UNIVERSITI TEKNOLOGI MARA

FORMULATION AND EVALUATION OF ANTIOXIDANT ACTIVITY OF COFFEE OIL FOR ANTI CELLULITE AND UNDER EYE PUFFINESS

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ABSTRACT

Study on antioxidant activity of coffee oil has been conducted. Coffee oil was extracted from roasted coffee beans of Colombian by hot press method. Coffee oil was incorporated into a cream formulation by hot method. The physical characteristic include rheology, texture and spreading of the cream were then evaluated. The antioxidant activity of coffee oil was performed by using DPPH radical scavenging method. The coffee oil was solubilized in toluene and then diluted in ethanol have shown a strong antioxidant DPPH radical scavenging activity with IC50 value of 13.405mg/ml. The base cream and coffee oil loaded cream were both characterized on their rheological profiles. Shear stress and viscosity of base cream measured at the shear rate of 100 (1/s) were 97,800 m.pa.s and is 978 pa.s, while coffee oil loaded cream were 108,000 m.pa.s and 1,080 pa.s, respectively. Spreadability analysis of base cream and coffee oil loaded cream was performed to study the firmness, cohesiveness, adhesiveness and spreadibility. Accelerated stability test by using LumiFuge was conducted at room temperature to observe any separation of cream in a simulation of 3 months duration study for both creams. The stability study have shown both creams were stable within duration and condition of study.

CHAPTER 1: INTRODUCTION

Natural products are widely used in the pharmaceutical, cosmetic and food industries as the active ingredients and raw materials in a big amount of industrialized products (Cordel, 2000).

The ability of active compounds from cosmetics or pharmaceuticals to influence the metabolism of cells and other processes occurring in the skin is largely dependent on the capacity of these molecules to penetrate through the skin barrier. Caffeine is often used as hydrophilic model substance in skin penetration experiments (Kim *et.al*, 2002).

Caffeine is known to be the most widely consumed alkaloid in the world, which weighs approximately 1-2% of the coffee beans weight, presence with other active ingredients which has higher percentage than the caffeine, such as coffee oil. This coffee oil has a beneficial and interesting uses for cosmeticeutical as well as pharmaceutical industries (A. L. De Oliveira, Cruz, Eberlin, & Cabral, 2005).