

New possibility of chlorogenic acid treatment on skin aging

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It is well-documented that decreased antioxidant defense system by ultraviolet(UV) irradiation is the most important reason to induce the skin aging, especially photoaging. Chlorogenic acid(CA), a nonflavonoid catecholic compound, is present in the diet as part of fruits, tea, coffee and wine and has been reported to have anti-inflammatory, antimutagenic and anticarcinogenic activities. In this study, we examined the effects of CA on the UV-induced photoaging. Firstly, we investigated the protective effect of CA on antioxidant defense system in HaCaT human keratinocytes after UV irradiation treatment. UV irradiation decreased antioxidant defence enzyme activities of superoxide dismutase, catalase and GSH contents, which were restored by CA. To elucidate the effect of CA, 1% of CA and vehicle were applied to human buttock skin before and after UV irradiation (2MED). CA prevented UV-induced matrix metalloproteinase-1 mRNA expression and procollagen mRNA depression. And CA also increased CD1a(Langerhans cell) expression significantly. Our results suggest that CA has protective effects on UV-induced photoaging by increasing cellular antioxidant defense system. Therefore, CA may be a useful anti-aging agent for cosmetic purpose.