

## PROTECTION AGAINST UVB-INDUCED DAMAGE IN RABBIT EYE BY 4-COUMARIC ACID

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UV-induced oxidation damage seems to play a major role in a number of specific pathological conditions of intraocular tissues, such as cataract formation and retinal degeneration. Therefore, antioxidant and/or scavenger compounds might protect the eyes from UV-induced damage. We previously reported that 4-coumaric acid (4-CA) is able to protect rabbit corneal-derived cells (SIRC) from UVB-induced oxidation damage. In this study we evaluated the protective effect of 4-CA against UVB-induced cell damage in the rabbit cornea *in vivo*. UVB-induced vessel hyper-reactivity was strongly reduced at 4 and 24 h after UVB exposure after local treatment with 4-CA. Levels of 8-oxo-dGuo levels, a marker of oxidative DNA damage, were significantly increased ( $P<0.05$ ) in sclera and cornea by UVB irradiation; when 1 nmol/day of 4-CA (164 ng) was daily administered to the conjunctiva in a buffered solution for 3 d before and 6 d after UVB exposure, levels of 8-oxo-dGuo were similar to controls and significantly reduced ( $P<0.05$ ) compared to UVB-treated corneas. Superoxide dismutase (SOD) levels were significantly ( $P<0.01$ ) reduced in the aqueous humour 1 d after UVB exposure and the treatment with 4-CA did not exert any effect. On the contrary, xanthine oxidase (XO) activity in the aqueous humour was significantly increased. The administration of 164 ng/day 4-CA UVB irradiation induced a small but significant ( $P<0.05$ ) reduction of XO compared with control eyes. In conclusion, the local administration of 4-CA protects eye tissues, thus reducing the harmful effect of UVB radiation, probably through its free radical scavenging, antioxidant and possibly, anti-inflammatory properties. Therefore, 4-CA may be useful in protecting the eye from UVB exposure from sun light, UV lamps and welding torches.