

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF REFINED PALM OIL AND PALM
OIL CONSTITUENTS BASED AQUEOUS CREAM**

NUR ANISA BINTI ABDUL AZIZ

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

Faculty of Pharmacy

June 2017

ACKNOWLEDGEMENT

Alhamdulillah, all praise to Allah S.W.T., the Most Merciful and the Most Gracious. With His blessing, after a full intensive two semesters, this project is complete successfully. I am able to gain and learn from the new experiences and challenges throughout this project.

First, I would like to give my special gratitude to the people who have always give continuous support and assistance along my journey in completing this project. My sincere gratitude to my supervisor, AP Dr Shariza Sahudin for her encouragement and guidance in order to complete my research project on time. Additionally, I want to give my heartfelt appreciation to the Faculty of Pharmacy UiTM especially Department of Pharmaceutics for giving me the opportunity to carry out this study.

Next, I would like to thank all the lab assistants who have been directly or indirectly involve in my research. All of the guidance and assistance from them is priceless and may Allah give them the best rewards. In addition, I also would like to give my precious acknowledgements to my colleagues, Hazirah, Amirul Akmal and Fatin Zafira for their participation and cooperation during this project. Last but not least, I would like to express my deepest gratitude for my family for continuous support in my years of study. The accomplishment would not been possible without them.

TABLE OF CONTENT

TITLE PAGE	PAGE
ACKNOWLEDGEMENT	ii
TABLE OF CONTENT	iii
LIST OF FIGURES	vi
LIST OF TABLES	viii
LIST OF ABBREVIATIONS	ix
ABSTRACT	x
 CHAPTER 1:INTRODUCTION	 1
1.1 Background of study	1
1.2 Problem statement	2
1.3 Objective	3
1.4 Hypothesis	3
 CHAPTER 2:LITERATURE REVIEW	 4
2.1 Skin composition	4
2.1.1 Epidermis	6
2.1.2 Stratum corneum	6
2.2 Diseases	7
2.2.1 Atopic dermatitis	7
2.2.2 Contact dermatitis or inflammation	8
2.2.3 Psoriasis	8

ABSTRACT

Aqueous creams are commonly used as emollients or moisturiser for people with dry skin conditions as it can rehydrates the skin and works as protection for the skin. Eczema usually caused by the dehydration of the skin and based on Eczema Society Malaysia, 2 in 10 people in Malaysia are suffering eczema and approximately 10-14% children under the age of fourteen were found to have eczema (Eczema Malaysia Society, 2007). The dryness of the skin will cause irritation such itching and rashes, which will cause the skin to be painful and sore. In this study, aqueous cream is formulated using refined palm oil and palm oil constituents to explore on the usage of palm oil and study on aqueous cream with natural ingredients. Palm oil contains carotenoids, tocopherols and tocotrienols, which act as antioxidant as well as anticancer. Four formulations have been developed and the physical characteristics are evaluated using Lumifuge, Mastersizer 2000, TA.XT Analyzer and pH meter. The formulations stability at 4°C, 25°C and 40°C was also conducted for 75 days. Physical changes were noted. Statistical analysis was performed to determine the significant difference between the results obtained for the different aqueous cream formulations. The results show that the aqueous cream C has the least particle size and does not show much difference in the pH meter reading between day 1 and day 75. There is not much of difference in terms of the physical changes as the particle size on day 1 is 42.548 and 43.360 on day 75. Palm oil constituents show high stability but further study on human skin should be done to determine the effectiveness of the formulations

Keywords: aqueous cream, palm oil, skin diseases, moisturising, healing effects. .

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Skin is composed of layers to protect the individual from any infection caused by foreign matters. The main layers are epidermis and dermis. Epidermis is the layer which is divided into five significant layers; stratum basale, stratum spinous, stratum granular, stratum lucid and stratum corneum (Barbieri, Wanat, & Seykora, 2014)

Aqueous cream is used in the pharmaceutical industry to help increase the hydration of the skin which is affected by dry skin condition. Aqueous cream is a convenient and non-greasy emollient which is made from a mixture of emulsifying ointment and water as well as phenoxyethanol which acts as an antimicrobial (Tsang & Guy, 2010).

Palm oil is known to have rich of nutrients and advantages. As Malaysia has numerous palm oil plantations thus the study is conducted based on natural ingredients primarily with palm oil nutrients. The development of the country over the past decade is the initiation of alternatives in making new products based on natural ingredients.