



Broccoli Flower Extract (*Brassica oleracea L. var.italica* Plenck) Inhibits Photoaging by Increasing Type I Procollagen Expression in Human Skin Fibroblast

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Abstract: Photoaging of the skin is caused by intrinsic process superimposed with degenerative changes due to environmental sources such as ultraviolet irradiation. Ultraviolet B (UVB) reduces type I procollagen level and increases matrix metalloproteinase-1 (MMP-1) level in human skin which plays a major role in the process of photoaging. Broccoli flower extract (BFE) is a crucciferae group of vegetables which has multiple antioxidants. It had been studied, acting as MMP-1 inhibitor agent both at mRNA and protein level on skin photoaging in vitro. BFE were investigated for their capacity to regulate type I procollagen expression at protein level in primary human fibroblast culture irradiated by UVB 50 mJ/cm² and 100 mJ/cm². Type I procollagen protein expression was quantified by Enzyme Immuno Assay. The result of studies showed pre-treatment with various concentration of BFE increase type I procollagen expression. There were significant differences of the mean value of type I procollagen expression based on irradiation dose (p<0.05) and BFE concentration (p<0.05). There was also interaction between irradiation dose and BFE concentration (p<0.05). There was positive correlation between BFE concentration with type I procollagen expression. Therefore BFE has been proved to increase type I procollagen expression at protein level on UVB irradiated human skin fibroblast. BFE has a potential effect as antiphoaging agent in the near future.

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