Abstract

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Spirulina platensis effects on atherogenesis in mouse model of atherosclerosis
Diploma thesis
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Background: The aim of this diploma thesis was to evaluate possible antiatherogenic and antiinflammatory effects of Spirulina platensis in apoE-deficient mice.

Methods: We used C57BL/6J male mice with deficiency of apolipoprotein E (apoE$^{-/-}$) at the age of 3 months. The animals were divided into 2 groups (control and examined mice). Both groups were fed with cholesterol diet for 8 weeks. In Spirulina group, Spirulina platensis was added at dose of 20 mg/kg/day. The biochemical analysis was performed in order to discover the lipid spectrum of blood. There was also performed the histological staining with oil red in order to visualise the size of atherosklerotic leisons and to detect the lipids. The aim of the immunohistochemical analysis was to approve the amount of VCAM-1 expression.

Results: Biochemical analysis did not demonstrate any significant decrease of total cholesterol expect from decreasing of LDL cholesterol. The presence of atherosclerotic lesions with lipids cumulation was illustrated by histological staining with oil red in both mice groups, the results of each group did not differ. In comparison with control group, immunohistochemical analysis performed on Spirulina-fed group approved decreased VCAM-1 expression, especially in plaque area.

Conclusion: Hypolipidemic and antiinflammatory effects of Spirulina platensis were partly demonstrated, however, they should be confirmed by higher dosage of the algea.