Effect of Brown Algae, Ecklonia arborea and Silvetia compressa, in Lipidemic and Hepatic Metabolism in Wistar Rats

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Abstract : Seaweeds can generate changes in the metabolism of lipids; as a consequence, this may diminish cholesterol and other lipids in the blood. However, the consumption of marine algae may also alter the functions of other organs. Therefore, the objective of this research was to study the effect of two different sorts of algae (Ecklonia arborea and Silvetia compressa) in the metabolism of lipids, as well as, in the physiology of the liver. Wistar male rats were fed for two months with independent diets composed of 20% of fat and 2.5% of E. arborea and S. compressa each. Blood parameters (cholesterol, lipoproteins, triglycerides, hepatic enzymes) and triglycerides in the liver were quantified, and also hepatic histology analyses were performed. While S. compressa reduced 18% total cholesterol compared to the positive control, E. arborea increased it 5.8%. Animals fed with S. compressa presented a decrement, compared to the positive control, not only in low density lipoproteins levels (53%) but also in triglycerides (67%). The presence of steatosis in the histologies and the high levels of triglycerides showed an evident lipid accumulation in hepatic tissues of rats fed with both algae. These results indicate that even though S. compressa showed a promising resource to decrease total cholesterol and low-density lipoproteins in blood, a detrimental effect was observed in liver physiology. Further investigations should be made to find out if toxic compounds associated with these seaweeds may cause liver damage especially in terms of heavy metals.

Keywords : brown algae, Eisenia arborea, hepatic metabolism, lipidemic metabolism, Pelvetia compressa, steatosis
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