INTISARI

Tetrahidropentagamavunon-5 (THPGV-5) merupakan salah satu senyawa turunan kurkumin yang diketahui memiliki aktivitas antioksidan yang baik. THPGV-5 diformulasikan dalam bentuk sediaan emulgel dengan kombinasi emulgator yang terdiri dari tween 80 dan span 80, fase minyak yang terdiri dari asam oleat dan parafin cair, serta karbopol 940 sebagai *geling agent*. Tujuan penelitian ini adalah mengoptimasi kombinasi emulgator pada sistem emulsi serta mengevaluasi sifat fisik, stabilitas fisik dan aktivitas antioksidan sediaan emulgel THPGV-5 menggunakan metode penangkapan radikal *2,2-diphenyl-1-picrylhydrazil* (DPPH).

Optimasi emulsi dilakukan dengan metode *Simplex Lattice Design* (SLD) menggunakan bantuan *software* Design Expert versi 10.0 dengan respon ukuran partikel dan rasio pemisahan. Aktivitas antioksidan emulgel THPGV-5 ditentukan dengan cara menghitung % aktivitas antioksidan. Data dianalisis secara statistik dengan *software* IBM SPSS 24.

Hasil penelitian menunjukkan bahwa formula optimum emulsi THPGV-5 dengan konsentrasi tween 80 sebesar 1,50% dan span 80 sebesar 0,00% memiliki ukuran partikel sebesar 0,78 mikrometer dan nilai rasio pemisahan sebesar 1. Emulgel yang dihasilkan stabil saat dilakukan uji sineresis dan uji stabilitas dipercepat dengan *freeze-thaw cycle* sebanyak 3 siklus serta uji sentrifugasi. Emulgel memiliki efek sebagai antioksidan dengan nilai IC_{50} sebesar 108,558 ± 2,035 mg/mL.

Kata kunci: Emulgel, tetrahidropentagamavunon-5, tween 80, span 80.

ABSTRACT

Tetrahydropentagamavunon-5 (THPGV-5) is one of the curcumin derivative which is known to have a good antioxidant activity. THPGV-5 is formulated in an emulgel form with emulgator consisting of tween 80 and span 80, oil phase consisting of oleate acid and liquid paraffin, and also carbopol 940 as gelling agent. This study aimed to optimize the emulgator combination on the emulsion system and also to evaluate the physical properties, physical stability, and antioxidant activity of THPGV-5 emulgel form using the 2,2-diphenyl-1-picrylhydrazil (DPPH) radical method.

Emulsion optimization was carried out using the Simplex Lattice Design (SLD) method with the help of Design Expert software version 10.0 with the particle size response and separation ratio. The antioxidant activity of THPGV-5 emulgel was determined by calculating the precentage rate of antioxidant activity. The data then were analyzed statistically with IBM SPSS 24 software.

The results showed that the optimum formula of THPGV-5 emulsion with the concentration of tween 80 by 1.50% and span 80 by 0.00% had a particle size was 0.78 micrometer and a separation ratio was 1. The emulgel produced was stable in the syneresis test and also accelerated test by freeze-thaw cycle was conducted in 3 cycles and centrifugation treatment. The emulgel had an antioxidant effect with an IC_{50} value of 108,558 ± 2,035 mg/mL.

Keywords: Emulgel, tetrahydropentagamavunon-5, tween 80, span 80.