

WATER TOXICOLOGY

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- Water is essential for the existence of all life forms. In addition to household uses, water is vital for agriculture, industry, fishery and tourism etc. Increasing population, urbanisation and industrialisation has led to the decreased availability of water.
 - The quality of water used is also being deteriorated as it is getting more and more polluted. You may be aware of at least some health hazards and harmful effects of water pollution.

The most important risks for the water environments are drought and pollution; which are mainly caused antropogenic as well as by natural means.

The ingestion of the toxicants are usually through water or feed; therefore this paper emphasize the chemical contamination of water and feed along with their direct and/or indirect effect on fish.

Compounds that cause toxicity in fish is determined by acute toxicity tests. This level, the death of 50% individuals in 96 hours, can be measured by LC_{50} value that is the concentration of toxic material in water.

According to OECD chemical's acute toxicity for crustaceans and algae is EC_{50} (48 hours) and EC_{50} (72 hours), respectively.

Classification of chemical materials according to LC_{50} or EC_{50} :

- 1) Very toxic: LC_{50} or $EC_{50} \leq 1$ mg/L,
- 2) Toxic: LC_{50} or $EC_{50} > 1 - \leq 10$ mg/L,
- 3) Medium toxicity: LC_{50} or $EC_{50} > 10 - \leq 100$ mg/L,
- 4) Low toxicity: LC_{50} or $EC_{50} > 100$ mg/L.

Effective Factors for Toxicity

- 1) Compound characteristic,
- 2) Fish sensitivity,
- 3) Deterioration of Nitrogen Cycle
- 4) Water quality
 - a. Water temperature,
 - b. Salinity
 - c. Hardness,
 - d. Oxygen level,
 - e. pH.

Effective Materials for Toxicity in Fish

- Toxic gasses,
- Nitrite,
- Nitrate,
- Chlorur,
- Cyanide,
- Phenols

Effective Materials for Toxicity in Fish

- Detergents,
- Acid rains,
- Pesticides,
- Chlorined dioxins,
- Suspended solid materials,
- Metals-salts

Effective Metals for Toxicity in Fish

- Cadmium
- Mercury,
- Copper,
- Iron,
- Zinc,
- Chromium.