

Studies on the Induced toxicological effect of deltamethrin on histopathological changes in *Pangasius hypophthalmus*

C. Prabhanjan Kumar Reddy et al.,

ABSTRACT

The present study aimed to examine the induced toxic effects of Deltamethrin (DMN) on *Pangasius hypophthalmus* through acute toxicity and histopathological parameters. The LC₅₀ value of DMN was 0.021 mg/L at 96h for *P. hypophthalmus* and sublethal toxicity was assessed for 45 days (1/5th and 1/10th of LC₅₀). The results of the present study revealed that the mortality was a function of DMN concentration and exposure duration, i.e., mortality was positively correlated with increasing concentration and exposure period. Histopathologically, DMN exposure led to hyperemia in the liver and rupture of hepatic cells, necrosis, hypertrophied bile duct, shifting of nuclei, vascular hemorrhage, and degeneration in hepatocytes. Compared to the control, the destruction of secondary lamellae, the fusion of adjacent gill lamellae, hypertrophy, hyperplasia, and fusion of secondary lamellae led to inflammation, adhesion, and fusion. Furthermore, DMN-exposed kidney showed melano-macrophages, increased periglomerular, peritubular space, vacuolation, shrunken glomerulus, hyaline droplets accumulation in tubular cells, destruction of tubular epithelium, and hypertrophy of distal convoluted segment, in brain enlarged pyramid and Purkinje cell nucleus, the granular layer was observed.

KEY WORDS: Bioassay, Deltamethrin, Histopathology, *Pangasius hypophthalmus*, Pesticides, Toxicity