Lead (Pb) Pollution and Its Effects on Nile Tilapia (Oreogromis Niloticus) -: Histopathological Study

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Abstract:
Lead (Pb) is the most important Environmental heavy metal that causes bioaccumulative toxicity in fish and other aquatic organisms. Histopathological evidence is a highly efficient and accurate way of detecting the adverse effects of heavy metals inside the internal organs of fish. Adults of *Oreochromis niloticus* were exposed to the 0.32mg/L Pb as lead nitrate (Pb[NO3]2) for 21 days. After 21 experimental days, the histopathological sections of gills, liver, and brain tissues were observed under a bright-field microscope using different magnifications (×40, ×100, and × 400). Dilation, complete destruction, severe congestion, hemorrhage, and complete lamellae fusion were exhibited in the primary and secondary lamella of lead-exposed fish gills. Examination of liver tissue revealed hepatocyte hypertrophy, cytoplasmic vacuolation, focal area necrosis, indistinct cell boundaries, and pyknotic nuclei. The cerebellar cortex of the fish brain showed inflammation, vacuolation, atrophy, hemorrhage, and degenerated cells. In conclusion, the heavy metal lead nitrate can cause significant histopathological alterations in the gills, liver, and brain of *Oreochromis niloticus*.