

Abstract

Spirulina platensis is a single cell blue-green algae of Cyanobacteria strain. *Spirulina* belongs among foodstuffs with the highest protein content and contains all essential amino-acids. It is also a source of some non essential amino-acids, important nutrients as for example gamma linol acid, a lot of vitamins (B1, B2, B6, biotin, etc.) and trace elements (e.g. selenium, chrome, iron, calcium). Moreover it contains natural pigments carotenoids, chlorophyll and phycocyanin.

The aim of this thesis was to test potential hypolipidemic and anti-inflammatory effects of *Spirulina platensis* on an experimental animal model of apoE/LDLr deficient mice. Therefore the parameters of lipid spectrum in blood and VCAM-1 expressions in arterial endothelium were monitored.

Mice with deficit of apolipoprotein E (apoE^{-/-}) and LDL receptor were weaned of and for two weeks fed with a standard diet. At the age of eight weeks they started to be fed with atherogenic diet containing 0.15% of cholesterol. This continued for eight weeks (control group). In *Spirulina platensis* group the mice were fed with the same atherogenic diet with daily addition of 20 mg of *Spirulina platensis*. Biochemical analysis of lipid spectrum as well as histochemical and imunohistochemical analyses of atherosclerotic plates and VCAM-1 expressions were carried out.

The results of biochemical analysis confirmed hypolipidemic effect of *Spirulina platensis* only in three mice out of nine. The results of histochemical and imunohistochemical analysis further confirmed decrease in size of atherosclerotic plates and VCAM-1 expressions in the mice where hypolipidemic effect of *Spirulina platensis* took place.

The results therefore confirm hypolipidemic effects of *Spirulina platensis* and also possible anti-atherogenic effects of this substance, which will have to be confirmed by other studies especially with regards to the failure of hypolipidemic effect in the other six mice.

