

EXPOSURE TO THIAMETHOXAM AT LOW CONCENTRATIONS INDUCES HAEMATOLOGICAL, GENOTOXIC AND HISTOPATHOLOGICAL CHANGES IN COMMON CARP (*CYPRINUS CARPIO*)

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A total of 60 fresh water fish (*Cyprinus carpio*) were obtained from a local fish breeding center and carefully transported in plastic bags having adequate amount of oxygen and water. After 7 days of acclimatization, all fish were randomly divided and kept in five equal groups (A-E). The experimental fish were exposed to various concentrations (0, 0.5, 1.0, 1.5 and 2.0 mg/L) of thiamethoxam for a period of 120 h. Blood and other tissue samples of each treated fish were collected after 72, 96 and 120 h. Various physical responses like operculum and bouncing movement, mucus secretion, darkening of fins, fin tremors, swimming in isolation on one side, surface breathing and erratic swimming were observed in fish treated with higher concentrations. Results indicated that the values of red blood cell counts, pack cell volume and haemoglobin concentrations were significantly lower and the white blood cell and neutrophil counts increased significantly in thiamethoxam treated fish as compared to unexposed fish. The frequency of various nuclear (micronuclei, erythrocytes with nuclear remnant, erythrocytes with condensed nuclei and erythrocytes without nucleus) and morphological changes (leptocytes, stomatocytes, dividing erythrocytes and tear shape erythrocyte) in treated fish was significantly higher as compared to control group. Microscopic analysis of gills tissues of various experimental fish exhibited atrophy of secondary lamellae, pyknosis of lamellar epithelial pillar cells, lamellar degeneration, congestion, aneurysm and curling of lamellae.

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