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Antioxidant enzyme characterization in the liver of Mediterranean barbel (*Barbus meridionalis*) from Osor river (Catalonia)

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Antioxidant system parameters have still gained considerable importance due to their pivotal role in detoxification mechanisms. Optimization assays were carried out for antioxidant enzymes (Superoxide dismutase (SOD); Catalase (CAT); Glutathione peroxidase (GPX); Glutathione reductase (GR) and Glutathione S-transferase (GST) in the liver of Mediterranean barbel (*Barbus meridionalis*). The characterization of the antioxidant enzymes was carried out for several incubation media parameters. For the pH optimization, the range of 6.0-8.0 was assayed and the maximal enzyme activities were found at pH 7.0 for SOD and GPX and pH 7.5 for the CAT, GST and GR. Phosphate buffer concentrations in the range of 50-150mM were examined and generally, all enzymes showed their highest activities at 100mM phosphate buffer except SOD activity which was maximally at 150mM. Specific enzyme activity (V_{max}) and K_m values were also determined. Optimal values of other incubation media for each antioxidant enzyme were mostly found in similar ranges when compared to several fish species in the literature. Characterization assays of these parameters in native fish based on its physiological and ecological importance may be useful for biomonitoring of aquatic ecosystems health and also present fundamental data for utilization in further studies in the area of ecotoxicology.

Biography

Guluzar Atli has her expertise in the research area of molecular ecotoxicology and ecophysiology. She is an Academician in Cukurova University Biotechnology Center both as a Lecturer and Researcher. The response of significant and sensitive biomarkers both enzymatic and non-enzymatic parameters in the antioxidant and osmoregulatory system in several bio-indicator organisms against toxicants are investigated in her articles. In this sense, ATPase activities, antioxidant enzymes and non-enzymatic antioxidants such as metallothioneins related to exposures of metals and also environmental factors such as salinity are, particularly in her research area.

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