formulation, the stability of the formulation along with rheological and spreadability properties are the most important aspects to be considered during the production process. In this research, the effects of incorporation of *Artocarpus heterophyllus* (jackfruit) seeds powder on the stability, rheological and spreadability behavior of scrub formulation were evaluated. In general, the addition of jackfruit seeds powder increased the viscoelastic properties of the scrub formulation. Incorporation of jackfruit seeds powder led to better stability of the scrub formulation. Texture analysis results of scrub formulation incorporated with jackfruit seeds powder were shown to have better spreadability property.

CHAPTER ONE

INTRODUCTION

1.1. Background of The Study

Based on Food and Drug Administration (FDA), cosmetics are defined as "intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body's structure or functions". The physical states of cosmetic preparations are divided into three categories; (i) solids such as powders, face packs, masks, compact powders, eye makeup, and bath salts, (ii) semi solids such as creams, ointments, hair gels, liniments, and wax base creams, and (iii) liquids such as lotions, moisturizers, hair and bath oil, conditioners, shampoos, hand sanitizer, mouthwashes, perfumes, deodorants and sprays (Kapoor, 2005).

Herbal cosmetics or also known as natural cosmetics are also used in neutraceuticals and pharmaceuticals. Herbal cosmetics are the preparations, which represent cosmetics associated with active bio-ingredients which have dual function, (i) as cosmetics for the care of body parts and (ii) the botanical ingredients present influence biological functions of skin and provide nutrients necessary for the healthy skin (Kapoor, 2005).