

Effect of selected flavonoids on glycosaminoglycans in human skin fibroblasts

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ABSTRACT

Purpose: Glycosaminoglycans (GAGs) and proteoglycans (PG) in addition to collagen are the main components of extracellular matrix (ECM). They play an important role in intercellular communication and interactions between cells and ECM. The biological changes in ECM that occur during aging are induced by decrease in GAG biosynthesis. The purpose of this study was to evaluate the effect of selected flavonoids isolated from *Cirsium palustre* (L.) Scop. on GAG content in human skin fibroblasts.

Materials and methods: Human skin fibroblasts were treated with eriodictyol 7-O-glucoside (C1), 6-hydroxyluteolin 7-O-glucoside (C2), scutellarein 7-O-glucoside (C3) and pedalitin (C4) at 1, 20 and 40 μ M for 24 h. Concentration of GAGs in the medium was assayed using method based on their

ability to bind the cationic dye 1,9-dimethylmethylene blue (DMMB).

Results: C1, C2 and C4 at concentration of 20 and 40 μ M significantly increased content of sulphated GAGs in the medium. In contrast, treatment of cells with compound C3 did not have a statistically significant impact on GAG level. Ascorbic acid used as a positive control at 50 μ M showed no effect on GAG concentration and increased their content at 100 μ M but to a much lower extent than flavonoids.

Conclusion: Flavonoids C1, C2 and C4 showed greater than ascorbic acid stimulatory impact on GAGs in healthy human skin fibroblasts, demonstrating their therapeutic potential in the aging.

Key words: Fibroblasts, glycosaminoglycans, flavonoids

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