INTISARI

Heksagamavunon-5 (HGV-5) atau 2,6-bis-(4'-hidroksi-3',5-dimetoksibenziliden) sikloheksanon merupakan salah satu analog kurkumin yang berhasil disintesis sebagai upaya untuk mengatasi keterbatasan yang dimiliki oleh senyawa alami kurkumin. HGV-5 memiliki aktivitas antioksidan yang berpotensi dalam menjaga kesehatan kulit, termasuk mencegah kerutan dan penuaan (*anti-aging*). Penelitian ini bertujuan untuk memperoleh formula optimum dari kombinasi *thickening agent* CMC-Na dan carbopol yang dibuat ke dalam bentuk sediaan serum HGV-5.

Pembuatan sediaan diawali dengan mengoptimasi delapan kombinasi formula menggunakan *software Design Expert ver. 13* dan diverifikasi melalui respons parameter hasil percobaan. Formula optimum yang telah didapat kemudian dievaluasi melalui serangkaian uji, meliputi organoleptis, homogenitas, viskositas, pH, dan daya sebar, c*ycling test* untuk mengetahui stabilitas serum, serta uji aktivitas antioksidan DPPH serum HGV-5.

Penelitian ini menunjukkan bahwa perbandingan kombinasi *thickening agent* CMC-Na 0,36% dan carbopol 0,14% menghasilkan serum HGV-5 dengan karakteristik fisik paling optimal, berada dalam rentang standar yang dapat diterima untuk sediaan serum topikal, memiliki viskositas sebesar 1160,33±6,03 cP; pH 5,80±0,02; dan kemampuan daya sebar 41,35±0,15%. Serum HGV-5 kurang stabil berdasarkan perhitungan statistik tetapi baik secara fisik serta memenuhi standar keamanan setelah tiga kali siklus *cycling test* dan memiliki nilai IC_{50} sebesar 13,29 µM sebagai indikasi adanya aktivitas antioksidan.

Kata kunci: heksagamavunon-5, CMC-Na, carbopol, serum

ABSTRACT

Hexamagavunon-5 (HGV-5) also known as 2,6-bis-(4'-hydroxy-3',5-dimethoxybenzylidene) cyclohexanone is a curcumin analog that has been successfully synthesized to overcome the limitations of natural curcumin. HGV-5 represent potential antioxidant activity that supports skin health, including the prevention of wrinkles and signs of aging (anti-aging). This research aimed to obtain the optimum formulation for a serum dosage form of HGV-5, utilizing a combination of CMC-Na and carbopol as thickening agents.

The preparation of the dosage form commenced with the optimization of eight formula combinations using software Design Expert ver. 13. These combinations were then validated through experimental response parameters. The resulting optimal formula was subsequently assessed through a series of tests, including evaluations of organoleptic properties, homogeneity, viscosity, pH, spreadability, a cycling test to determine serum stability, and a DPPH antioxidant activity test of HGV-5 serum.

This study establish that a combination ratio of 0.36% CMC-Na and 0.14% carbopol as thickening agents produced HGV-5 serum with optimal physical characteristics. These characteristics were within the suitable standard range for topical serum preparations, reveal a viscosity of 1160.33±6.03 cP; a pH of 5.80±0.02; and a spreadability of 41.35±0.15%. HGV-5 serum is less stable based on statistical analysis but retained acceptable physical characteristics, meets safety after three storage cycles of cycling test with an IC_{50} value of 13.29 µM as indication antioxidant activity.

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