INTISARI

Heksagamavunon-5 (HGV-5) merupakan senyawa analog kurkumin yang diketahui memiliki aktivitas antioksidan sehingga berpotensi untuk dikembangkan sebagai sediaan tabir surya. Untuk memudahkan penggunaannya pada kulit, senyawa tersebut dapat diformulasikan dalam bentuk sediaan gel. Penelitian ini bertujuan untuk menentukan formula optimum basis gel, mengevaluasi stabilitas fisik basis dan gel HGV-5, serta mengevaluasi aktivitas tabir surya gel HGV-5 secara *in vitro*.

Metode *Simplex Lattice Design* dengan *software Design Expert* versi 13 digunakan untuk mengoptimasi kadar *gelling agent* karbopol (0,5-1,5%) dan Na-CMC (2,0-3,0%). Delapan *run* formula gel dievaluasi sifat fisiknya untuk menentukan formula optimum. Stabilitas gel diuji dengan metode *cycling test* selama tiga siklus. Aktivitas gel HGV-5 sebagai tabir surya diuji dengan metode spektrofotometri dengan menentukan nilai *Sun Protection Factor* (SPF), persen transmisi eritema (%TE), dan persen transmisi pigmentasi (%TP).

Hasil penelitian menunjukkan bahwa gel HGV-5 dengan kadar karbopol 0,5% dan Na-CMC 3,0% memiliki pH sebesar 5,71±0,03; viskositas 290,51±1,22 dPa.s; daya sebar 10,64±0,32 cm^2; serta daya lekat 10,20±0,89 detik. Gel HGV-5 memiliki nilai rata-rata SPF sebesar 37,14; %TE 0,133%; dan %TP 0,002%. Basis gel dan gel HGV-5 stabil pada respons viskositas, daya sebar, dan daya lekat selama penyimpanan 3 siklus. Gel HGV-5 stabil pada respons pH, sedangkan pH basis gel tidak stabil selama penyimpanan 3 siklus.

Kata kunci: heksagamavunon-5, karbopol, Na-CMC, tabir surya

ABSTRACT

Hexagamavunon-5 (HGV-5) is curcumin analogue with antioxidant activity and potential to be developed as sunscreen. HGV-5 can be formulated in gel dosage form. This study aimed to determine the optimum formula of gel base, evaluate the physical stability of gel base and HGV-5 gel, and evaluate the activity of HGV-5 gel as sunscreen using *in vitro* method.

Carbopol (0.5-1.5%) and Na-CMC (2.0-3.0%) content were optimized using Simplex Lattice Design method with Design Expert software version 13. Physical properties evaluation was performed on eight runs of gel formula to determine the optimum formula. Gel stability was tested by cycling test method for three cycles. The activity of HGV-5 gel as sunscreen was determined spectrophotometrically by determining Sun Protection Factor (SPF) value, erythema transmission percentage (%TE), and pigmentation transmission percentage (%TP).

The results showed that HGV-5 gel with 0.5% carbopol and 3.0% Na-CMC content had a pH of 5.71±0.03; viscosity of 290.51±1.22 dPa.s; spreadability of 10.64±0.32 cm^2; and adhesion of 10.20±0.89 seconds. HGV-5 gel had an average SPF value 37.14; %TE 0.133%; and %TP 0.002%. Gel base and HGV-5 gel were stable in viscosity, spreadability, and adhesion responses during 3-cycles of storage. HGV-5 gel was stable in pH response, while gel base pH was unstable during 3-cycles of storage.

Keywords: hexagamavunon-5, carbopol, Na-CMC, sunscreen