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EFFECT OF DIFFERENT VITAMIN E ISOMER CREAMS AGAINST ULTRAVIOLET B INDUCED PHOTODAMAGED HUMAN SKIN

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Background:

Exposure to ultraviolet B (UVB) accelerates skin aging by causing photodamage. This has been associated with the presence of free radicals causing oxidative stress in skin cells. Antioxidants present in abundance in the outermost layer of the skin, stratum corneum, are used as a first line defence of the skin to damage caused by sunlight and provide possible intervention measures to reduce the rate of skin aging.

Materials and Methods:

The aim of this study was to examine the effects of different isomers of vitamin E creams in two age groups of human skin that has been exposed to UVB. Parameters measured include melanin content, erythema level, Individual Typology Angle (ITA), pH, sebum content, hydration, skin elasticity and Transepidermal Water Loss (TEWL). UVB were simulated by UV Solar Simulator® with Dose Control System® PMA2100 and the skin profiling was examined using Cutometer® MPA 580.

Results:

Repeated UVB irradiation for four days resulted in darkening of the skin shown by increased melanin ($p < 0.05$) and erythema level ($p < 0.05$) and decreased ITA ($p < 0.05$) in both age groups ($n = 12$ per group). In addition, the older age group showed a decrease in skin elasticity ($p < 0.05$). Tocotrienol based cream at the lower dose prevented darkening of the skin in the younger age group. However, the older group responded better to tocopherol creams in protecting their skin from losing elasticity and reducing erythema.

Conclusion:

Vitamin E creams have a great potential to be protective from UVB induced photodamage and age dependent response to different types of vitamin E creams was observed.

Keywords:

Photoaging, photodamaged, UVB, Vitamin E creams, human skin.