

# ABSTRACT

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Title of Thesis **The endoglin expression after administration of *Spirulina platensis* in mouse model of atherosclerosis.**

The aim of this study was to clarify whether the administration of *Spirulina platensis* affects the expression of endoglin and the production of collagen in atherosclerotic plaques. We also study the effect of *Spirulina* on blood lipid levels.

We used the mouse strain C57BL/6J deficient apolipoprotein E in the age of 3 months. These mice were randomly divided into two groups. The control group was fed with atherogenic diet containing 1% cholesterol. The second group received the same diet enriched with *Spirulina platensis* 20 mg daily. After an eight-week experiment, biochemical analysis of blood was performed. Detection of collagen was performed by histological staining green trichrom. Immunohistochemical analysis of tissue samples of segments (aorta and upper half part of heart) were used to determine the endoglin expression. In addition, we performed immunohistochemistry and histology quantitative analysis by stereological methods.

Administration of *Spirulina* resulted in a decrease in LDL cholesterol. Total cholesterol fraction and others plasma cholesterol levels were not affected. The result of histological staining green trichrom did not confirm changes in the amount of collagen in the atherosclerotic plaques after administration of *Spirulina*.

Immunohistochemical analysis, we observed the expression of endoglin in both groups. We did not notice significant differences between both groups. The result of quantitative analysis of collagen staining and endoglin expression did not show effects on the amount of collagen and endoglin expression.

The results of this thesis point to a weak lipid-lowering effects of *Spirulina platensis*. The administration of *Spirulina* had no effects on collagen expression, or stability of atherosclerotic plaques. We attribute results of this work to lower dose of *Spirulina*, which was chosen in this pilot study.