

〈原 著〉

紅藻キリンサイ (*Eucheuma spinosum*) の表皮分化に対する作用

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Effect of Red Seaweed KIRINSAI (*Eucheuma spinosum*) on Epidermal Differentiation

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Abstract

It is generally believed that some seaweeds improve skin condition; however, there have been just a few reports elucidating their biochemical effects on the skin. We have paid much attention to the effects of seaweeds on the skin, and have found out several seaweeds that stimulate the biosynthesis of skin components. In this study, we researched the effects of seaweeds on epidermal differentiation using human cultured keratinocytes. First, we evaluated the production of involucrin—a precursor protein of cornified envelope (CE) which is a rigid and insoluble structure in the stratum corneum, and an important marker of epidermal differentiation—and found a red seaweed KIRINSAI (*Eucheuma spinosum*) extract markedly enhanced the involucrin production. To study the effects of KIRINSAI extract on epidermal differentiation further, we evaluated its effect on transglutaminase 1 (TGase 1)—an enzyme which crosslinks precursor proteins such as involucrin to form CE—and mRNA expression levels of involucrin and TGase 1 by quantitative RT-PCR. The results indicated that KIRINSAI extract accelerated the activity of TGase 1, and also it increased the mRNA expression levels of involucrin and TGase 1. The studies suggest that KIRINSAI extract promotes epidermal differentiation; therefore, it could improve insufficient keratinization and impaired skin barrier function in damaged skin such as dry skin.

Key words: KIRINSAI (*Eucheuma spinosum*), cornified envelope, transglutaminase 1, involucrin, epidermal differentiation.