

ABSTRACT

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Spirulina platensis effects on endothelial expression of P-selectin in mice.

Diploma thesis

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Background: We studied endothelial expression of P-selectin in aorta of apoE-deficient mice after administration of *Spirulina platensis*. Expression of P-selectin was quantified by using stereological methods.

Methods: We used C57BL/6J male mice with deficiency of apolipoprotein E (apoE^{-/-}) in the experiment. Mice were divided into two groups. The control group was fed by atherogenic diet with 1% of cholesterol for 8 weeks. Mice from the *Spirulina platensis* group were fed by the same atherogenic diet with the addition of 40 mg *Spirulina platensis*. We performed a biochemical analysis of blood. Immunohistochemical analysis was performed in a 1 cm aortic sinus and the aortic arch. A series of cross sections with a thickness of 7 μm were cut for the immunohistochemistry and stereology. Detection of expression of P-selectin was performed by avidin-biotin method (ABC) with visualization by diaminobenzidine (DAB).

Results: Biochemical analysis did not show significant changes in total cholesterol in mice treated with *Spirulina* in comparison with control mice. Expression of P-selectin was observed in all mice. There were no significant changes in intensity of expression between them. Stereological analysis confirmed that administration of *Spirulina platensis* did not affect the expression of endothelial P-selectin compared with the control group.

Conclusions: The negative effect on cholesterol levels and expression of P-selectin after *Spirulina platensis* administration can indicate a low dose or a short period of administration. To confirm *in vitro* endothelium-protective effects in *in vivo* conditions is required to change the dosing schedule.