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Assessment of sub-acute toxicity of endosulfan 35% EC on haematological profile of *Channa punctatus* (Bloch)

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Organochlorine pesticides (OCPs) enter in the aquatic ecosystem through runoff from agricultural fields which accumulate in aquatic biota through food chain. Endosulfan, (an OCP) is toxic, persistent and lipophilic in nature. Fishes are extremely sensitive to endosulfan and contaminant loading in fish is reflective of the state of pollution in the surrounding environment. Therefore, the present work was aimed to study the impact of endosulfan uptake on haematological parameters in *Channa punctatus*. Doses administered through the medium were 25% (0.01 ppm, Group II) and 50% (0.02 ppm, Group III) of LC50 value (0.04 ppm at 96 h). Ten fish were autopsied from each group at 72 h, 96 h and 120 h intervals. Blood was syringed out from heart of the fish and emptied in EDTA coated vials for bioassay. Group I served as control. Results revealed that accumulation of endosulfan in blood led to erythropenia, lymphocytosis and hyperglycemia in both the treated groups along with significant depletion in haemoglobin content, haematocrit value and MCHC values. A significant elevation was observed in MCH and MCV. These changes were dose & duration dependent. On subsequent depuration for another 120 h, gradual decline was observed in endosulfan content in blood of pre-treated groups but hyperglycemic condition still persisted. In group II, recovery of all haematological parameters was near normal whereas, in group III, recovery was slow. In comparison to control, significant decline in RBC of treated groups indicates acute anaemic condition of the fish probably due to haemolysis. Recovery results suggest that if the remedial measures of water bodies are done at regular intervals, damage caused by endosulfan could be minimized.

Recent Publications

1. Harit G and Srivastava N (2017) Toxicity of endosulfan in *Channa punctatus* (Bloch). *Current topics in Toxicology* 13:23-30.
2. Harit G and Srivastava N (2017) Changes in gill structure induced by uptake of endosulfan in *Channa punctatus* followed by subsequent recovery. *Asian Journal of Applied Science and Technology* 1(7):60-64.
3. Harit G and Srivastava N (2009) Bioaccumulation and elimination of endosulfan in muscle, gills and blood of *Channa punctatus*. *Journal of Environment and Sociobiology* 6:13-20.
4. Srivastava N, Harit G and Srivastava R (2009) A study of physico-chemical characteristics of lakes around Jaipur, India. *International Journal of Environmental Biology*. 30(1):889-894.
5. Harit G and Srivastava N (2009) Evaluation of haematological parameters and endosulfan accumulation in blood of *Channa punctatus* followed by subsequent recovery. *Journal of Environment and Sociobiology* 6(2):159-166.

Biography

Garima Harit has completed her research work under the supervision of Prof. Neera Srivastava in the Department of Zoology, University of Rajasthan, Jaipur, India. Her areas of specialization are fish biology, ecotoxicology and fish behaviour. She has published eight papers in renowned journals along with two papers and a chapter in communication. She has given several oral and poster presentations in various National and International Conferences and has also received Best Paper Award in 2016 for her research work at University of Rajasthan. She was also nominated as a Jury Member of Eco Film Festival in an International Conference this year. She is currently working as an Assistant Professor in Department of Zoology, The IIS University, Jaipur, India.

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