

〈教育セミナー〉

シワのサイエンス～成因から改善アプローチまで～

抗老化素材のレビュー

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Skin Aging Mechanisms and Materials

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Abstract

For the elder population, anti-aging is one of strong demand to maintain activity and quality of life. In general, aging is perceived by appearance changes in the face such as wrinkles, sagging and some pigment spots. One of causes expressing these changes is oxidative stress initiated by endogenous and exogenous reactive oxygen species (ROS). In environmental factors, the solar lights are a well-known generator of ROS and an accelerator of skin aging. ROS progresses some events such as DNA damage, up-regulations of MMP-1 and tyrosinase. Among anti-aging approaches, sunscreen products are a first defense against the solar lights, and antioxidants are also a defense against ROS. Estradiol is recognized to have abilities on skin rejuvenation exhibiting some risks of breast cancer potentially. In addition, vitamin A derivatives and triterpenoids are widely used in cosmetics as active materials. The relationship between these chemical structures and anti-aging efficacies were discussed to develop new materials for anti-aging in the skin. In the article, the skin aging mechanisms authorized by many previous investigations were summarized and some approaches corresponding to mechanisms were introduced citing papers.

Key words: reactive oxygen species, collagen, elastin, MMP-1, antioxidants.