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## **Effect of Rhodiola Extracts on UVA -induced Collagen Decrement in Human Fibroblast Cell Line**

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Ultraviolet irradiation is thought to main cause to evoke skin photoageing. UVA irradiation can increase amounts of free radicals and make dermal extracellular matrix alteration; hence it may lead to collagen degeneration. Thereby, UVA can accelerate to display the ageing appearances such as wrinkling and slackening on the skin. The previous studies indicated that the Chinese traditional herbal medicine, rhodiola (*Rhodiola rosea* L.), had great work on anti-oxidation. However, so far, there is less study to investigate the application of rhodiola in the skin field, particularly in evaluation of anti-ageing function. The purpose of this study is mainly to observe that after treatment with or without the rhodiola extracts, expressions of type I procollagen and MMP in human fibroblast cell line (HS68) under UVA irradiation were respectively assessed by using the methods of western blot analysis and gelatin zymography. The studying results find that the UVA irradiation may increase the amounts of free radicals (our previous results). Expressions of type I procollagen are significantly reduced under UVA irradiation with 20 J/cm<sup>2</sup>, but expressions of MMP-1 are apparently increased. However, those situations of the type I procollagen decrement and the MMP-1 expressions increment can be greatly improved by giving treatment with methanolic rhodiola extracts. Our findings obtain that the rhodiola extracts can ameliorate the UV irradiation-induced collagen decreases via diminishing the MMP-1 expressions, and thereby lead to increase the collagen expressions. Hence, we speculate that rhodiola may have great potential to further develop and apply on skin anti-oxidation and anti-ageing efficacies.