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Enzyme inhibition (AChE) in brain of *Oreochromis mossambicus* due to pesticidal pollution of herbicide "Pursuit"

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The unscrupulous use of pesticides, approximately 19,000 to 20,000 pesticides, which broadly include; herbicide, insecticide and fungicide are, currently approved for release by the U.S. Environmental Protection Agency (EPA) , with the advent of "Green Revolution" (Boon and Bridge 2003). Acetylcholine is released from pre-ganglion neurons of parasympathetic division of autonomic nervous system. It is a unanimously accepted fact that hydrolysis of Acetylcholine (ACh) to choline and acetic acid is catalyzed by enzyme cholinesterase in animal system. The enzyme prevents accumulation of excessive acetylcholine at cholinergic synapse and at neuromuscular junction (Konar, 1979; Kollberg, 1976). Quantitative estimation of acetyl cholinesterase (AChE) is taken as a good indicator of the extent of pesticide pollution in animals. Enhanced ACh accumulation results in affecting metabolism, muscle coordination, and irregular transmission of impulse and ultimate death of the animal. The test pesticide pursuit (10% st) is a herbicide (a carbamate compound) used extensively for effective control of annual grasses, sludge and broad leaf weeds in soyabean and groundnut crops etc. Its main chemical imazethapyr ($C_{15}H_{22}N_4O_3$) blocks protein synthesis. In the present investigation the effect of three sub lethal concentrations of Pursuit i.e. 63.7 ppm, 85 ppm and 127.5 ppm in *Oreochromis mossambicus* were studied. Pursuit inhibited acetyl cholinesterase in the brain of *Oreochromis mossambicus* by increasing the K_m and V_{max}, thereby acting as a mixed inhibitor. The assay of brain AChE is thus useful for monitoring pesticide toxicity of fish.

Biography

Farhina Pasha has completed M.Tech Degree from Rajeev Gandhi Technological University. Bhopal. Madhya Pradesh and her Ph.D. in the year 2006 from Barkat Ullah University Bhopal Madhya Pradesh. She has worked as Head of the Department in a premium Biotechnology Institute in Bhopal M.P. and has been guiding students for their Dissertation / Research work. She has published several papers and abstracts in reputed journals and has been serving as an accreditation committee member in University of Tabuk KSA. Presently working as Assistant Professor in Department of Biology, University Of Tabuk, KSA.

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