

To Study the Antioxidative and Antihyperlipidemic Effects of *Sargassum fusiforme* and *Ulva lactuca* in Nutritionally Induced Atherosclerosis in Rats

Surbhi Agarwal*, Masroor Ali and Komal Chauhan

National Institute of Food Technology Entrepreneurship and Management, India

The study evaluated the effect of *Sargassum fusiforme* (SF) and *Ulva lactuca* (UL) on lipid profile and anti-oxidative biomarkers in diet induced hypercholesterolemic (high fat high cholesterol (HFHC) diet with 15% saturated fat and 0.5% cholesterol and) wistar strain. Atorvastatin (10mg/kg body weight) was used as reference drug. The dietary regime was followed for a period of 9 weeks. The diet of the treatment groups included seaweeds at a dose level of 5% singly and at 2.5% in 1:1 ratio in blends. The dietary administration of both the seaweeds resulted in significant ($p \leq 0.05$) improvement in nutritional parameters (body weight and relative liver weight). The lipid lipoprotein fraction showed marked ($p \leq 0.05$) improvement in SF and UL groups when fed singly and in blends as compared to the HFHC group. However, the group fed SF showed more pronounced effect. On the contrary, the rats rendered with HFHC diet showed increase in atherogenic parameters. Antihyperlipidemic effect of both seaweeds was comparable to control and atorvastatin treated rats. Additionally, blood glucose level was reduced by 65% indicating regulated glucose metabolism which is generally altered in hyperlipidemic and hypercholesterolemic state. Similar trend was observed in serum antioxidative enzymes in rats fed on seaweeds. The superoxide dismutase, catalase, reduced glutathione and glutathione peroxidase increased significantly ($p \leq 0.05$) with concomitant decrease in lipid peroxides. This effect could be due to protective effect of bioactive compounds present in seaweeds on the free radical mediated oxidative stress induced by HFHC diet. Thus, the present study demonstrated that consumption of seaweeds have an impact on nutritional parameters, lipid profile and oxidative stress biomarkers. However, the mechanism involved need to be studied in detail along with the bioavailability of the bioactive compounds in these seaweeds responsible for possible health benefits.