Synopsis of Original Research Paper

Mutagenicity of solar UV in Drosophila and its protection by sunscreen

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The use of sunscreen seems to be important to avoid the damage caused by sunlight. There are numerous epidemiological investigations showing that the sunlight is carcinogenic to humans. The biological activity of sunscreen is evaluated by its ability to protection from erythema. However, we consider that the sunscreen's protective effect against sunlight induced-mutation should also be taken into account. In this study we examined the protective effect of two commercial sunscreens against the mutagenicity induced by natural sunlight and against the DNA damage induced by sunlight or UVB-irradiation. The mutagenicity was detected by the Drosophila wing spot test and DNA damaging activity was estimated by the Drosophila in vivo DNA repair test. When the sunscreen was pasted on the cover of petri dish in which Drosophila larvae were exposed to the sun, the mutagenicity was suppressed down to almost the control level. We prepared by ourselves sunscreens containing UVB absorbents at various concentrations, and measured the transmittance. From the results, it is suggested that the protection against the light of wavelength was shorter than 320 nm may be important to avoid the genotoxicity of sunlight.