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Evaluation of acute toxicity of triazophos and deltamethrin and their inhibitory effect on AChE activity in *Channa punctatus*

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Highlights:

- The pesticides have adverse effect on the health of aquatic biota including fishes.
- Comparative acute toxicity of both pesticides was determined in the present study.
- Both pesticides have affected the behavioural activities of *C. punctatus*.
- Alteration of behavioural patterns may be due to strong inhibition of AChE activity.
- Triazophos (organophosphate) is more neurotoxic than deltamethrin (pyrethroid).

Abstract

Pesticides are applied to control the pests indoor and outdoor; however, their remarkable amount reaches to the aquatic system through various routes like run-off, leaching, spray-drift, effluent from factories. These are reported to have negative metabolic impact on different non-target aquatic organisms like fishes. Thus, present study is aimed to evaluate the acute toxicity of two groups of pesticides, organophosphate and pyrethroid, namely triazophos and deltamethrin, respectively. The test was conducted for 96 h period in a freshwater teleost, *Channa punctatus*. The LC_{50} values for triazophos and deltamethrin after 96 h treatment was found to be 0.069 mg/L and 7.33µg/L. The deltamethrin was found to be about ten times more toxic than triazophos to the fish. In treated fish, alterations in various behavioural patterns were observed with increasing concentrations of both the pesticides as compared to control. Further, tissue specific as well as dose dependent inhibition in the acetylcholinesterase (AChE,