

ABSTRAK

DHEVYANDA R, H., 2026, UJI MUTU FISIK DAN UJI ANTIOKSIDAN SEDIAAN EMULGEL EKSTRAK ETANOL DAUN BINAHONG (*Anredera cordifolia*) SEBAGAI TABIR SURYA DENGAN VARIASI KONSENTRASI HPMC SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA. Dibimbing oleh Dr. apt. Iswandi, S.Si., M.Farm dan apt. Taufik Turahman, S.Farm., M.Farm.

Paparan sinar *ultraviolet* akibat perubahan iklim dan pemanasan global meningkatkan risiko kerusakan kulit sehingga perlindungan kulit menjadi kebutuhan penting. Daun binahong mengandung senyawa aktif seperti flavonoid, tanin, saponin, dan alkaloid yang berpotensi sebagai antioksidan dan pelindung kulit. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi HPMC terhadap mutu fisik emulgel ekstrak daun binahong, menentukan konsentrasi HPMC optimal, serta menilai aktivitas antioksidan dan nilai SPF sediaan secara *in vitro*.

Ekstrak etanol daun binahong diperoleh melalui metode maserasi menggunakan etanol 96% dan diformulasikan dalam bentuk emulgel dengan variasi konsentrasi HPMC 1; 1,5; 2; dan 2,5%. Pengujian meliputi organoleptis, homogenitas, pH, viskositas, daya sebar, daya lekat, aktivitas antioksidan metode DPPH, serta penentuan nilai SPF secara *in vitro* menggunakan spektrofotometri UV-Vis. Data dianalisis menggunakan uji normalitas, homogenitas, dan *ANOVA*.

Hasil penelitian menunjukkan bahwa peningkatan konsentrasi HPMC menurunkan nilai pH dan daya sebar, serta meningkatkan viskositas dan daya lekat emulgel. Konsentrasi HPMC 2,5% memiliki formulasi yang paling baik. Aktivitas antioksidan tertinggi diperoleh pada formulasi emulgel dengan konsentrasi HPMC 1% dengan nilai IC_{50} 51,14 ppm, diikuti oleh HPMC 1,5% (61,74 ppm), HPMC 2% (70,46 ppm), dan HPMC 2,5% (78,00 ppm). Nilai SPF formulasi emulgel secara berturut-turut diperoleh pada HPMC 2% (40,44), HPMC 1,5% (39,69), HPMC 2,5% (37,78), dan HPMC 1% (36,54).

Kata Kunci: *Anredera cordifolia*, antioksidan, emulgel, HPMC, tabir surya

ABSTRACT

DHEVYANDA R, H., 2026, PHYSICAL QUALITY TEST AND ANTIOXIDANT TEST OF EMULGEL PREPARATIONS OF ETHANOL EXTRACT OF BINAHONG LEAVES (*Anredera cordifolia*) AS A SUNSCREEN WITH VARIATION OF HPMC CONCENTRATION, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA. Supervised by Dr. apt. Iswandi, S.Si., M.Farm. and apt. Taufik Turahman, S.Farm., M.Farm.

Exposure to ultraviolet radiation due to climate change and global warming increases the risk of skin damage, underscoring the importance of skin protection. Binahong leaves were known to contain bioactive compounds, including flavonoids, tannins, saponins, and alkaloids, which exhibited antioxidant and skin-protective properties. This study aimed to evaluate the effect of HPMC concentration on the physical properties of binahong leaf extract emulgel, determine the optimal HPMC concentration, and assess the formulation's in vitro antioxidant activity and SPF.

The ethanolic extract of binahong leaves was obtained by macerating the leaves with 96% ethanol and formulated into emulgel preparations containing HPMC at 1, 1.5, 2, and 2.5%. The evaluations included organoleptic properties, homogeneity, pH, viscosity, spreadability, and adhesiveness. Antioxidant activity was determined using the DPPH method, while SPF values were determined in vitro using UV-Vis spectrophotometry. The data were analyzed using normality and homogeneity tests, as well as ANOVA.

The results showed that increasing HPMC concentration decreased pH and spreadability, whereas the emulgel's viscosity and adhesiveness increased. The formulation containing 2.5% HPMC exhibited the best overall formulation performance. The highest antioxidant activity was obtained in the emulgel formulation containing 1% HPMC with an IC₅₀ value of 51.14 ppm, followed by HPMC 1.5% (61.74 ppm), HPMC 2% (70.46 ppm), and HPMC 2.5% (78.00 ppm). The SPF values of the emulgel formulations were sequentially obtained for HPMC 2% (40.44), HPMC 1.5% (39.69), HPMC 2.5% (37.78), and HPMC 1% (36.54).

Keywords: *Anredera cordifolia*, antioxidant, emulgel, HPMC, sunscreen