

Evaluation of Azo Dye Toxicity Using Some Haematological and Histopathological Alterations in Fish *Catla Catla*

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Abstract : The textile industry plays a major role in the economy of India and on the other side of the coin it is the major source for water pollution. As azo dyes is the largest dye class they are extensively used in many fields such as textile industry, leather tanning industry, paper production, food, colour photography, pharmaceuticals and medicine, cosmetic, hair colourings, wood staining, agricultural, biological and chemical research etc. In addition to these, they can have acute and/or chronic effects on organisms depending on their concentration and length of exposure when they discharged as effluent in the environment. The aim of this study was to assess the genotoxic and histotoxic potentials of environmentally relevant concentrations of RR 120 on *Catla catla*, important edible freshwater fingerlings. For this, healthy *Catla catla* fingerlings were procured from the Government Fish Farm and acclimatized in 100 L capacity and continuously aerated glass aquarium in laboratory for 15 days. According to APHA some physic-chemical parameters were measured and maintained such as temperature, pH, dissolve oxygen, alkalinity, total hardness. Water along with excreta had been changed every 24 hrs. All fingerlings were fed artificial food palates once a day @ body weight. After 15 days fingerlings were grouped in 5 (10 in each) and exposed to various concentrations of RR 120 (Control, 10, 20, 30 and 40 mg/L) and samples (peripheral blood and gills, kidney) were collected and analyzed at 96 hrs. of interval. All results were compared with the control. Micronuclei (MN), nuclear buds (NB), fragmented-apoptotic (FA) and bi-nucleated (BN) cells in blood cells and in tissues (gills and kidney cells) were observed. Prominent histopathological alterations were noticed in gills such as aneurism, hyperplasia, degenerated central axis, lifting of gill epithelium, curved secondary gill lamellae etc. Similarly kidney showed some detrimental changes like shrunken glomeruli with increased periglomerular space, degenerated renal tubules etc. Both haematological and histopathological changes clearly reveal the toxic potential of RR 120. This work concludes that water pollution assessment can be done by these two biomarkers which provide baseline to the further chromosomal or molecular work.

Keywords : micronuclei, genotoxicity, RR 120, *Catla catla*

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