

## INTISARI

Tetrahidopentagamavunon-5 (THPGV-5) merupakan senyawa analog kurkumin yang memiliki aktivitas antioksidan yang lebih baik dari vitamin E. *Lotion* THPGV-5 telah diformulasikan sebelumnya namun belum dilakukan penentuan nilai SPF dan efek iritasi akut dermalnya. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi THPGV-5 dalam sediaan *lotion* terhadap efek iritasi akut dermal dan memprediksi nilai *sun protecting factor* (SPF) secara *in vitro*.

Dalam penelitian ini dilakukan formulasi *lotion* THPGV-5 dan diuji sifat fisiknya yang meliputi organoleptis, homogenitas, pH, daya lekat dan daya sebar. Penentuan nilai SPF dilakukan secara *in vitro* dengan menggunakan spektrofotometer UV-Vis dan dibaca absorbansinya pada panjang gelombang 290–320 nm. Absorbansi dibaca setiap selisih panjang gelombang 5 nm. Nilai absorbansi kemudian dihitung menggunakan persamaan Mansur dan diuji secara statistik *One-Way* ANOVA. Dikarenakan adanya pandemik COVID-19 sehingga laboratorium tidak dapat digunakan, maka pengujian nilai SPF dilakukan dengan metode *review* literatur terhadap artikel dengan penentuan nilai SPF senyawa golongan kurkumin. Dilakukan uji iritasi akut dermal secara *in vivo* menggunakan kelinci sesuai dengan Pedoman Uji Toksisitas Nonklinis secara *in vivo* dari Badan Pengawasan Obat dan Makanan RI.

*Lotion* THPGV-5 dengan konsentrasi 0,1%; 0,2% dan 0,4% menghasilkan indeks iritasi 0; 0,0139 dan 0,0139 dimana tergolong dalam sediaan yang mengiritasi sangat ringan (*negligible*). Nilai SPF dengan bahan aktif dari golongan kurkumin seperti *Curcuma manga* dan *Curcuma longa* dengan peningkatan konsentrasi menghasilkan nilai SPF yang semakin tinggi maka semakin tinggi konsentrasi THPGV-5 akan semakin meningkatkan nilai SPF. Berdasarkan hasil penelitian dapat disimpulkan bahwa kenaikan konsentrasi THPGV-5 dalam *lotion* tidak mempengaruhi efek iritasi dan dapat meningkatkan nilai SPF.

**Kata kunci:** THPGV-5, *Lotion*, *Sun Protecting Factor* (SPF), Iritasi

## ABSTRACT

Tetrahidopentagamavunon-5 (THPGV-5) is a curcumin analogue that has better antioxidant activity than vitamin E. The THPGV-5 lotion has been formulated before but the SPF value and its acute irritating effect have not been determined. This study aims to determine the effect of variation THPGV-5 concentration in lotion toward the effects of acute dermal irritation and to predict the value of sun protecting factor (SPF) in vitro study.

In this study a THPGV-5 lotion formulation was performed and its physical properties were tested which included organoleptic, homogeneity, pH, adhesion and spreadability. Determination of the SPF value was done *in vitro* using a UV-Vis spectrophotometer and the absorbance was read at a wavelength of 290-320 nm. Absorbance is read every 5 nm wavelength difference. The absorbance value then calculated using the Mansur equation and statistically tested with *One-Way* ANOVA. Due to the existence of a COVID-19 pandemic so that the laboratory cannot be used, the SPF value testing was carried out by the literature review method of the article by determining the SPF value of curcumin group compounds. Acute dermal irritation was performed *in vivo* using rabbits in accordance with the Non-Clinical Toxicity Test Guidelines from the Indonesia National Food and Drug Agency.

*Lotion* THPGV-5 with a concentration of 0.1%; 0.2% and 0.4% produce an irritation index of 0; 0.0139 and 0.0139 which are classified as highly negligible irritants. SPF values with active ingredients from the curcumin group such as *Curcuma manga* and *Curcuma longa* with increasing concentrations produce higher SPF values, the higher the THPGV-5 concentration will further increase the SPF value. Based on the results of the study it can be concluded that the increase in THPGV-5 concentration in the lotion does not affect the irritating effect and can increase the SPF value.

**Keywords:** THPGV-5, Lotion, Sun Protecting Factor (SPF), Irritation