

ABSTRAK**PENGEMBANGAN FORMULA DAN KARAKTERISASI NANOSTRUCTURED LIPID CARRIER (NLC) VITAMIN E ASETAT MENGGUNAKAN LIPID PADAT GLYCERYL BEHENATE (COMPRITOL®) DAN SURFAKTAN LAURYL GLUCOSIDE (PLANTACARE®) DENGAN METODE SIMPLEX LATTICE DESIGN****Oleh :****Syifa Salsabilla****11181237**

Vitamin E asetat merupakan bahan obat yang dapat digunakan sebagai *antiaging*. Memiliki nilai Log P 12,2, bersifat sangat lipofilik, kelarutan air rendah dan berpotensi terdegradasi. Vitamin E asetat memiliki efek antioksidan, dapat mengikat radikal bebas dan mencegah penuaan dini. Tujuan dari penelitian ini untuk mendapatkan formula NLC vitamin E yang memenuhi beberapa parameter yang ditentukan. NLC dibuat dengan homogenisasi dengan *magnetic stirrer* dan disonikasi menggunakan sonikator probe. Formula NLC vitamin E asetat terdiri dari vitamin E asetat 2%, Compritol® 2-6%, Myritol® 1% dan Plantacare® 1-3%. Karakterisasi berupa ukuran partikel, indeks polidispersitas, efisiensi penjerapan, zeta potensial dan karakterisasi morfologi dengan *Transmission Electron Microscopy* (TEM). Hasil pengujian karakterisasi ukuran partikel pada F1, F3, F4, dan F5 berkisar antara $280,20 \pm 9,34$ nm sd $375,63 \pm 4,18$ nm, PdI sebesar $0,13 \pm 0,04$ sd $0,44 \pm 0,02$; Zeta potensial sebesar $(-23,77 \pm 0,40)$ mV sd $(-28,80 \pm 0,61)$ mV; efisiensi penjerapan $92,34 \pm 0,78$ sd $97,60 \pm 0,75$ dan memiliki morfologi partikel bulat *sferis*. Formula NLC vitamin E asetat yang dibuat pada F1, F3, F4 dan F5 memenuhi syarat dengan ukuran partikel < 500 nm, PdI $< 0,5$, Zeta potensial $> \pm 20$ mV dan efisiensi penjerapan $> 80\%$.

Kata Kunci : *antiaging*, NLC, Vitamin E asetat

ABSTRACT**DEVELOPMENT OF FORMULA AND CHARACTERIZATION OF
NANOSTRUCTURED LIPID CARRIER (NLC) VITAMIN E ACETATE USING
SOLID LIPID GLYCERYL BEHENATE (COMPRITOL®) AND LAURYL
GLUCOSIDE SURFACTANT (PLANTACARE®) WITH SIMPLEX LATTICE
DESIGN METHOD****By :****Syifa Salsabilla****11181237**

Vitamin E acetate is a medicinal ingredient that can be used as an antiaging. It has a Log P value of 12.2, is highly lipophilic, has low water solubility and has the potential to be degraded. Vitamin E acetate has an antioxidant effect, can bind free radicals and prevent premature aging. The purpose of this study was to obtain an NLC vitamin E formula that satisfies several specified parameters. NLC was prepared by homogenization with a magnetic stirrer and sonicated using a probe sonicator. The NLC Vitamin E acetate formula consists of Vitamin E acetate 2%, Compritol® 2-6%, Myritol® 1% and Plantacare® 1-3%. Characterization in the form of particle size, polydispersity index, sorption efficiency, zeta potential and morphological characterization by Transmission Electron Microscopy (TEM). The results of the particle size characterization test at F1, F3, F4, and F5 ranged from 280.20 ± 9.34 nm to 375.63 ± 4.18 nm, PdI of 0.13 ± 0.04 to 0.44 ± 0.02 ; Zeta potential is (-23.77 ± 0.40) mV to (-28.80 ± 0.61) mV; the adsorption efficiency was 92.34 ± 0.78 to 97.60 ± 0.75 and had a spherical particle morphology. The NLC Vitamin E acetate formula prepared at F1, F3, F4 and F5 met the requirements with particle size < 500 nm, PdI < 0.5 , Zeta potential $> \pm 20$ mV and adsorption efficiency $> 80\%$. Vitamin E acetate is an ingredient that can be used as an antiaging.

Keywords : antiaging, NLC, Vitamin E acetate