Assessment of the effects of therapeutic levels of Trichlorfon (Dipterex®) on the health status of *Cyprinus carpio* (Common carp)

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Trichlorfon, an organophosphate is used in aquaculture as a chemotherapeutant to eliminate ectoparasitic infections in cultured finfish. The present study was aimed at evaluating the effects of therapeutic treatments of Trichlorfon (0.25 mg L^{-1} for 1 h and 24 h and 0.50 mg L^{-1} for 1 h and 24 h) on the health status of subadults of common carp. Health status of the fish was assessed by monitoring survival, haematocrit values, leukocrit values, white blood cell counts, differential white blood cell counts and phagocytic activity of the circulating blood and acetylcholinesterase (AChE) activity of brains of the fish just after exposure to above therapeutic dosages of Trichlorfon and after 7 days of post exposure in Trichlorfon free water. AChE activity of brain tissue was assessed by a standard spectrophotometric method using Acetylthiocholin iodide as the substrate. Fish not exposed to Trichlorfon were used as controls.

Results indicated that Trichlorfon treatments had no significant effect on the survival, haematocrit values and phagocytic activities of the exposed fish. All Trichlorfon treatments had induced the abundance of neutrophils in the circulating blood temporarily. However all treatments of Trichlorfon lead to leucocytopenia coupled with lymphocytopenia and thrombocytopenia of the exposed fish even after 7 days. Brain AChE activities of the fish exposed to Trichlorfon for 24 hours were reduced to 43% -48% of the controls and inhibition was not restored fully within 7 days.

Results revealed that immune responses of the fish may be altered by these Trichlorfon treatments and neurological functions of the fish could be impaired if the fish were exposed to these dosages for 24 hours. Hence precautions should be taken when Trichlorfon is used as a chemotherapeutant in common carp culture especially for long term treatments.

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