

ABSTRAK**Pengembangan Formulasi dan Karakterisasi Nanostructured Lipid Carriers (NLC)****Vitamin E Asetat Dengan Lipid Padat Glyceryl Monostearate dan Surfaktan****Cremophore Rh 40 Menggunakan Design Expert****Oleh****Rian Saefulloh****11181135**

Pendahuluan : Pada remaja yang memiliki pola hidup yang tidak baik akan menimbulkan penuaan dini pada kulit sehingga harus merubah pola hidupnya untuk mendapatkan kulit yang cerah. Penuaan dini pada kulit dapat diatasi dengan Vitamin E asetat karena kaya antioksidan yang baik untuk kulit. dalam upaya melindungi Vitamin E Asetat terdegradasi cahaya, meningkatkan penetrasi dan stabilitasnya, diperlukan sistem penghantaran obat baru yaitu NLC yang terdiri lipid padat, lipid cair dan surfaktan. **Metode:** NLC dibuat menggunakan metode homogenisasi panas dan ultrasonikasi. **Hasil :** Formula NLC Vitamin E Asetat terdiri dari Geleol® 2-6%, Myritol® 1%, Cremophore Rh® 40 1-3% dan Vitamin E Asetat 2%. Hasil pengujian ukuran partikel pada hari ke-1 menunjukkan hasil ukuran partikel memiliki rentang $77,08 \pm 2,70 - 232,73 \pm 1,46$. Menunjukkan Indeks polidispersi memiliki rentang $(0,269 \pm 0,01 - 0,609 \pm 0,01)$ dan zeta potensial berkisar antara $(-16,67 \text{ mV} \pm 0,35) - (-29,87 \text{ mV} \pm 0,81)$ selanjutnya efisiensi penjerapan yang memiliki rentang 88,08 % - 96,09 %. Evaluasi TEM menunjukkan bentuk sferis dan terdistribusi merata, hal ini sejalan dengan hasil karakterisasi NLC Vitamin E Asetat. **Kesimpulan :** Hasil ini menunjukkan bahwa NLC mengandung Vitamin E Asetat dapat memenuhi syarat.

Kata Kunci : Vitamin E Asetat, Geleol®, *Nanostructured Lipid Carriers* (NLC), TEM

ABSTRACT**Formulation Development and Characterization of Nanostructured Lipid Carriers (NLC) Vitamin E Acetate With Solid Lipid Glyceryl Monostearate and Surfactant Cremophore Rh 40 Using Design Experts**

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Introduction: Teenagers who have a bad lifestyle will cause premature aging of the skin so they have to change their lifestyle to get bright skin. Premature aging of the skin can be overcome with Vitamin E acetate because it is rich in antioxidants which are good for the skin. To protect Vitamin E Acetate from light degradation, and to increase its penetration and stability, a new drug delivery system is needed, namely NLC consisting of solid lipids, liquid lipids, and surfactants. **Methods:** NLCs were made using heat homogenization and ultrasonication methods. **Results:** The NLC Vitamin E Acetate formula consisted of Geleol® 2-6%, Myritol® 1%, Cremophore Rh® 40 1-3%, and Vitamin E Acetate 2%. The results of the particle size test on day 1 showed that the particle size results had a range of $77.08 \pm 2.70 - 232.73 \pm 1.46$. It shows that the polydispersion index has a range $(0.269 \pm 0.01 - 0.609 \pm 0.01)$ and the zeta potential ranges from $(-16.67 \text{ mV} \pm 0.35) - (-29.87 \text{ mV} \pm .81)$ then the adsorption efficiency which has a range of 88.08% - 96.09%. The TEM evaluation showed a spherical shape and was evenly distributed, this was in line with the results of the NLC characterization of Vitamin E Acetate. **Conclusion** These results indicate that NLC containing Vitamin E Acetate can meet the requirements.

Keywords: Vitamin E Acetate, Geleol®, Nanostructured Lipid Carriers (NLC), TEM