

UNIVERSITI TEKNOLOGI MARA

**FORMULATION OF THICKENING EMULSIFIERS
FOR CREAMS AND LOTIONS IN COSMETIC
APPLICATION**

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ABSTRACT

Thickening emulsifiers contain the combination of surfactants and polymeric thickener were formulated. The combination prepared were Carbopol 940 with Cremophor EL and Carbopol 940 with Cremophor RH. The thickening emulsifiers were then used to prepare creams using olive oil and virgin coconut oil as the model oil phase. The creams were then tested for their physical characteristics including droplet size distribution, rheological properties and texture analysis. Stability study using LUMiFuge stability analyser was also performed. Both thickening emulsifier were able to produce a good cream with a good characteristic. However, Cremophor RH thickening emulsifier had shown superiority in rheological properties, droplet size and texture compared to Cremophor EL.

CHAPTER 1

INTRODUCTION

1.1. Background of study

Creams and lotions are made from two immiscible liquid phases which are water and oil (Korhonen *et al.*, 2004). Therefore, the stability and rheology characteristics are the main concern in order to develop a new cream or lotion product after considering its safety (André *et al.*, 2003). A cosmetic cream preparation should be stable throughout the processes and storage. Unstable cream may develop several conditions such as coalescence, Ostwald ripening, phase inversion, creaming and flocculation (Novales *et al.*, 2003). All of these conditions must be avoided. A surfactant is an important ingredient to produce or formulate a stable cream. Effect of a surface active agent on emulsion system has been investigated many times in term of the stability effects (Pichot *et al.*, 2010). It works to coat the liquid droplet of the dispersed phase to stabilize the dispersion. In addition to the surfactant, thickening emulsifier is the combination of polymer based thickening agent and surfactant. It is developed to improve cream and lotion formulation and stability.