

〈原 著〉

カロテノイドの光老化予防効果と化粧品への応用

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Preventive Effects of Carotenoids on Photoaging and Its Application for Cosmetics

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Abstract

Carotenoids are functional materials and more than 650 kinds of carotenoids are isolated from nature. They have been applied for foods, but most of these carotenoids have not been studied in terms of their effects on skin functions, and because of their instability under light exposure they were hardly used in the cosmetics field until now.

Using hairless mice irradiated with UVB to produce photoaged skin, we investigated the inhibitory effect of astaxanthin on wrinkle formation, decrease of skin elasticity, ultrastructural change of dermal collagen fiber bundles and elastic fibers and the level of matrix metalloproteinase-1 (MMP-1) activity. These results indicated that the astaxanthin had the superior protection effect on photoaging as a ROS scavenger.

It is well known that carotenoids are easy to decompose during storage by UV light and oxygen. We found that the incorporation of *dl*- α -tocopherol and α -glucosyl rutin was able to maintain long-term stability of astaxanthin in preparation.

This research demonstrated the superior anti-aging effects by carotenoids and this is the first time for carotenoids to be practically applicable to cosmetic formulation.

Key words: carotenoid, astaxanthin, photoaging, ROS, MMP-1.