Effects of Mercury Chloride on Oxidative Stress Biomarkers of Some Tissues of the African Catfish Clarias gariepinus (Burchell, 1822)

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Abstract:

The present study evaluates in Clarias gariepinus the oxidative damage associated with two sub-chronic exposures to mercury chloride. The destructive effects of mercury chloride on the African Catfish, Clarias gariepinus was revealed in terms of protein carbonyl (PC), lipid peroxidation (LPO), DNA damage and nitric oxide (NO) as oxidative stress biomarkers. Super oxide dismutase (SOD), catalase (CAT), glutathione peroxidase (Gpx), glutathione reductase (GR), glutathione-s-Transferase (GST), glutathione (GSH) and total antioxidant (TAO) in the gills, kidney and liver can be used as biomarkers to identify possible environmental contamination in fish. This study aimed to investigate the impact of HgCl2 (0.04 and 0.12 ppm) for 14 and 28 days of the activity of the selected parameters in different tissues of Clarias gariepinus. The activity of SOD, CAT, Gpx and TAO dropped when compared to the control groups without mercury chloride exposure in all tissues under investigation. The pattern of variations in GST, GR and GSH activity in mercuryinduced groups were significantly increased than that of the control group. Also, NO, CP, LPO and DNA damage, were recorded with a pattern of a significant increase toward exposure period in all tissues under investigation.

Keywords:

Mercury; Antioxidant; Oxidative stress; Catfish

Published In:

Journal of Veterinary Science & Technology, 6, 242