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Anti-Melanogenic Effect of Fisetin through Activating Connective Tissue Growth Factor in vivo Mice Model

Authors : Ryeong-Hyeon Kim, Ah-Reum Lee, Seong-Soo Roh, Gyo-Nam Kim

Abstract : Appropriate regulation of melanogenesis is important for the management of skin pigmentation-related disease. Although several beneficial effects of fisetin (3,7,3’,4’-tetrahydroxyflavone) have been reported, the precise role and molecular mechanisms of fisetin in skin health both remain unclear. Here, we induced melanogenesis of HRM2 mice (n=7/group) by UVB irradiation for 20 days. UVB-induced HRM2 mice showed that the significantly increased melanin accumulation, however, fisetin treatment (25mg and 50mg/kg of body weight) dose-dependently and significantly inhibits UVB-induced melanogenesis. In line with this, fisetin treatment effectively down-regulated m RNA and expression levels of tyrosinase, TRP2, and MITF. In addition, our inhibitor assay revealed the down-regulated melanogenic marker genes by fisetin treatment were mediated with connective tissue growth factor (CCN2)/TGF-β signaling pathway. Useful information is provided for development of functional foods using fisetin for skin health.

Keywords : connective tissue growth factor, fisetin, melanogenesis, skin, TGF-beta
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