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FORMULATION AND CHARACTERISATION OF NATURAL OIL CREAMS PREPARED BY COMMERCIAL EMULSIFIER (IMEXGEL ®) WITH COLD MIXING TECHNIQUE

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ABSTRACT

The aim of this study is to formulate three different oil in water emulsion cream loaded with IMEXGEL® and natural oil which were jojoba oil, virgin coconut oil (VCO) and olive oil. About 39 formulation in total have been introduced by Design Expert 10 (DX-10) software for three different natural oil creams. In other words 13 formulation with different concentration of natural oil and IMEXGEL® 305 have been suggested for each natural oil creams. The physical characterisation study have been done to these creams to determine and compare their droplet size distribution, rheology and texture. Texture analysis generated 4 parameters which were firmness, consistency, cohesiveness and index of viscosity. Texture is the main attributes to attract the consumer acceptation toward the cosmetic product. Besides, all the responses result from the physical characterization study were analysed with Response Surface Method (RSM) by Design Expert 10 (DX10). Result from this study showed that cream prepared by using commercial emulsifier IMEXGEL® were able to produced good physical characteristics of the creams but it depends on the concentration of both IMEXGEL® and natural oils. Based on physical characterization analysis, mean droplet size, uniformity and value of tan δ showed different pattern in three dimension of response surface plot on different natural oil creams. However, firmness, cohesiveness, index of viscosity, storage modulus, loss modulus and complex viscosity showed similar pattern on three dimension on response surface method on the jojoba oil cream, VCO cream and olive oil cream. Evaluation of the stability on the creams by using LUMiFuge® stability analyzer have shown no separation of the creams during simulation of storage for 6 month at room temperature (±25°C) and conclude that all the creams were stable.

CHAPTER ONE

INTRODUCTION

1.1 Background of study

Everybody wants to have beautiful, healthy and smooth skin and majority of peoples said cleaning their skin daily is necessary. Skin product such as cosmetics cream that are intended for non-pharmacological action is used in order to get smooth, soft and moist skin by altering roughness of skin surface (Tang, 2009). Quality of skin can be enhanced by using personal care product such as cosmetics creams. Cosmetics creams that contain toxic ingredient are prohibited but some toxic are present from the raw material or during production process of cosmetic products (Dewi,2015).

Creams is semisolid emulsion which are less viscous than ointment and more viscous than lotion (Baki & Alexander, 2015). Oil in water emulsions intended for viscous cream while water in oil emulsions are refer to oily creams (Greenaway 2010). Scaly surface of dry skin can be smoothing down by using aqueous cream and give cooling effect due to high water content in creams formulation (Nathan 2010). According to Nielloud (2000), aqueous cream are more acceptable than oily creams due to easy in spreading during application and not left greasy effect on