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**OXIDATIVE STRESS PARAMETERS IN THE LIVER OF HAKE
(*Merluccius merluccius* L.) AND RED MULLET (*Mullus barbatus* L.)
FROM THE ADRIATIC SEA**

Ognjanović B.¹, Marković S.¹, Đorđević N.¹, Pavlović S.², Štajn A.¹,
Žikić R.¹, Saičić Z.²

¹Institute of Biology and Ecology, Faculty of Science,
University of Kragujevac, Kragujevac,

²University of Belgrade, Institute for Biological Research "Siniša
Stanković", Department of Physiology, Belgrade, Serbia.

Abstract:

The environment is continuously loaded with foreign organic chemicals (xenobiotics) released by urban communities and industries. Many classes of environmental contaminants (or their metabolites) are known to enhance the intracellular formation of reactive oxygen species (ROS) causing oxidative damage to biological systems. Fish are the most important organisms used in biomonitoring of aquatic ecosystems. Parameters of oxidative stress in fish tissues represent significant biomarkers in the assessment of the status of environment.

Specimens two marine fishes of hake (*Merluccius merluccius* L.) and red mullet (*Mullus barbatus* L.) were collected May 2005 from the locality in front of sea-port Bar (South Adriatic Sea). Parameters of oxidative stress: activity of antioxidative enzymes (superoxide dismutase-SOD and catalase-CAT) and concentration of lipid peroxidation-LP and glutathione-GSH were determined in the liver of hake and red mullet. Obtained results showed that activities of SOD and CAT were significantly lower in the liver of hake than in red mullet. Higher concentrations of LP and GSH in liver of hake were recorded, due to changes of physical-chemical parameters of environment. The intensity of oxidative stress in liver of hake was higher in comparison to red mullet. This increased ROS production and subsequent oxidative damage has been associated with pollutant mediated mechanism of toxicity in liver of investigated fishes.

According to the analyses of our results the investigated parameters of oxidative stress (concentration of LP and GSH, as well as activity of antioxidative enzymes SOD and CAT) in liver of hake and red mullet demonstrate significant and reliable biomarkers in monitoring environmental pollution.

Key words: hake, red mullet, Adriatic Sea, antioxidant enzymes, lipid peroxidation, glutathione.