

**PENGEMBANGAN FORMULASI DAN KARAKTERISASI
NANOSTRUCTURED LIPID CARRIERS (NLC) KURKUMIN
MENGUNAKAN *GLISERIL BEHENAT*, *CAPRIC TRIGLYCERIDE*, DAN
*POLIGLISERIL-3 METHYLGLUCOSE DISTEARAT***

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ABSTRAK

Kurkumin dianggap sebagai salah satu tanaman obat yang paling efektif karena berbagai efek farmakologisnya yang luas, seperti antiinflamasi dan antibakteri. Aktivitas ini memungkinkan pengobatan berbagai penyakit kulit seperti *acne vulgaris*, dan psoriasis hampir tanpa efek samping. Kurkumin memiliki Berat molekul 368,4 g/mol, bersifat lipofilik, sukar larut dalam air, dan berpotensi terdegradasi. Tujuan penelitian ini untuk mendapatkan formula NLC Kurkumin yang memenuhi beberapa parameter yang ditentukan. NLC dibuat dengan menggunakan alat *magnetic stirrer* dan disonikasi menggunakan *sonikator probe*. Formula NLC Kurkumin terdiri dari kurkumin 0,05%, Compritol® 6-9%, Myritol® 2%, dan Tegocare® 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 205,4 nm s/d 313,6 nm, PdI sebesar 0,246 s/d 0,558, zeta potensial (-51,29 mV) s/d (-80,73 mV), efisiensi penjerapan 99,81% s/d 99,87%, dan memiliki morfologi partikel bulat sferis. Formula NLC Kurkumin yang dibuat pada semua formula memenuhi syarat dengan ukuran partikel <500 nm, PdI <1, zeta potensial >±30 mV, dan efisiensi penjerapan >80%.

Kata Kunci: Antijerawat, NLC, Kurkumin

**FORMULATION DEVELOPMENT AND CHARACTERISATION OF
NANOSTRUCTURED LIPID CARRIERS (NLC) OF CURCUMIN USING
GLYCERYL BEHENATE, CAPRIC TRIGLYCERIDE AND POLYGLYCERYL-3
METHYLGLUCOSE DISTEARATE**

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ABSTRACT

Curcumin is considered one of the most effective medicinal plants due to its wide range of pharmacological effects, such as anti-inflammatory and antibacterial. These activities allow the treatment of various skin conditions such as acne vulgaris and psoriasis with almost no side effects. Curcumin has a molecular weight of 368.4 g/mol, is lipophilic, highly water soluble and potentially degradable. The aim of this study was to obtain a curcumin NLC formulation that meets several specified parameters. NLCs were prepared using a magnetic stirrer and sonicated using a probe sonicator. The curcumin NLC formulation consisted of curcumin 0.05%, Compritol® 6-9%, Myritol® 2% and Tegocare® 3-5%. Characterisation included particle size, polydispersity index, zeta potential, absorption efficiency and morphology by TEM. The results of particle size characterisation tests for all formulations ranged from 205.4 nm to 313.6 nm, PdI from 0.246 to 0.558, zeta potential from (-51.29 mV) to (-80.73 mV), absorption efficiency from 99.81% to 99.87%, and had spherical particle morphology. Curcumin NLC prepared in all formulations met the requirements with particle size <500 nm, PdI <1, zeta potential > ± 30 mV, and absorption efficiency >80%.

Keywords: Anti-acne, NLC, Curcumin