Formulasi Sediaan Emulsi Antiaging Berbahan Aktif Lilin Propolis = Antiaging Emulsion Formulation Containing Propolis Wax

Viona Rezika, author

Abstrak

Penelitian ini bertujuan untuk memformulasikan sediaan emulsi antiaging berbahan aktif lilin propolis. Pengujian dilakukan terhadap lilin propolis meliputi penentuan kadar flavonoid total, penentuan kadar polifenol total, dan pengujian aktivitas antioksidan. Kadar flavonoid total diuji menggunakan reagen AlCl3 dan CH3COOK dengan kuersetin sebagai larutan standar. Penentuan kadar polifenol total dilakukan menggunakan metode Folin-Ciocalteu dengan asam galat sebagai larutan standar. Aktivitas antioksidan diukur dengan menggunakan reagen DPPH. Lilin propolis selanjutnya digunakan sebagai bahan aktif antiaging dalam formulasi sediaan emulsi. Selain lilin propolis, bahan yang digunakan dalam formulasi ini meliputi aquades, gliserin, EDTA, xanthan gum, ammonium acryloyldimethyltaurate/VP copolymer, phenoxyethanol, chlorphenesin, arachidyl alcohol, behenyl alcohol, arachidyl glucoside, cetyl alcohol, dan isopropyl myristate. Emulsi yang dihasilkan dievaluasi berdasarkan stabilitasnya pada berbagai kondisi, meliputi kondisi suhu ruang, suhu 45oC, 4oC, jemur, dan siklus. Adapun parameter yang diukur adalah organoleptis, pH, dan viskositas. Untuk mengetahui performa antiaging emulsi, dilakukan uji aktivitas antiglikasi dengan Bovine Serum Albumine (BSA) dan fruktosa sebagai reagen. Berdasarkan hasil pengujian, lilin propolis memiliki kadar flavonoid total sebesar 41,01 ± 1,62 mg QE/g lilin propolis, kadar polifenol total sebesar 53,51 ± 35,11 mg GAE/g lilin propolis, dan nilai IC50 aktivitas antioksidan sebesar 413,91 ppm. Sediaan emulsi stabil pada berbagai kondisi, ditunjukkan dari parameter homogenitas, pH, dan viskositas yang masih dalam memenuhi standar SNI 16-4399-1996 tentang Sediaan Tabir Surya. Pengujian aktivitas antiglikasi dilakukan pada lilin propolis dan emulsi antiaging untuk mengetahui kemampuan inhibisi pembentukan Advanced Glycation End Products (AGEs) sebagai parameter kemampuan antiaging. Hasil pengujian menunjukkan lilin propolis mampu menginhibisi pembentukan AGEs sebesar 86,54%. Sementara itu, sediaan emulsi memiliki kemampuan inhibisi reaksi glikasi sebesar 29,25% untuk konsentrasi 5,0% lilin propolis, dan 51,94% untuk konsentrasi 8,5% lilin propolis. Persentase inhibisi AGEs emulsi dengan konsentrasi 2,5% lilin propolis tidak dapat ditentukan karena data yang diperoleh tidak valid. .....This study aimed to develop an anti-aging emulsion by incorporating propolis wax as an active ingredient. Propolis wax underwent tests to determine its total flavonoid and polyphenol content, as well as its antioxidant activity. Total flavonoid content was measured using AlCl3 and CH3COOK reagents, with quercetin as the standard solution. Total polyphenol content was determined using the Folin-Ciocalteu method with gallic acid as the standard solution. Antioxidant activity was evaluated using DPPH as reagent. Propolis wax was then used in the emulsion formulation, along with other ingredients such as distilled water, glycerin, EDTA, and xanthan gum. The stability of the resulting emulsion was assessed under different conditions, including room temperature, 45oC, 4oC, sun exposure, and cycling. Organoleptic properties, pH, and viscosity were measured as parameters. The emulsion's anti-aging performance was evaluated using an antiglycation activity assay with Bovine Serum Albumin (BSA) and fructose. Test results revealed that propolis wax had a total flavonoid content of 41.01 ± 1.62 mg QE/g, a total polyphenol content

of 53.51 ± 35.11 mg GAE/g, and an antioxidant activity IC50 value of 413.91 ppm. The emulsion demonstrated stability, meeting the standards of SNI 16-4399-1996 in terms of homogeneity, pH, and viscosity. The antiglycation activity assay showed that propolis wax inhibited AGEs formation by 86.54%. The emulsion exhibited glycation reaction inhibition percentages of 29.25% and 51.94% at concentrations of 5.0% and 8.5% propolis wax, respectively. However, the AGEs inhibition percentage for the emulsion with 2.5% propolis wax concentration could not be determined due to invalid data.