ABSTRAK

Nanoemulsi merupakan sistem emulsi yang baik sebagai penghantar ke dalam lapisan kulit. *Kojic acid* memiliki sifat untuk mencerahkan kulit manusia dengan menghambat pembentukan melanin melalui pencegahan pembentukan tironase. Tujuan penelitian ini yaitu mendapatkan formulasi optimal dari kombinasi fase minyak *Olive oil* dan surfaktan tween 80 berdasarkan desain faktorial 2^2 menggunakan metode ANOVA. Pengujian dilakukan dengan uji organoleptis, pH, *Particle Size Analyzer*, tipe emulsi, %transmittan, viskositas dan aktivitas tironase.

Penelitian ini merupakan penelitian eksperimental dengan variabel bebas yaitu perbandingan konsentrasi antara *olive oil* dengan tween 80 pada sediaan nanoemulsi *kojic acid*, serta variabel tergantung yaitu stabilitas fisik sediaan nanoemulsi. Hasil analisis data dianalisis menggunakan *two-way Analysis of Variance* (ANOVA) dengan taraf kepercayan 95%.

Hasil menunjukkan bahwa *Olive oil* mempengaruhi persen transmittan dan viskositas dengan kontribusi sebesar 44,46% dan 22,22%. Tween 80 meningkatkan ukuran partikel dengan kontribusi sebesar 43,48%. Area optimum berhasil diperoleh dari *superimposed contour plot* menunjukkan area tersebut telah valid.

Kata Kunci: Nanoemulsi, *Skin whitening agent*, *Kojic acid*, *Olive oil*, Tween 80

ABSTRACT

Nanoemulsion is an emulsion system that is good as a conductor into the skin layers. Kojic acid has the property of brightening human skin by inhibiting the formation of melanin through preventing the formation of tyronase. The aim of this research is to obtain the optimal formulation from a combination of the Olive oil phase and Tween 80 surfactant based on a factorial design 22 using the ANOVA method. Testing was carried out using organoleptic tests, pH, Particle Size Analyzer, emulsion type, % transmittan, viscosity and tyronase activity.

This research is an experimental study with the independent variable, namely the concentration ratio between olive oil and Tween 80 in the kojic acid nanoemulsion preparation, as well as the dependent variable, namely the physical stability of the nanoemulsion preparation. The results of data analysis were analyzed using two-way Analysis of Variance (ANOVA) with a confidence level of 95%.

The results show that olive oil affects the percent transmittance and viscosity with a contribution of 44.46% and 22.22%. Tween 80 increased the particle size with a contribution of 43.48%. The optimum area was successfully obtained from the superimposed contour plot showing that the area was valid.

Keywords: Nanoemulsion, Skin whitening agent, Kojic acid, Olive oil, Tween 80