

シンポジウムII

活性酸素によるヒアルロン酸の断片化の抑制

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Inhibition of Hyaluronic Acid Depolymerization Caused by Reactive Oxygen

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Abstract

Being an exterior of a human body, skin is continually exposed to reactive oxygen originated from external causes like ultraviolet rays as well as internal causes. UVB injures epidermis and upper dermis, while UVA injures deep dermis. Skin has defense systems including UV-absorbing substances such as keratin, melanin, urocanic acid to protect itself from these external reactive oxygen stress.

In general, some enzymes and low molecular substances called scavenger eliminate the internal reactive oxygen. In skin, the reactive oxygen produced by penetrating UVA in deep dermis can hardly be eliminated since most scavengers exist in epidermis.

Applying a scavenger such as SOD makes no effect on the skin because of its low transdermic absorbability and unstability. To solve this problem, some low molecular scavengers for hydroxyl radical are unknown. Hydroxyl radical injures organisms seriously; it promotes collagen crosslinking and hyaluronic acid depolymerization.

We, first, confirmed the depolymerization of hyaluronic acid by reactive oxygen in ascorbic acid-Fe system or UVA-irradiation, and second, screened plant extracts to find effective materials on inhibiting this depolymerization.

In result, *Myricarubra*, *Rhus chinensis*, and *Poeonia albiflora* strongly inhibited the depolymerization in the ascorbic acid-Fe system. On irradiating UVA, *Myrica rubra*, and *Rhus chinensis* inhibited the depolymerization. *Coptis chinensis*, which absorbs UVA, also inhibited the depolymerization by UVA.