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AQUACULTURE & FISHERIES INNOVATION LAB

RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Toxic effects of agro-pesticide cypermethrin on histological changes of kidney in Tengra, *Mystus tengara*

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Abstract: Cypermethrin, the synthetic pyrethroid commonly used as a pesticide, contaminates the aquatic ecosystem as a toxic pollutant from agricultural and domestic washouts. An experiment was conducted to carry out an empirical study to investigate the sub-lethal effects of LC₅₀ value of a pyrethroid pesticide, cypermethrin 10EC on histological changes of kidney in Tengra, *Mystus tengara* at wet laboratory of the Faculty of Fisheries, Bangladesh Agricultural University (BAU), Mymensingh. The LC₅₀ value of cypermethrin 10EC was calculated by probit analysis and LC₅₀ value for 96 hours was found 0.133 ppm. The experiment was conducted with four treatments, each with three replications. Treatment one (T1) was used as control (0 ppm) and three concentrations, such as 0.026 ppm (20% of 96 h LC₅₀), 0.052 ppm (40% of 96 h LC₅₀) and 0.104 ppm (80% of 96 h LC₅₀) were used as Treatment two (T2), Treatment three (T3) and Treatment four (T4), respectively. For histological study kidney of studied fish were collected from control and experimental group at 7, 14 and 28 days interval up to the end of experiment of 28 days. The physical reactions observed in the treated fish were erratic swimming, discolorations of the skin, loss of reflex, hyperactivities, motionless state and these effects increased with increasing concentration of the toxicants and duration of exposure. The changes observed in the kidney tissues were vacuolation, necrosis, ruptured kidney tubules, Cellular degeneration and karyolysis were

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recorded. Cypermethrin 10 EC has adverse effects on the organs of fish, so it should not be used indiscriminately in agriculture and aquaculture.

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