ABSTRACT

THE INFLUENCE OF TWEEN 80 CONCENTRATION ON DRUG RELEASE KINETIC OF TRETINOIN IN SOLID LIPID NANOPARTICLE SYSTEM

Dewi Wulan Setianingrum Putri Wardani

Tretinoin is a derivate of Vitamin A that have antiaging effect. tretinoin that unstable with air, heat, and light, so it was preparation in *Solid Lipid Nanoparticle* delivery system for protect tretinoin. SLN is drug delivery which have some advantages such as can protect the active ingredient from degradation, can used controlled release properties, can entrapment the lipophilic and hydrophilic substance. This study investigated influence of Tween 80 concentration (8%; 10% and 12%) on drug release kinetic of SLN-tretinoin. Cetyl alkohol (CA) was selected as lipid matrix, Tween 80 as surfactant, and propylenglycol as co-surfactant. There were three formulas in this study. Formula I using 8% of Tween 80, formula II using 10% of Tween 80, and formula III using 12% of Tween 80. SLN was made by hot homogenization combine with High Shear Homogenization. Drug release was determined using Franz difussion cell with cellophane used as a membran and Methanol : phosphate buffer pH 6,0 ± 0,5 (2:1) as receptor solution for 12 hours. The temperature was controlled at 32˚C ± 0,5˚C. The result show that drug release (flux) of tretinoin in Solid Lipid Nanoparticle from formula I, II, and III were 0,014 ± 0,002, 0,020 ± 0,001, dan 0,013 ± 0,002 µg/cm^2.menit. Based on results of statistical analysis using analysis of varian (ANOVA) test with degree of confident 95% (α = 0,05). There were have significant difference of tretinoin release rate between al of formulas.

Keyword(s) : Solid Lipid Nanoparticle (SLN), tretinoin, Drug Release kinetik, Tween 80, influence of Tween 80.