

INTISARI

Paparan sinar UV dari matahari merupakan salah satu faktor eksternal yang menyebabkan penuaan dini. Hal ini disebabkan oleh ROS (*reactive oxygen species*) yang terbentuk dari paparan sinar UV berperan dalam degradasi kolagen. Masalah tersebut dapat diatasi dengan pemberian senyawa antioksidan. Senyawa Tetrahidroheksagamavunon-5 (THHGV-5) merupakan salah satu senyawa yang memiliki aktivitas sebagai antioksidan. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi THHGV-5 (0,010% b/b, 0,015% b/b, dan 0,020% b/b) dalam sediaan krim anti-*aging* terhadap sifat fisik, stabilitas fisik krim, kemampuan difusi krim melalui membran, efektivitas antioksidan pada kolagen dan efek iritasi.

Krim diformulasi dengan konsentrasi 0,010% b/b, 0,015% b/b, dan 0,020% b/b. Karakteristik fisik dan sifat fisik krim yang diuji meliputi organoleptis, pH, daya lekat, daya sebar, dan viskositas krim. Stabilitas krim diuji menggunakan uji *cycling* dan mekanik. Uji difusi krim anti-*aging* dilakukan menggunakan metode *Franz diffusion cell* dengan *shed snake skin* dari kulit ular *python* albino sebagai membran. Uji *in vivo* pada tikus putih jantan dilakukan menggunakan pewarnaan dengan *sirius red* dengan kontrol positif berupa vitamin E 0,15 %b/b. Sedangkan uji iritasi primer dilakukan pada kulit kelinci. Data uji sifat fisik, stabilitas fisik, difusi membran dianalisis menggunakan korelasi regresi untuk melihat hubungan antar variabel. Hasil uji efektivitas secara *in vivo* dianalisis menggunakan *One Way Anava*. Sedangkan data uji iritasi primer dianalisis secara deskriptif berdasarkan index iritasi yang diperoleh.

Hasil Penelitian menunjukkan bahwa peningkatan konsentrasi THHGV-5 dapat meningkatkan nilai pH, daya lekat, dan viskositas serta menurunkan daya sebar krim. Krim anti-*aging* THHGV-5 stabil pada uji *cycling* dan tidak stabil pada uji mekanik, peningkatan konsentrasi meningkatkan rasio pemisahan pada krim THHGV-5. Semakin tinggi konsentrasi semakin tinggi bobot obat yang tertransportasi melewati membran *shed snake skin*. Semakin tinggi konsentrasi THHGV-5, efektivitas anti-*aging* semakin meningkat (berdasarkan ketebalan kolagen kulit tikus. Semua formula krim anti-*aging* THHGV-5 tidak menimbulkan respon iritasi pada kulit kelinci.

Kata kunci : THHGV-5, anti-aging, uji difusi, kolagen.

ABSTRACT

UV exposure of sun was one of the external factors that cause premature aging. This was caused by ROS (reactive oxygen species), which was formed from UV exposure that played a role in the degradation of collagen. The problem could be solved by giving antioxidant compounds. The compound of Tetrahydroheksagamavunon-5 (THHGV-5) was one of the compounds that had activity as an antioxidant. This study aimed to determine the effect of varying concentrations of THHGV-5 (0,010% w/w, 0,015% w/w and 0,020% w/w) in the dosage of anti-aging creams on the physical property, the physical stability of the cream, the cream diffusion capability through the membrane, the effectiveness of antioxidant on collagen and irritation effect.

The cream was formulated with the concentrations of 0,010% w/w, 0,015% w/w, and 0,020% w/w. Physical characteristic and physical property of the tested cream included organoleptic, pH, adhesion, dispersion, and cream viscosity. The stability of the cream was tested by using the cycling test and mechanical test. The diffusion of anti-aging cream was performed by using Franz diffusion cell method with shed snake skin of albino python skin as a membrane. The in vivo test on white male rat was performed by using sirius red staining with a positive control of vitamin E 0,15% w/w. The primary irritation test was performed by using rabbit skin. The data of the test on physical property, physical stability, and membrane diffusion were analyzed by using regression correlation to see the relationship between those variables. The result of effectiveness test of in vivo was analyzed by using a One Way Anava. While, the test data of primary irritation was analyzed descriptively based on the irritation index obtained.

The result of the study showed that an increase in THHGV-5 concentration could increase the pH value, adhesion, and viscosity and decrease the scattering of the cream. anti-aging cream THHGV-5 was stable in cycling test and unstable in mechanical test, the increasing concentration increased the ratio of the cream THHGV-5 separation. The higher the concentration, the higher the weight of drug transported across the membrane of shed snake skin. The higher the concentration of THHGV-5, the higher the effectiveness of anti-aging, based on rat skin collagen thickness. All the formula of anti-aging cream THHGV-5 did not cause irritation response on rabbit skin.

Keyword: THHGV-5, anti-aging, diffusion test, collagen.