

Antioxidant Responses and Malondialdehyde Levels in African Cat Fish (Clarias gariepinus) from Eleyele River in Nigeria

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Abstract : This study investigated the extent of pollution in Eleyele River in Oyo State, Nigeria by investigating the antioxidant status and malondialdehyde levels (index of lipid peroxidation) in the organs of African Catfish, *Clarias gariepinus* from the river. *Clarias gariepinus* weighing between 250g-400g were collected from Eleyele River (a suspected polluted river) and *Clarias gariepinus* from a clean fish farm (Durantee fisheries) were used as the control. Levels of malondialdehyde, glutathione concentration (GSH) and activities of antioxidant enzymes - superoxide dismutase, catalase and glutathione-S-transferase (GST) were evaluated in the post-mitochondrial fractions of the liver, kidney and gills of the fishes. From the results, there were increases in malondialdehyde level and GSH concentration in the liver, kidney and gills of *Clarias gariepinus* from Eleyele River when compared with control. Glutathione-S-transferase activity was induced in the liver and kidney of *Clarias gariepinus* from Eleyele River when compared with control. However, the activity of this enzyme was depleted in the gills of fishes from Eleyele River compared with control. Also there was an induction in SOD activity in the liver of *Clarias gariepinus* from Eleyele River when compared with control but there was a decrease in the activity of this enzyme in the kidney and gills of fishes from Eleyele River compared with control. Increase in lipid peroxidation and alterations in antioxidant system in *Clarias gariepinus* from Eleyele River show that the fishes were under oxidative stress. These suggest that the river is polluted probably as a result of industrial, domestic and agricultural wastes frequently discharged into the river. This could pose serious health risks to consumers of water and aquatic organisms from the river.

Keywords : antioxidant, lipid peroxidation, *Clarias gariepinus*, Eleyele River

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