ABSTRAK

Penuaan kulit yang terjadi akibat pararan sinar ultraviolet (UV) dapat menyebabkan sel kulit memproduksi radikal bebas mengakibatkan inflamasi pada kolagen kulit. Krim tabir surya dapat mengurangi penetrasi sinar UV. Penggunaan bahan alam yang berisfat antioksidan memiliki perlindungan sebagai tabir surya. Penelitian ini bertujuan untuk menguji dan menganalisis efektifitas krim ektrak Goji berry dalam mencegah kerusakan kolagen pada kulit tikus disinari ultraviolet-B (UV-B). Penelitian ini menggunakan rancangan *posttest only control grup design*. Subjek 30 ekor tikus putih galur wistar yang dibagi kedalam 6 kelompok. Pertama, kelompok kontrol normal yang tidak diberikan perlakuan atau tikus sehat. Kedua, kelompok kontrol positif tikus yang diberikan krim SPF 15 disinari UV-B. Ketiga kelompok kontrol negatif tikus yang diolesi base krim disinari UV-B. Keempat, kelompok yang di olesi krim ekstrak Goji Berry 4 % disinari UV-B. Kelima, kelompok yang diolesi krim ektrak goji berry 8% disinari UV-B. Keenam, kelompok yang di olesi krim ektrak goji berry 12 % disinari UV-B. Hasil perhitungan *Sun Protector Factor (SPF)* dengan metode mansyur didapat krim base (0,36–0,37), krim Goji berry 4 % (2,93–3,10), krim Goji Berry 8% (4,07–4,12), krim Goji berry 12% (7,62–8,08). Pengamatan pada kepadatan kolagen kelompok normal (54,19), kelompok Kontrol negatif (30,22), kelompok Kontrol positif (50,35), kelompok krim goji berry 4% (33,68), kelompok goji berry 8% (37,99), kelompok krim gojiberry 12% (41,58). Peningkatan ini menunjukkan adanya efek protektif ekstrak Goji Berry terhadap kerusakan kolagen, di mana semakin tinggi konsentrasi ekstrak yang digunakan, semakin baik pula perlindungan yang diberikan terhadap struktur kolagen kulit. Hasil penelitian ini krim ekstrak Goji Berry 12% terbukti efektif dalam mencegah degradasi kolagen akibat paparan sinar ultraviolet-B, dan efektivitasnya setara dengan krim SPF 15 sebagai kontrol positif.

Kata Kunci: Goji Berry, SPF, kolagen, Photoaging, Antioksidan

ABSTRACT

Skin aging that occurs due to ultraviolet (UV) light exposure can cause skin cells to produce free radicals resulting in inflammation of skin collagen. Sunscreen creams can reduce the penetration of UV rays. The use of natural ingredients with antioxidant properties has protection as a sunscreen. This study aims to test and analyze the effectiveness of Goji berry extract cream in preventing collagen damage in rat skin irradiated with ultraviolet-B (UV-B). This study used posttest only control group design. Subjects were 30 white wistar rats which were divided into 6 groups. First, the normal control group that was not given treatment or healthy rats. Second, the positive control group of rats given SPF 15 cream under UV-B irradiation. Third, the negative control group of rats smeared with base cream under UV-B irradiation. Fourth, the group that was smeared with 4% Goji Berry extract cream was exposed to UV-B. Fifth, the group smeared with goji berry extract cream 8% UV-B irradiated. Sixth, the group smeared with 12% goji berry extract cream exposed to UV-B. The results of the calculation of Sun Protector Factor (SPF) with mansyur method obtained base cream (0.36-0.37), 4% Goji berry cream (2.93-3.10), 8% Goji Berry cream (4.07-4.12), 12% Goji berry cream (7.62-8.08). Observations on collagen density of normal group (54.19), negative control group (30.22), positive control group (50.35), goji berry cream group 4% (33.68), goji berry group 8% (37.99), goji berry cream group 12% (41.58). This increase indicates the protective effect of Goji Berry extract on collagen damage, where the higher the concentration of extract used, the better the protection provided to the collagen structure of the skin. The results of this study showed that 12% Goji Berry extract cream was effective in preventing collagen degradation due to exposure to ultraviolet-B light, and its effectiveness was equivalent to SPF 15 cream as a positive control.

Keywords: Goji Berry, SPF, collagen, Photoaging, Antioxidant