

Scanning Electron Microscopy of the Erythrocytes of *Channa punctatus* (Bloch) Exposed to Mercuric Chloride

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Abstract : Hematological changes reflect the adverse effects of heavy metals on fish. Hematology is a valuable tool to evaluate pathological condition of the fish. It helps in diagnosing the structural and functional status of fish exposed to toxicants. Morphological alteration in erythrocytes due to environmental stress can be studied through ultra-structural analysis. The aim of the present study was to assess the toxicity of mercuric chloride on red blood cells of an air breathing fish, *Channa punctatus*. Fish were subjected to chronic experiments using three sublethal concentration of mercuric chloride (0.020mg/L, 0.027mg/L, 0.040mg/L) for a period of 15, 30 and 60 days. Exposed fish of all the three concentrations were subjected to a recovery period of 30 days. A control was maintained in tap water simultaneously. For SEM analysis, blood from caudal vein of fish was taken and examined at an accelerating voltage of 20kV. Scanning electron micrographs revealed elliptical shaped erythrocytes of control fish. Alterations in the erythrocyte morphology such as presence of spherocytes, membrane internalization, crenation of membrane and development of lobopodial projections were observed in the exposed fish. The study revealed that ultra-structural analysis appears to be a sensitive method to evaluate the toxicity of various toxicants to fish.

Keywords : *Channa punctatus*, erythrocytes, mercuric chloride, scanning electron microscopy

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