

In vitro and in vivo evaluation of a traditional Chinese medicine formula Si Ben Cao for skin application

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Abstract:

Introduction: In recent years, people have been paying more attention to the health of their skin due to improving living conditions. And there has an increase in the popularity of cosmetic products with skin whitening function derived from natural sources. However, many products are not actually proven to be effective. In this study, Si Ben Cao (SBC), a traditional Chinese medicine formula composed of four herbs, was evaluated for its safety and potential benefits to skin application.

Materials and Methods: The reflux method was performed to prepared the extract of SBC. MTT assay was used to evaluate the cytotoxic of SBC extract in vitro. Skin irritation test and skin allergy test on rats were performed to evaluated the safety of SBC extract in vivo. Intercellular melanin production was analyzed to assess the function of SBC extract for whitening. Afterwards, we analyzed the activity of intracellular tyrosinase, Ultraviolet (UV) absorption, and anti-oxidant activity, which are related to melanin production.

Results: The aqueous extract and ethanol extract of SBC were prepared separately. MTT assay results showed aqueous extract of SBC at a concentration of 100 µg/mL had no inhibitory effect on proliferation of B16F10 cells even after treatment for 96 hours, indicating that aqueous extract of SBC was not cytotoxic. Thus, we conducted subsequent experiments using aqueous extract of SBC. The results of experiments on rats showed SBC extract is safe to apply on the skin without causing irritation or allergies. Analysis of melanin content showed SBC extract had inhibitory effect on cellular melanin generation and secretion. Moreover, we found that SBC extract was able to reduce cellular tyrosinase activity, as well as absorb UV light and scavenge DPPH radicals for anti-oxidants.

Conclusions: Our data clearly demonstrated that SBC extract is safe and effective for skincare, and it's suitable for use with the purpose of skin whitening and health benefits.

References:

1. Yu-shan Lin; Hong-Yu Peng; Yu-Xin Zhu; Yu-Xiao Meng; Hui-Hui Xiao*; Guo-Qing Chen*; Evaluation of the extract of traditional Chinese medicine formula Si Ben Cao for skin whitening, *Modern Chinese Medicine*, 2022, 5(100202)