

약용식물 추출물로부터 미백활성 및 항염증활성 탐색
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Screening of Whitening Effect and Anti-inflammatory Activity from Medicinal Plant Extracts

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Objectives

This study was carried out to search the natural whitening agents and new iNOS inhibitors from the medicinal plants. We have screened the inhibitory activity of NO production by measuring the NO production in LPS-activated RAW 264.7 cells. Also, We tested their inhibitory effects on melanogenesis by using *in vitro* tyrosinase inhibition assay and B16 melanoma cells.

Materials and Methods

The medicinal plants were purchased from Kyungdong oriental drug market in Seoul. The dried plant materials were extracted two times with 80% MeOH in the room temp. and the solvent was evaporated under reduced pressure. The extracts were successively partitioned with water, EtOAc, and *n*-BuOH.

Measurement of melanin content and cell viability in B16 melanoma cells : After 3 days of culture, the cells were disrupted with 1 N sodium hydroxide and homogenized by a sonicator. For the analysis, 200 μ L of each crude cell extract was transferred into a 96-well plate. The relative melanin content was measured at 470 nm on an ELISA reader. Cell viability was evaluated by MTT assay. Nitric oxide was determined by measuring the amount of nitrite, a stable oxidized product, in cell culture supernatants. The assay was carried out using the method as described in the literature¹⁾.

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Results

Methanol extract and solvent fraction of 20 medicinal plants were investigated for biological properties related to whitening effects melanin contents on melanoma cell.

Aucklandia lappa suppressed melanin synthesis up to about 50 % at a concentration of 100 $\mu\text{g/mL}$. *Paeonia suffruticosa* suppressed melanin synthesis up to about 50 % at a concentration of 50 $\mu\text{g/mL}$. The results showed that these extracts could be used as new natural active ingredients for whitening cosmetics. Plant extracts from 5 samples exhibited significant inhibition of NO production in the LPS-stimulated macrophage RAW 264.7 cells with IC_{50} values in the ranges from 59.6 to 94.7 $\mu\text{g/ml}$. Next we evaluated cytotoxic effect of the extracts and found that only *Aucklandia lappa* extract did not exert cytotoxic effects at the concentrations tested, of which LD_{50} values were in the ranges from 0 to 100 $\mu\text{g/ml}$.

Reference

1. Green, L. C., Wagner, D. A., Glogowski, J., Skipper, P. L., Wishnok, J. S. and Tannenbaum, S. R. (1982) Analysis of nitrate, nitrite, and [^{15}N]-nitrate in biological fluids. Anal. Biochem. 126, 131-138.