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Evaluation of in Vitro and in Vivo Depigmenting Activity of Raspberry Ketone from Rheum officinale.

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Abstract

Melanogenesis inhibition by raspberry ketone (RK) from Rheum officinale was investigated both in vitro in cultivated murine B16 melanoma cells and in vivo in zebrafish and mice. In B16 cells, RK inhibited melanogenesis through a post-transcriptional regulation of tyrosinase gene expression, which resulted in down regulation of both cellular tyrosinase activity and the amount of tyrosinase protein, while the level of tyrosinase mRNA transcription was not affected. In zebrafish, RK also inhibited melanogenesis by reduction of tyrosinase activity. In mice, application of a 0.2% or 2% gel preparation of RK applied to mouse skin significantly increased the degree of skin whitening within one week of treatment. In contrast to the widely used flavoring properties of RK in perfumery and cosmetics, the skin-whitening potency of RK has been demonstrated in the present study. Based on our findings reported here, RK would appear to have high potential for use in the cosmetics industry.

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