



Abstract

Spirulina's Effect on Paraoxonase Activity [†]

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Abstract: Hyperlipidaemia is a common worldwide problem associated with an increased risk of coronary and extra-coronary atherosclerosis and cardiovascular disease. Besides changes in lifestyle habits that include controlling the diet with moderate alcohol consumption and maintaining normal weight, medication is usually prescribed in addition. The antioxidative potential of functional food in the treatment of hyperlipidaemia continuously attracts growing attention. Paraoxonase enzyme (PON1) prevents the oxidation of low- and high-density lipoprotein (LDL and HDL) and, hence, has an important role in acting against lipid peroxides. The aim of this study was to evaluate *Spirulina platensis*'s influence on blood and hepatic PON1 activity in an animal model. Male Wistar rats (approved by the Institutional Bioethics committee No. III-2011-01) were randomly divided into five groups based on the applied diet (I—normal diet; II—normal diet with spirulina; III—lipogenic diet; IV—lipogenic diet with concomitant spirulina supplementation; and V—lipogenic diet with spirulina treatment). The differences in PON1 activity were related to diet type. A lipogenic diet rich in saturated fats impaired the PON1 activity. Both blood and hepatic PON1 activity were significantly increased after the administration of a normal diet with spirulina supplementation. As expected, significantly reduced blood PON1 activity was measured in the lipogenic diet group. Blood PON1 activity was decreased in groups III, IV, and V, but PON1 in both the blood and liver had a tendency to increase in groups IV and V. Based on the obtained results, PON1 activity is affected by hyperlipidaemia, and spirulina supplementation may promote enzyme activity.

Keywords: functional food; hyperlipidaemia; antioxidative potential



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