

**PENGEMBANGAN FORMULASI DAN KARAKTERISASI
NANOSTRUCTURED LIPID CARRIERS (NLC) KURKUMIN
MENGUNAKAN *GLISERIL BEHENAT*, *CAPRIC TRIGLYCERIDE* DAN
*DECYL GLUCOSIDE***

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ABSTRAK

Kurkumin merupakan salah satu tanaman obat yang paling efisien dengan banyak efek farmakologis, seperti antiinflamasi dan antijerawat. Kurkumin memiliki Berat molekul 368,4 g/mol, memiliki bioavailabilitas yang rendah karena sukar larut dalam air. Tujuan penelitian ini adalah untuk menemukan formula NLC Kurkumin yang memenuhi beberapa parameter. NLC dibuat menggunakan metode homogenisasi panas dengan *magnetic stirrer* dan disonikasi menggunakan sonikator probe. Formula NLC Kurkumin terdiri dari kurkumin 0,05%, Compritol® 6-9%, Myritol® 2%, dan Plantacare 3-5%. Karakterisasi berupa ukuran partikel, indeks polidispersi, zeta potensial, efisiensi penjerapan, dan morfologi dengan TEM. Hasil pengujian karakterisasi ukuran partikel pada semua formula berkisar antara 99,26 nm sd 304 nm. PdI sebesar 0,245 sd 0.450, zeta potensial (-39,27 mV) sd (-60,00 mV), efisiensi penjerapan 99.95% sd 99.97%, dan memiliki morfologi partikel bulat sferis. Formula NLC Kurkumin yang dibuat pada semua formula memenuhi syarat dengan ukuran partikel <1000 nm, PdI <0,5, zeta potensial ±-30 mV, dan efisiensi penjerapan >80%.

KATA KUNCI : Antijerawat, NLC, Kurkumin

**FORMULATION DEVELOPMENT AND CHARACTERIZATION OF
NANOSTRUCTURED LIPID CARRIERS (NLC) OF CURCUMIN USING
GLYCERYL BEHENATE, CAPRIC TRIGLYCERIDE AND DECYL
GLUCOSIDE**

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ABSTRACT

Curcumin is one of the most efficient medicinal plants with many pharmacological effects, such as anti-inflammatory and anti-acne. Curcumin has a molecular weight of 368.4 g/mol, has low bioavailability because it is difficult to dissolve in water. The aim of this study was to find a Curcumin NLC formula that fulfills several parameters. NLC was prepared using hot homogenization method with magnetic stirrer and sonicated using probe sonicator. Curcumin NLC formula consisted of curcumin 0.05%, Compritol® 6-9%, Myritol® 2%, and Plantacare 3-5%. Characterization included particle size, polydispersion index, zeta potential, sorption efficiency, and morphology with TEM. The results of particle size characterization testing in all formulas ranged from 99.26 nm to 304 nm. PdI was 0.245 to 0.450, zeta potential (-39.27 mV) to (-60.00 mV), absorption efficiency 99.95% to 99.97%, and had spherical particle morphology. Curcumin NLC formulas made in all formulas are qualified with particle size <1000 nm, PdI <0,5, zeta potential $\pm$ -30 mV, and absorption efficiency >80%.

KEYWORDS: Anti-acne, NLC, Curcumin