

## INTISARI

*Heksagamavunon-5* merupakan sebuah senyawa analog kurkumin yang memiliki aktivitas antioksidan tinggi. Berbagai senyawa analog kurkumin sudah dikembangkan menjadi sediaan tabir surya karena kandungannya yang tinggi. Karena potensi yang ada, maka riset ini berupaya mengoptimalkan formulasi emulgel tabir surya dengan *starting material* berupa analog kurkumin, yaitu *Heksagamavunon-5* (HGV-5).

Riset ini mengoptimalkan formula berupa kombinasi kadar emulgatornya yaitu Tween 80 dan Span 80. Optimasi formula didapatkan dengan menggunakan metode *Simplex Lattice Design* (SLD) dalam perangkat lunak *Design Expert*. Data yang didapatkan akan dianalisis dalam perangkat tersebut dan dievaluasi dengan menggunakan *One-Sample t-Test* dengan taraf kepercayaan 95%.

HGV-5 dengan kadar 0,2% b/v dan uji SPF metode AUC memiliki nilai SPF sebesar 102,35. Dengan kadar tersebut, didapatkan SPF sediaan sebesar 34,7. Hasil optimasi emulgator yang didapatkan adalah 1,5 %b/b Tween 80 dan 0,5 %b/b Span 80. Dipilih sediaan emulgel dengan kadar *gelling agent* 0,75 %b/b dan dihasilkan emulgel yang homogen berwarna kuning; viskositas sebesar 171,4 dPas; pH sebesar 5,12; daya sebar sebesar 5,2 cm; dan daya lekat 5 detik. Tidak ada perubahan yang signifikan dari sifat fisik emulgel setelah dilakukan uji stabilitas dengan metode *cycling test* selama 6 siklus.

**Kata kunci:** HGV-5, tabir surya, *design expert*, analog kurkumin

## ***ABSTRACT***

Hexagamavunon-5 is a curcumin analogue compound which has high antioxidant activity. Various curcumin analog compounds have been developed into sunscreen preparations because of their high antioxidant content. Because of the potential that exists, this research seeks to optimize the sunscreen emulgel formulation with a starting material in the form of a curcumin analog, namely Heksagamavunon-5 (HGV-5).

This research optimized the formula by varying the concentration of the combination of emulsifiers, namely Tween 80 and Span 80. Formula optimization was obtained using the Simplex Lattice Design (SLD) method in the Design Expert software. The data obtained were analyzed in the software and evaluated using the One-Sample t-Test with a confidence level of 95%.

HGV-5 with a concentration of 0,2% w/v and an SPF test using the AUC method had an SPF value of 102,35. With this concentration value, the SPF of the formulation was 34,7. The optimized emulsifier concentration was found to be 1,5% w/w Tween 80 and 0,5% w/w Span 80. An emulgel formulation with a gelling agent concentration of 0,75% w/w was selected, resulting in a homogeneous yellow emulgel; viscosity of 171,4 dPas; pH of 5,12; spreadability of 5,2 cm; and adhesion time of 5 seconds. There was no significant change in the physical properties of the emulgel after stability testing using the cycling test method for 6 cycles.

**Keywords:** HGV-5, sunscreen, design expert, curcumin analog