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CONCENTRATION OF ANTIOXIDANT COMPOUNDS AND LIPID PEROXIDATION IN SOME TISSUES OF HAKE (*Merluccius merlucius* L.) FROM THE ADRIATIC SEA

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Abstract:

Recent investigations in biomonitoring include the monitoring of biochemical and physiological parameters to evaluate the condition of environment. Parameters of oxidative stress are significant biomarkers of environmental pollution of the sea.

Specimens of marine fish - hake (*Merluccius merluccius)* was collected from the localities of Platamuni and Valdanos (Sauth Adriatic) in winter and spring during 2003 year. Concentrations of antioxidant compounds such as Vitamin E (Vit E) and Vitamin C (Vit C) as well as, lipid peroxidation (LP) were determined in the liver and white muscle of the hake. Physical – chemical parameters of water of investigated localities were also determined: salinity, temperature, oxygen saturation and concentrations of nitrites, nitrates and detergent in both seasons.

The obtained results showed higher concentrations of LP, Vit E and Vit C in liver of hake in comparison to white muscle. Concentrations of LP and Vit C were increased, while the concentrations of Vit E were decreased in winter period in comparison to spring. Concentrations of LP were increased while the concentrations of Vit E were decreased in both investigated tissues of hake from the waters of locality Valdanos in respect to Platamuni. These changes of parameters of oxidative stress are, in part, the consequence of changes of temperature as well as, concentrations of nitrites, nitrates and detergents in water of investigated localities and in particular season.

In conclusion, the concentrations of parameter of oxidative stress in investigated tissues of hake represent a good marker in the biomonitoring of environmental pollution. The intensity of oxidative stress was increased in the liver of hake in comparison to white muscle, in winter period in respect to spring and in waters of Valdanos in comparison to Platamuni.

Key words: hake, Adriatic Sea, oxidative stress, vitamin E, vitamin C, lipid peroxidation