日本香粧品学会誌　Vol. 41, No. 2, pp. 106−112（2017）

〈一般論文〉

UV-A 照射によるマウス皮膚の脂質過酸化と血管分岐に対する緑茶摂取の効果

井 上 節 子[1,*]，小松ちひろ[1]，遠藤美智子[1]，中 島　滋[1]，長 岡　功[2]

Effects of Green Tea Intake on the Lipid Peroxidation and the Branched Blood Vessel by UV-A Irradiation to Mouse Skin

Setsuko INOUE[1,*], Chihiro KOMATSU[1], Michiko ENDO[1], Shigeru NAKAJIMA[1], Isao NAGAOKA[2]

（Accepted: January 10, 2017）

Abstract

For UV-A transparent force is large, it reaches the dermis of skin. Furthermore, the UV-A irradiation has been reported to cause reduction of dermal collagen and elastin fibers, synthetic melanin pigment. We examined the effects of green tea intake on the concentration of lipid peroxide, antioxidant enzyme activity and the number of branched blood vessel in the dermis skin irradiated with UV-A. Eighteen-week-old mice were divided into three groups which are the water intake group（Water）, UV-A irradiation group with water intake（Water+UV-A）, UV-A irradiation group in green tea intake（Green Tea+UV-A）, had 6 mice in each group. All mice were bred for 8 days in separate cages. UV-A was irradiated at three times for thirty minutes by once（666 mJ/cm^2/time）to the shaved dorsal skin of mouse during the breeding period. The dorsal skin was collected by dissecting to determine the number of branched blood vessel. Then, the effects of green tea intake were examined by measuring the concentration of lipid peroxide and polyphenol, and the enzyme activity of superoxide dismutase（SOD）and glutathione peroxidase（GPx）. The final average weight of green tea intake group was significantly smaller compared with the water intake group. In addition, the intake of green tea group reduced the lipid peroxide concentration 0.46 times, and increased the enzyme activity of GPx and SOD to the 1.28- and 1.46-fold, respectively compared to the irradiation group with water intake. The number of branched blood vessel were reduced to 0.89 times also. Polyphenol concentration of dermis skin was reduced by UV-A irradiation to 0.76 times, and by the green tea intake to 0.69 times. As a result, it was suggested that the reduction of lipid peroxide concentration, the changes in GPx and SOD activity, the decrease of number of branched blood vessel in dermal skin due to consumption of green tea.

Key words:　green tea intake, UV-A, lipid peroxide, branched blood vessel, skin.