

**FORMULASI DAN EVALUASI KRIM KOMBINASI EKSTRAK DAUN
BINAHONG (*Anredera cordifolia* (Ten) Steenis) DAN BEMOTRIZINOL
SEBAGAI TABIR SURYA**

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ABSTRAK

Indonesia merupakan salah satu negara tropis karena berada di daerah kharulistiwa, sehingga akan terpapar sinar matahari langsung dengan intensitas tinggi sepanjang tahun. Bemotrizinol merupakan penyerap UV spektrum luas (280 – 380 nm). Ekstrak daun binahong (*Anredera cordifolia* (Ten) Steenis) mengandung senyawa flavonoid yang berfungsi sebagai tabir surya dan antioksidan. *Sun protection factor* (SPF) digunakan sebagai parameter umum untuk menunjukkan efektivitas tabir surya. Penelitian ini bertujuan untuk memformulasikan ekstrak daun binahong dan bemotrizinol ke dalam sediaan krim dengan menghasilkan efektivitas tabir surya yang baik. Optimasi basis krim dilakukan menggunakan *software design expert 13*. Dilakukan uji stabilitas *real time* dan *cycling test* terhadap krim, pengujiannya meliputi uji organoleptik, homogenitas, pH, viskositas, daya sebar, dan daya lekat. Kemudian dilakukan uji iritasi serta penentuan nilai SPF secara *in vitro* menggunakan spektrofotometri UV-Vis. Formula basis optimum ditunjukkan dengan asam stearat (8%) dan setil alkohol (2%). Hasil uji stbailitas *real time* dan *cycling test* sediaan krim dianalisis secara statistik yang meliputi uji normalitas, homogenitas, *one way ANOVA* dan uji lanjutan *post hoc*. Hasil analisis statistik menunjukkan terjadi perbedaan yang signifikan ($p < 0,05$) selama uji stabilitas *real time* dan *cycling test*, namun masih memenuhi persyaratan evaluasi. Sediaan krim F2 termasuk ke dalam kategori iritan ringan dan krim F3 termasuk ke dalam kaategori iritan sangat ringan. Nilai SPF untuk F0 $4,49 \pm 0,00$ (proteksi minimal), F1 $31,07 \pm 0,06$ (proteksi ultra), F2 $27,25 \pm 0,03$ (proteksi ultra), F3 $29,64 \pm 0,08$ (proteksi ultra)

Kata kunci: Bemotrizinol, ekstrak daun binahong, krim tabir surya, SPF

**FORMULATION AND EVALUATION OF A CREAM CONTAINING A
COMBINATION OF BINAHONG LEAF EXTRACT (*Anredera cordifolia*
(Ten) Steenis) AND BEMOTRIZINOL AS A SUNSCREEN**

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Abstract

*Indonesia is one of the tropical countries located along the equator, resulting in direct exposure to sunlight with high intensity throughout the year. Bemotrizinol is a broad-spectrum UV absorber (280 – 380 nm). Binahong leaf extract (*Anredera cordifolia* (Ten) Steenis) contains flavonoid compounds that function as both sunscreen agents and antioxidants. The sun protection factor (SPF) is a commonly used parameter to indicate sunscreen effectiveness. This study aims to formulate a cream preparation containing binahong leaf extract and bemotrizinol to achieve effective sunscreen performance. Cream base optimization was carried out using Design Expert 13 software. Real time stability testing and cycling tests were conducted on the cream, including evaluation of organoleptic properties, homogeneity, pH, viscosity, spreadability, and adhesiveness. Irritation testing and in vitro SPF determination using UV-Vis spectrophotometry were also performed. The optimal cream base formulation consisted of stearic acid (8%) and cetyl alcohol (2%). The results of real-time stability and cycling tests were analyzed statistically using normality tests, homogeneity tests, one-way ANOVA, and post hoc analysis. Statistical analysis showed a significant difference ($p < 0,05$) during real-time and cycling stability testing, although the results still met evaluation criteria. Cream formulation F2 was categorized as mildly irritating, while F3 was categorized as minimally irritating. The SPF values obtained were F0 $4,49 \pm 0,00$ (minimal protection), F1 $31,07 \pm 0,06$ (ultra protection), F2 $27,25 \pm 0,03$ (ultra protection), and F3 $29,64 \pm 0,08$ (ultra protection)*

Keywords: Bemotrizinol, binahong leaf extract, sunscreen cream, SPF