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**FORMULA NANOKRIM EKSTRAK KULIT BUAH NAGA MERAH
(*Hylocereus polyrhizus*) & MINYAK BEKATUL SEBAGAI TABIR SURYA**

ABSTRAK

Latar Belakang: Kulit buah naga merah (*Hylocereus polyrhizus*) mengandung senyawa antioksidan seperti flavonoid, fenolik, dan betasianin yang berpotensi sebagai bahan tabir surya alami. Pemanfaatan teknologi nanoemulsi dalam bentuk nanokrim diharapkan dapat meningkatkan stabilitas dan efektivitas bahan aktif tersebut. Penelitian ini bertujuan memformulasikan nanokrim ekstrak kulit buah naga merah sebagai tabir surya serta mengevaluasi karakteristik fisik.

Metode: Penelitian bersifat eksperimental menggunakan metode ekstraksi maserasi dengan etanol 96% diformulasikan menjadi nanoemulsi dengan tiga konsentrasi yaitu 0,5%, 1%, dan 1,5%. Evaluasi meliputi uji organoleptis, pH, viskositas, sentrifugasi, tipe emulsi, ukuran partikel. Nanoemulsi tiap konsentrasi dibuat sediaan dengan konsentrasi 25% ke dalam nanokrim. Evaluasi meliputi uji organoleptis, pH, viskositas, daya sebar, daya lekat, sentrifugasi, tipe krim, homogenitas. Stabilitas sediaan dilakukan dengan metode sentrifugasi & *cycling test* dan penentuan nilai SPF menggunakan spektrofotometer UV-Vis. Analisis statistik dilakukan dengan menggunakan uji ANOVA.

Hasil: Skrining fitokimia ekstrak kulit buah naga merah mengandung alkaloid, flavonoid, tanin, saponin. Nanokrim homogen, stabil, dan memiliki ukuran partikel 28,48-63,69 nm. Nanokrim menunjukkan karakteristik fisik baik dengan pH 5,54-6,17, viskositas 5.560-7.480 cPs, daya sebar 5,84 cm-6,12 cm, serta daya lekat 1,05-1,46 detik. Nilai SPF F1 dan F2 termasuk kategori minimal, sedangkan F3 kategori sedang.

Kesimpulan: Ekstrak kulit buah naga yang diformulasikan dalam bentuk nanokrim memenuhi persyaratan fisik dan nilai SPF, sehingga berpotensi dikembangkan sebagai sediaan kosmetik tabir surya alami yang stabil dan efektif.

Kata kunci: nanokrim, kulit buah naga, tabir surya.

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FORMULATION OF DRAGON FRUIT PEEL EXTRACT NANO CREAM (*Hylocereus polyrhizus*) AS A SUNSCREEN

ABSTRACT

Background: The peel of red dragon fruit (*Hylocereus polyrhizus*) contains antioxidant compounds such as flavonoids, phenolics, and betacyanins that have potential as natural sunscreen agents. The application of nanoemulsion technology in the form of a nanocream is expected to enhance the stability and effectiveness of these active compounds. This study aimed to formulate a nanocream containing red dragon fruit peel extract as a sunscreen and to evaluate its physical characteristics.

Methods: This experimental study used maceration extraction with 96% ethanol, and the extract was formulated into nanoemulsions at three concentrations: 0.5%, 1%, and 1.5%. The nanoemulsions were evaluated for organoleptic properties, pH, viscosity, centrifugation stability, emulsion type, and particle size. Each nanoemulsion concentration was incorporated at 25% into a nanocream formulation. The nanocream was evaluated for organoleptic properties, pH, viscosity, spreadability, adhesiveness, centrifugation stability, cream type, and homogeneity. Stability testing was carried out using centrifugation and cycling test methods. The *Sun Protection Factor* (SPF) value was determined using a UV-Vis spectrophotometer. Statistical analysis was performed using ANOVA.

Results: Phytochemical screening of the red dragon fruit peel extract showed the presence of alkaloids, flavonoids, tannins, and saponins. The nanocream was homogeneous, stable, and had a particle size ranging from 28.48–63.69 nm. The nanocream exhibited good physical characteristics, with a pH range of 5.54–6.17, viscosity of 5,560–7,480 cPs, spreadability of 5.84–6.12 cm, and adhesiveness of 1.05–1.46 seconds. The SPF values of F1 and F2 were categorized as minimal protection, while F3 was categorized as moderate protection.

Conclusion: The red dragon fruit peel extract formulated as a nanocream met the required physical characteristics and SPF criteria, indicating its potential to be developed as a stable and effective natural sunscreen cosmetic preparation.

Keywords: nanocream, dragon fruit peel, sunscreen.