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The effects of Lead Heavy Metals contamination on the Antioxidant Activity of *Spirulina Platensis*

***Z. Arab Balajelini¹, S.A. Hosseini², R. Ghorbani³ and S. Atashi⁴**

¹M.Sc. Student of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran, ²Professor of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran, ³Associate Prof., of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran, ⁴M.Sc. Graduate of Horticultural Science, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran

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Abstract

Heavy metals are the most important environmental pollution, which are resistant in nature. Increasing levels of heavy metals in aquatic environments has biochemically and physiologically negative effects on microalgae. Microalgae increase the antioxidant content in order to protect cells from stress conditions. Probably, heavy metals cause creating oxidative stress by producing free radical stressful. This various forms reacts with lipids and will cause lipid peroxidation, membrane damage and inactivation of enzymes; so cell life will be compromise. In this study, effect of different concentrations of Lead (5, 10, 30, 50 and 100 micrograms per liter) on the antioxidant activity, Phenolic and flavonoid content of *Spirulina Platensis* was studied in a period of 8 days. High performance of phenolic compounds, especially phenolic acids and flavonoids in creating antioxidative properties is important. Estimation of antioxidant activity according to DPPH method, indicated that the compounds levels of phenolic and flavonoid have been increased by the microalgae in order to cope with effects of heavy metals oxidative; and the highest antioxidant activity was observed at the last days of estimation. Also, assessing the special rate of growth showed that the highest rate is belong to the control group. In addition, by increasing the lead concentration, the growth rate had more decreased.

Keywords: Pollution of Lead, *Spirulina Platensis*, Antioxidant, Phenolic and Flavonoid Contents