

## PESTICIDES TOXICITY IN FISHES : BIOCHEMICAL, PHYSIOLOGICAL AND GENOTOXIC ASPECTS

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**ABSTRACT :** During the last three decades, use of modern organic synthetic pesticides has increased about 40-folds in agriculture sector in order to enhance crops yield with low labour and effort. Various pesticides such as insecticides, herbicides, fungicides *etc.* are being used intensively in agriculture leading to numerous health-related problems due to indiscriminate applications of the same. These chemicals affect almost every system of environment especially aquatic ecosystems. Pesticides residues reach into the aquatic environment by surface run-off causing risk hazards for aquatic flora and fauna, fishes being one of the most affected organism. These residues enter in non-targeted animals *via* food chain threatening the ecological balance and biodiversity of the nature. Long-term exposure of pesticides induces physiological disturbances, behavioural dysfunctions, histopathological damages, haematological alterations, biochemical changes, immune-suppression, hormone disruption, diminished intelligence, reproductive abnormalities and cancer. Fishes serve as important bio-indicators for aquatic contamination to access the changes caused by human activities effectively and reliable monitoring bio-system to recognize and predict hazardous effects of pollutants. Since fish are rich sources of proteins and lipids, their health is very important for human. Dominant species in an area are most important indicators as they receive the full impact of the habitat for over longer periods. Therefore, the protection of aquatic ecosystem and water quality will be possible only with the judicious and rationalized applications of pesticides.

**Key words :** Pesticide toxicity, biochemical, physiological, genotoxic, fishes.