

PENGARUH KONSENTRASI EKSTRAK DAUN KENIKIR (*Cosmos caudatus* Kunth) TERHADAP SIFAT FISIK GEL DAN AKTIVITAS PENANGKAPAN SINAR UV SECARA *IN VITRO*

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INTISARI

Latar Belakang: Paparan sinar matahari berlebih dapat diatasi dengan penggunaan tabir surya. Tabir surya dalam bentuk gel dipilih karena memiliki sensasi dingin dan nyaman saat digunakan. Daun kenikir (*Cosmos caudatus* Kunth) mempunyai aktivitas sebagai tabir surya karena memiliki kandungan flavonoid dan fenolik.

Tujuan Penelitian: Mengetahui pengaruh variasi konsentrasi ekstrak etanol daun kenikir dalam sediaan gel tabir surya terhadap aktivitas penangkapan sinar UV dan karakteristik fisik gel.

Metode Penelitian: Daun kenikir dimaserasi menggunakan etanol 70%. Sediaan gel dibuat dalam 3 variasi konsentrasi ekstrak yaitu 0,3% ; 0,6% dan 0,9%. Aktivitas tabir surya (SPF, %Te, dan %Tp) ekstrak dan gel ekstrak daun kenikir diukur menggunakan spektrofotometer UV-Vis. Sifat fisik gel diamati terhadap respon pH, organoleptik, homogenitas, viskositas, daya lekat dan daya sebar. Analisis dilakukan menggunakan perangkat lunak SPSS.

Hasil Penelitian: Nilai SPF, %Te dan %Tp ekstrak paling baik adalah pada konsentrasi 0,9% sebesar 40,915, 0,024% dan 0,944% secara berurutan. Hasil nilai SPF, %Te dan %Tp gel ekstrak paling baik adalah pada konsentrasi 0,9% sebesar 30,072, 0,23% dan 1,39% secara berurutan. Hasil organoleptik ketiga gel adalah berwarna coklat jernih dan homogen. Hasil pH, viskositas, daya sebar dan daya lekat sediaan gel dari semua formula memenuhi syarat uji sifat fisik.

Kesimpulan: Variasi konsentrasi ekstrak mempengaruhi aktivitas tabir surya pada ekstrak, sediaan gel, dan karakteristik fisik gel (viskositas, daya lekat, dan daya sebar). Terdapat perbedaan signifikan pada nilai SPF, %Te dan %Tp antara ekstrak dengan sediaan gel.

Kata kunci: *Cosmos caudatus* Kunth, gel, SPF, %Te, %Tp.

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EFFECT OF *Cosmos caudatus* Kunth EXTRACT CONCENTRATION ON THE PHYSICAL PROPERTIES OF GEL AND IN VITRO SUNSCREEN ACTIVITIES

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ABSTRACT

Background: Excessive sun exposure can be overcome by using sunscreen. Sunscreen in gel form was chosen because it has a cool and comfortable sensation when used. *Cosmos caudatus* Kunth leaves have activity as a sunscreen because they contain flavonoids and phenolics.

Objective: To determine the effect of variations in the concentration of *Cosmos caudatus* Kunth leaves extract in sunscreen gel preparations on UV sunscreen activity and the physical characteristics of the gel.

Method: Dried powdered leaves were macerated using ethanol 70%. The gel formulation was made in 3 variations of extract concentration, namely 0.3%; 0.6% and 0.9%. Sunscreen activity (SPF, %Te, and %Tp) was measured using a UV-Vis spectrophotometer. The physical properties of the gel were observed in terms of pH, organoleptics, homogeneity, viscosity, stickiness and spreadability response. Statistical analysis was performed using SPSS software.

Results: The best SPF, %Te and %Tp values of the extract were at a concentration of 0.9%, namely 40.915, 0.024% and 0.944% respectively. The best SPF, %Te and %Tp values of gel were at a concentration of 0.9%, namely 30.072, 0.23% and 1.39%. The organoleptic results of the three gels were clear and homogeneous brown in color. The results of the pH, viscosity, spreadability and adhesiveness of the gel preparations, all formulas met the physical properties test requirements.

Conclusion: Variations in extract concentration affect sunscreen activity on extract, gel preparation, and physical characteristics of the gel (viscosity, adhesive, and spreadability). There were significant differences in the SPF, %Te and %Tp values between the extract and the gel preparation.

Key words: *Cosmos caudatus* Kunth, Gel, SPF, %Te, %Tp.

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