ORIGINAL ARTICLE

Formulation of Skin Infections Microemulsions Prepared from Modified Coconut Oil

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Abstract

Presently, natural extracts are widely used in pharmaceutical fields, especially for antibacterial infections. Coconut oil is one of the natural products from Thailand contain with monolaurin. Monolaurin (ML) in coconut oil (VCO) is a substance that has antibacterial, antifungal, antiviral and antiprotozoal properties. The aims of this study were to increase amount of monolaurin from coconut oil through chemical modification and apply the modified coconut oil (MCO) as an antimicrobial microemulsions for skin infections. The modified coconut oil was prepared through glycerolysis process. Pseudo-ternary phase diagram was used as a tool for selecting the suitable proportion in microemulsions formulation. The surfactant was selected from three types of non-ionic surfactant, i.e. Cremophor® CO-40, Cremophor® RH-40 and Tween® 60. The suitable surfactant and solvent were Cremophor® RH-40 and ethanol, respectively. Microemulsions containing with Cremophor® RH-40 and ethanol, respectively. Microemulsions containing with Cremophor® RH-40 demonstrated clear solution was later characterized as microemulsions which has the droplet size in nanometer range (35.94-322.45 nm.). pH of this microemulsion (pH 4.91-5.77) was suitable for skin. In conclusion, the knowledge gained from this study may provide the guideline for application of coconut oil from Thailand in pharmaceutical fields.

Keywords: microemulsions, virgin coconut oil, monolaurin, glycerolysis, pseudo-ternary phase diagram, skin infection, virgin coconut oil, monolaurin

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