ABSTRACT

PENETRATION IN VITRO OF TRETINOIN IN NANOEMULSION SYSTEM COMPARED IN CONVENTIONAL EMULSION SYSTEM AS ANTI-AGING COSMETICS
(Using Virgin Coconut Oil as Oil Phase)

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Tretinoin is a compound that has function as anti aging. But the characteristic of tretinoin is practically not soluble in water. To increase its solubility, it was formulated into nanoemulsion delivery system. The purpose of this study was to compare the rate of penetration of tretinoin in nanoemulsion and emulsion systems. The nanoemulsion formula consisted of Virgin Coconut Oil: Span 80 & Tween 80 - Ethanol 96%: Phosphate buffer pH 6,0 ± 0.5 = 1: 9: 27,5 while the emulsion formula consisted of Virgin Coconut Oil: Span 80 & Tween 80: Phosphate buffer pH 6,0 ± 0.5 = 1.5: 1: 2. Both systems contained 0,1% of tretinoin. The penetration of tretinoin observed in vitro through the skin of wistar rats was determined using the Franz Diffusion Cell. Some parameters, such as flux and membrane permeability are determined. The penetration rate (flux) in this study is divided into two stages: 0-60 minutes and 60-720 minutes. Based on the statistical analysis using independent sample t-test with degree of confident 95% (α=0,05) the penetration rate (flux) of tretinoin in minutes to 0 at to 60 nanoemulsion > emulsion significantly. In minutes 60 to 720 the penetration rate (flux) of nanoemulsi tretinoin and emulsion has no significant difference. Overall penetration rate (flux) in minutes 0 to 720 and membrane permeability between tretinoin in the nanoemulsion system and tretinoin in the emulsion system was no significant difference.

KEYWORDS: tretinoin, virgin coconut oil, nanoemulsion, emulsion, penetration, Franz Diffusion Cell.