Effect of Astaxanthine on Heart Tissue Fatty Acid Levels in Cadmium Induced Oxidative Stressed Rats

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Abstract

In this study effect of Astaxanthine on heart fatty acid levels in Cadmium induced oxidative stressed rats was investigated. Experimental groups are formed with 7-8 weeks old, 32 Wistar albino rats weighing 250-300 g. Control group: isotonic saline was administered to the rats in this groups for 30 days, Cadmium(Cd) group: 40 mg/L/day CdCl2 was administered to the rats in this groups for 30 days, Astaxanthine(AST) group: 20 mg/kg AST was administered to the rats in this groups for 30 days via intragastric route, Cadmium(Cd)+Astaxanthine(AST) group: Cadmium(CdCl2: 40 mg/L/day) and Astaxanthine(AST) (20 mg/kg/day) were administered to the rats in this groups for 30 days. Heart tissues were obtained for comparison at the 30th day. Following extraction procedure, Myristic acid(C14:0), Palmitic acid(C16:0), Stearic acid(C18:0), Oleic Acid(C18:1) and Linoleic acid(C18:2) levels were determined by using gas chromatography (GC). Analysis of data shows that myristic acid(C14:0) in heart tissue decreased in Cd group compared to control (p<0.05), increased in AST (p<0.05) group and AST+Cd (p<0.01) group compared to Cd group (p<0.05) significantly. Heart tissue linoleic acid(C18:2) levels shows a significant decrease in Cd+AST administered group compared to Cd administered group (p<0.05). In addition palmitic acid(C16:0), stearic acid(C18:0) and oleic acid(C18:1) levels decreased in Cd administered group compared to control without statistical significance. As a result; for the prevention of damages such as double bond oxidation of unsaturated fatty acids, membrane function inconsistence and interruptions in permeability which can occur in heart tissue due to Cd administrations, Astaxanthine which is known for its antioxidant nature may have ameliorating effects.

Keywords: Astaxanthine, cadmium (Cd), fatty acid

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