SRS- 01

EVALUATION OF THE ACUTE TOXICITY OF PROFENOFOS AND ITS EFFECTS ON THE BEHAVIORAL PATTERN OF GENETCALLY IMPROVED FARMED TILAPIA FINGERLINGS [*Oreochromis niloticus* (Linnaeaus., 1758)].

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ABSTRACT

Profenofos is an organophosphate insecticide which acts as acetylcholinesterase inhibitor. It is a potential contaminant to the aquatic ecosystems which can effect on non-targeted organisms including fish. The aim of this study was to determine the 72 h LC_{50} value of Profenophos® and to investigate the changes in behavioral pattern of genetically improved farmed tilapia fingerlings. ((2 ± 0.5) g of average weight and (6 ± 0.5) cm of average length). Three tank setup were prepared with three different concentrations of Profenophos® i.e. 0.2 mgL^{-1}, 0.3 mgL^{-1} and 0.4 mgL^{-1} and one tank was maintained as a control tank without Profenophos®. There were three replicates for each concentration and the control setup. Each tank setup was introduced with four tilapia fingerlings. All the tank setups were maintained under the equal conditions of average temperature (30 ± 1 °C), pH (7), photoperiod of 12 hours dark and 12 hours light, and the average dissolved oxygen (DO) concentration of 6.4 mg L^{-1}. Mortality and the behavioral changes were assessed at 24, 48, and 72 hours. Seventy two hours LC_{50} was determined by probit analysis using the MS Excel 2013 software. The calculated 72 h LC_{50} value of insecticide Profenophos® to *Oreochromis niloticus* fingerlings was 0.26 mgL^{-1} at 30 ± 1 °C. The behavioral responses of fish exposed to Profenophos® were included loss of balance, moving in spiral fashion with sudden jerky movements, lying on their sides and rapid flapping of the operculum with the mouth open. The present study reveals that Profenophos® is toxic to genetically improved strain of *Oreochromis niloticus* and have affected on behavioral changes at low concentrations.

Key words: Acute toxicity, Profenofos, *Oreochromis niloticus*