

## ABSTRAK

Penuaan kulit disebabkan produksi radikal bebas dalam tubuh yang berlebih, sehingga menyebabkan kerusakan jaringan kulit, hal ini juga mengakibatkan kerusakan kolagen kulit yang semakin mempercepat proses penuaan kulit. Tujuan penelitian ini adalah untuk mengetahui pengaruh pemberian krim kosmetik kopi terhadap penurunan kapasitas total kadar *superoxide dismutase* (SOD) dan peningkatan jumlah kolagen (tipe I dan III) pada proses penuaan kulit wistar betina.

Penelitian ini menggunakan desain true eksperimen design dengan rancangan penelitian *post test only group design*. Populasi dalam penelitian ini adalah wistar betina tua (*Rattus norvegicus*) dengan berat 200-250 gram yang berumur 14-16 bulan. Jumlah sampel secara keseluruhan adalah 24 wistar betina yang terbagi untuk masing-masing kelompok adalah 6 ekor dalam 4 kelompok perlakuan. Data kapasitas total kadar SOD diukur menggunakan metode ELISA (*Enzyme Linked Immune-Sorbent Assay*) dan jumlah kolagen diukur melalui pengamatan histopatologi, selanjutnya untuk speksifikasi kolagen tipe I dan III diukur melalui metode imunohistokimia (IHK). Data yang diperoleh dianalisis dengan menggunakan Kruskal Wallis Test dan Mann Whitney Test.

Berdasarkan hasil penelitian menunjukkan bahwa terjadi peningkatan kapasitas total kadar SOD serta peningkatan peningkatan jumlah kolagen tipe I dan III secara bermakna ( $p < 0,05$ ) pada wistar betina tua (*Rattus norvegicus*) disebabkan krim kosmetik kopi mempunyai kandungan antioksidan. Hasil penelitian ini dapat disimpulkan bahwa pemberian krim kosmetik kopi efektif meningkatkan kapasitas total kadar SOD serta meningkatkan jumlah kolagen tipe I dan III pada wistar betina tua (*Rattus norvegicus*).

**Kata kunci:** krim kosmetik kopi, SOD, kolagen, imunohistokimia.

## ABSTRACT

Skin aging is caused by excessive production of free radicals in the body, causing damage to skin tissue, this also results in damage to skin collagen which further accelerates the skin aging process. The purpose of this study was to determine the effect of coffee cosmetic cream on decreasing the total capacity of superoxide dismutase (SOD) levels and increasing the amount of collagen (types I and III) in the aging process of female wistar skin.

This study uses a true experimental design with a post test only group design. The population in this study was an old female wistar (*Rattus norvegicus*) weighing 200-250 grams aged 14-16 months. The total number of samples was 24 female wistars which were divided into 6 groups for each treatment group. The total capacity data for SOD levels was measured using the ELISA (Enzyme Linked Immune-Sorbent Assay) method and the amount of collagen was measured through histopathological observations, then for the specification of collagen types I and III it was measured using the immunohistochemical (IHK) method. The data obtained were analyzed using the Kruskal Wallis Test and the Mann Whitney Test.

Based on the results of the study, there was an increase in the total capacity of SOD levels and an increase in the number of collagen types I and III significantly ( $p < 0.05$ ) in old female wistar (*Rattus norvegicus*) due to coffee cosmetic cream containing antioxidants. The results of this study can be concluded that the administration of coffee cosmetic cream is effective in increasing the total capacity of SOD levels and increasing the amount of collagen types I and III in old female wistar (*Rattus norvegicus*).

**Keywords:** coffee cosmetic cream, SOD, collagen, immunohistochemistry.