UNIVERSITI TEKNOLOGI MARA

EFFECT OF VIRGIN COCONUT OIL AND TOCOTRIENOLS ON SKIN PARAMETERS

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ABSTRACT

Skin serves as protective barrier against external insults to the human body, including mechanical and environmental stressors, and the entry of foreign chemical and microbe. Maintaining the epidermal barrier is essential for normal regulation of skin function. Skin surface is directly exposed to hostile environments that can induce changes in skin function. Both virgin coconut oil (VCO) and tocotrienols (TCTs) exhibit antioxidant properties that are beneficial in promoting the good appearances of skin. The present study was conducted to investigate the efficacy of topical application of VCO enriched TCTs in improving skin parameters. 30 healthy students (18 females and 12 males), aged 22 ± 2 years were recruited for this study. Subjects were randomly divided to three treatment groups (group 1 = VCO enriched TCTs, group 2 = VCO, group 3 = control). Moisture content, as well as other skin surface structure and skin elasticity were determined for group 1 (VCO enriched TCTs) and group 2 (VCO) versus untreated control group. Statistical evaluation according to independent sample t-test indicates a greater efficacy for VCO enriched TCTs. Skin surface parameter showed an improvement but did not show significant changes. VCO enriched TCTs showed a significant improvement of skin elasticity for gross elasticity and skin fatigue parameters. All subjects were satisfied with the treatment and gave positive feedback for self-assessment. It can be concluded that VCO enriched TCTs was more effective in improving skin conditions. None of the participating test subjects had any side effects throughout the study.

CHAPTER 1

INTRODUCTION

1.0 Skin structure and function

Skin is the largest organ of the body and comprises between 15-20% of total body weight. Skin serves as protective barrier against external insults to the human body, including mechanical and environmental stressors, and the entry of foreign chemical and microorganism. Skin also regulates water loss and temperature to maintain homeostasis function. Maintaining the epidermal barrier is essential for normal regulation of skin function. Three main components made up the basic structure of human skin; the epidermis, dermis, and a layer of subcutaneous tissue, also known as hypodermis (Robinson, 2005). The stratum corneum, located at the outermost layer of epidermis, helps prevent dehydration of the body and provides a barrier against pathogens. Failure of the epidermal barrier function leads to excess water loss and the person can be dehydrate. Mechanical properties of the skin provides physical barrier to injury. Elastic fibers within the dermis give flexibility properties while collagen fibers provide strength. Alterations in skin structure lead to subsequent changes of skin appearance and function. Skin surface is directly exposed to hostile environments that can induce changes in skin function. These environment factors include UV radiation from sunlight and air pollutants that can induce oxidative damage.