

A skin-whitening effect of derivatives of kojic acid and p-coumaric acid

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Skin hyperpigmentation is caused by UV-induced melanin synthesis and is major responsible for skin color. Melanin synthesis is mediated through various signaling pathways involving α -MSH, MITF and tyrosinase. Among them, tyrosinase catalyzes oxidation of L-tyrosine which is a rate-limiting step of melanin synthesis. For this reason, tyrosinase inhibition is one of the best strategies for skin-whitening. Development of nature-derived agents is getting attention in functional cosmetics. Although several melanin synthesis inhibitors have been developed, some of them have adverse reactions. Therefore, it is required to develop an effective skin-whitening agent without side effects. In this study, we developed a novel skin-whitening agent, RHS-0465. The RHS compounds were derived from kojic acid and p-coumaric acid which are known to have tyrosinase inhibitory activity. First, RHS compounds were screened for inhibition of tyrosinase activity. Then, cell viability and inhibition of melanin formation at the cellular level was investigated. In results, RHS-0465 showed the lowest cytotoxicity in MTT assay and the highest inhibition effect of melanin synthesis.