



PIGMENTATION

FICUS TIKOUA EXTRACTS STIMULATE MELANOGENESIS IN B16 MELANOMA CELLS BY UP-REGULATION OF MITF AND TYR FAMILY AND ITS APPLICATION POSSIBILITY FOR PHOTODYNAMIC THERAPY IN THE TREATMENT OF VITILIGO

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Introduction: Psoralens and other main coumarin compounds are regularly used in therapy in combination with ultraviolet A light irradiation to treat skin diseases such as psoriasis, vitiligo, etc. But it is a few of researching of Ficus tikoua which the main compounds are Bergapten and other main coumarins.

Objectives: This study aimed to explore the roles of Ficus tikoua Extracts on melanogenesis in B16 melanoma and its mechanism, then to investigate whether it had photosensitive effect in vitro and use for photodynamic therapy in the treatment of vitiligo.

Methods: Ficus tikoua was collected from Sichuan province. 75% ethanol was used to extract the bio-active compound, and then ethanol extract were extracted again by four different polarity solvents. The cytotoxicity and phototoxic of extracts were measured in cell cultures of Balb/c 3T3, melanocyte, fibroblasts, and keratinocytes by CCK-8 assay. The activity of tyrosinase and melanogenesis in B16 cells were as summarized as well. The expression of TYR,TRYP-1,DCT,MITF mRNA related to melanin biosynthesis were determined by qPCR analysis in cells treated with the Ficus tikoua extracts.

Results: Results showed that at low UVA doses and in the presence of human skin, this compound selectively enhances radical-mediated cytotoxicity toward skin cells like human skin, fibroblasts, keratinocytes and melanocytes. The results of enzyme kinetics showed that Ficus tikoua extract possesses competitive activating effects, non-competitive activating effects and mutiple activating effects. Ficus tikoua ethanol extracts were able to activate tyrosinase and melanogenesis. In order to clarify the mechanism that is responsible for the elevation in pigmentation, the expression levels of TYR,TRYP-1,DCT,MITF levels markedly increased compared with control.





Conclusion: Here we investigated the impact of activated ficus tikoua ethanol extracts were as an alternative photoactivatable agent with skin cells cytotoxic properties. The activation of transcription of MITF and TYR family induced of melanin synthesis.

