

FLUVALINATE – INDUCED CHANGES IN ANTIOXIDANT AND ANAEROBIC ENZYMES AND OTHER BIOCHEMICAL CONSTITUENTS IN A FRESHWATER CATFISH, *HETEROPNEUSTES FOSSILIS*

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ABSTRACT – Effects of different concentrations (0.0005, 0.001, 0.002 ppm) of the pyrethroid insecticide fluvalinate on catalase (CAT, an antioxidant enzyme), lactate dehydrogenase (an anaerobic enzyme) and other macromolecular (RNA, protein) contents of brain, liver, gill and skeletal muscle of a freshwater catfish (*Heteropneustes fossilis*) were studied. Fluvalinate significantly decreased (20-46%) the specific activity of CAT in brain, liver, gill and skeletal muscle. Similarly, there was a significant decrease (27-59%) in LDH specific activity in all tissues of *H. fossilis*. The reduction in CAT and LDH specific activities might be due to inhibition or decreased synthesis of these enzymes. In addition to enzymes, RNA content declined significantly ($P < 0.05$) after fluvalinate exposure. The maximum reduction was 44-53% in different tissues of the fish. The decline (27-37%) in protein content was also significant ($P < 0.001$). The responses in enzymes and other macromolecules were concentration-dependent and maximum reduction (20-46%) was obtained in response to 0.002 ppm fluvalinate. This is an indicative of pyrethroid associated changes in turnover of macromolecular contents. The decrease was concentration-dependent. The present findings suggest the fluvalinate – induced impairment in antioxidative, anaerobic and protein synthesizing capacity of freshwater food fish.

Keywords : *Heteropneustes fossilis*, pyrethroid, fish, CAT, LDH, protein.