



## Research Highlight

# Pesticide Exposure: A Major Health Hazard to Aquatic Life

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Excessive use of pesticides is like a double-edged sword because the application of pesticides is a quick method to manage pests and diseases but on the other hand, pesticides are not eco-friendly and adversely affected human beings, aquatic life, and the environment with its toxic residues. The consequences of pesticide exposure can be favorable and unfavorable.

Accordingly, fish ingest the pesticides present in water, usually through their gills. These pesticides diffuse into their organs and tissues which lead to severe changes in tissue biochemistry as well as histology of fish<sup>1</sup>.

Firstly, pesticides affect the organism at the cellular or at a molecular level than it causes a biochemical disorder that results in the death of an organism.

Many pesticides cause several biochemical alterations in fish and can cause severe injury to the physiological and health status of fish. Moreover, biochemical changes produced due to pesticidal stress can disturb the metabolism, restrain vital

enzymes, retards the growth, and decrease fecundity as well as longevity of organisms<sup>2</sup>.

Consequently, biochemical tests should be done to identify the toxicity of insecticides<sup>3</sup> and can also diagnose toxicity effects in target organs.

Lactate Dehydrogenase (LDH) is an enzyme that is found in nearly all body tissues. LDH measurement is employed to detect tissue disorders and to diagnose tissue damage<sup>4</sup>.

Accordingly, researchers decided to conduct a new study for assessment of the effect of acetamiprid on tissue biomarker; LDH in fish, "*Oreochromis mossambicus*". Acetamiprid is a pesticide and its residue reaches the aquatic ecosystem and affects the aquatic fauna. In this experiment, scientists calculated the lethal Concentration (LC<sub>50</sub>) of acetamiprid for tested fish via probit analysis and recorded as 5.99 ppm at 96 h<sup>5</sup>.

During this research, the chronic exposure showed amplified activity of LDH in the liver, brain as well as gill tissues. It also represents that the pesticide,

### Key words:

Pesticides, toxicated fishes, tissue biochemistry, biochemical changes, enzymes, lactate dehydrogenase, acetamiprid, *Oreochromis mossambicus*

“acetamiprid” is extremely poisonous to the fish *O. mossambicus* and the stress response showed by fish depends upon concentration as well as the duration of exposure.

Conclusively, long term exposure of organisms to pesticides leads towards constant health hazard for the fish population. Moreover, consumption of toxicated fishes can cause serious health issues and deteriorates human health. In a nutshell, there is a dire need to protect an aquatic life therefore, continuous monitoring of fishes is sorely needed in order to examine the toxic effect of pesticides on fishes.

## REFERENCES

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