

ABSTRAK

ASTARI, R.R., 2024, FORMULASI DAN EVALUASI MUTU FISIK SEDIAAN *ANTIAGING* EMULGEL RETINOL DENGAN VARIASI CARBOPOL 940 SEBAGAI *GELLING AGENT*, SKRIPSI, PROGRAM STUDI S1 FARMASI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA. Dibimbing oleh apt. Reslely Harjanti, S.Farm., M.Sc dan apt. Nur Aini Dewi Purnamasari, M.Sc.

Emulgel merupakan suatu sediaan emulsi baik tipe minyak dalam air (M/A) maupun air dalam minyak (A/M) yang dibuat dalam bentuk emulsi dengan penambahan *gelling agent*. Retinol merupakan bahan aktif yang berasal dari turunan vitamin A dan sering digunakan sebagai senyawa *antiaging* (anti penuaan). Penuaan adalah suatu proses biologis yang sangat kompleks disebabkan oleh kerusakan pada jaringan kulit seperti radikal bebas berupa sinar ultra violet. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh variasi konsentrasi Carbopol 940 sebagai *gelling agent* terhadap mutu fisik dan stabilitas sediaan emulgel retinol, serta pengaruhnya terhadap parameter uji *antiaging*.

Zat aktif retinol diformulasikan menjadi sediaan emulgel dengan variasi *gelling agent* Carbopol 940 (0,5%; 0,75%; 1%; 1,25%), dilakukan uji mutu fisik meliputi uji homogenitas, organoleptis, pH, viskositas, daya sebar, daya lekat, dan tipe emulsi serta uji stabilitas sediaan dengan metode *cycling test*. Formula terbaik dari hasil uji mutu fisik dan stabilitas dilakukan pengujian aktivitas *antiaging* dengan metode *skin analyzer*. Parameter yang diukur meliputi peningkatan kadar minyak, kadar air, dan pemulihan kehalusan kulit.

Hasil penelitian menunjukkan bahwa Carbopol 940 berpengaruh terhadap mutu fisik dan stabilitas sediaan emulgel retinol. Formula 2 memiliki mutu fisik dan stabilitas lebih baik diantara formula yang lain. Hasil Formula 2 (Carbopol 940 0,5%) memiliki aktivitas uji *antiaging* paling baik dengan diperoleh hasil dari minggu ke-1–4 pada uji peningkatan kadar minyak kulit 3,6%, 4%, 4,4%, 4,6%, uji pemulihann kehalusan kulit 3,4%, 3,8%, 4,4% dan 4,8%, dan uji peningkatan kadar air pada kulit relawan sebesar 41,8%, 43%, 44,8%, 45,6%.

Kata kunci : *antiaging*, Carbopol 940, emulgel, retinol

ABSTRACT

ASTARI, R.R., 2023, FORMULATION AND EVALUATION OF PHYSICAL QUALITY OF ANTIAGING EMULGEL RETINOL PREPARATIONS WITH CARBOPOL 940 VARIATIONS AS GELLING AGENT, THESIS, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA. Supervised by apt. Reslely Harjanti, S.Farm., M.Sc and apt. Nur Aini Dewi Purnamasari, M.Sc.

Emulgel is an emulsion preparation both oil in water (M/A) and water-in-oil (A/M) types made in the form of emulsions with the addition of gelling agents. Retinol is an active ingredient derived from vitamin A derivatives and is often used as an antiaging compound (anti-aging). Aging is a very complex biological process caused by damage to skin tissue such as free radicals in the form of ultraviolet light. The purpose of this study was to determine the effect of variations in the concentration of Carbopol 940 as a gelling agent on the physical quality and stability of retinol emulgel preparations, as well as its effect on antiaging test parameters.

The active substance retinol is formulated into an emulgel preparation with a variation of gelling agent Carbopol 940 (0.5%; 0.75%; 1%; 1.25%), physical quality tests are carried out including homogeneity, organoleptis, pH, viscosity, dispersion, adhesion, and emulsion type as well as preparation stability tests using the cycling test method. The best formula from the results of physical quality and stability tests is carried out testing antiaging activity with the skin analyzer method. The parameters measured include increased oil content, moisture content, and restoration of skin smoothness.

The results showed that Carbopol 940 affects the physical quality and stability of retinol emulgel preparations. Formula 2 has better physical quality and stability than other formulas. Formula 2 results (Carbopol 940 0.5%) had the best antiaging test activity with results obtained from weeks 1–4 in skin oil enhancement tests of 3.6%, 4%, 4.4%, 4.6%, skin smoothness recovery tests of 3.4%, 3.8%, 4.4% and 4.8%, and water content improvement tests on volunteers' skin by 41.8%, 43%, 44.8%, 45.6%.

Keywords: antiaging, Carbopol 940, emulgel, retinol