

ABSTRACT

Dena Abbas Ahmed: Effect of Feed Contamination on the Productive Performance and Body Composition in Fish. Unpublished M.Sc.Thesis, Department of Animal Production, Faculty of Agriculture, Ain Shams University, 2010.

The experiment was carried out at the department of animal production, Faculty of Agriculture, Ain shams, University, Egypt. For a period of 12 weeks, using Nile tilapia (*Oreochromis niloticus*, 10 g average weight).

The objective of the present study is to determine the bioaccumulation of heavy metals in various organs of the fresh water fish exposed to heavy metal contaminated food system. The experimental fish was exposed to different concentrations of elements, mercury (Hg) and lead (Pb) for period of 70 days, Fish were divided into seven groups (treatments) each group was stocked into three aquaria and each contains 15 fish. The 1st treatment was fed diet without any element (control group), The 2nd treatment was feed diet contain with 0.5 mg/kg mercury, The 3rd treatment was Feed diet contain with 10 mg/kg mercury, The 4th treatment was feed diet contain with 15 mg/kg mercury, The 5th treatment was feed diet contain with 5 mg/kg lead, The 6th treatment was feed diet contain with 10 mg/kg lead, The last treatment was feed diet contain with 15 mg/kg lead. The diet contained 30% protein and 3848 kc /digestible energy.

Hg and Pb was assayed using atomic absorption spectrophotometer and the results were given as mg/g dry wt. The effects of different concentration of Hg and Pb on growth parameters of Nile tilapia were studied such as average daily gain, specific growth rate, protein efficiency ratio, feed conversion ratio, The levels of dietary mercury lead caused a negative growth rate, as the level of dietary mercury and lead increased. The best value was recorded for the control while the worst one was observed in treatment (4,7) for mercury and lead respectively. The protein efficiency ratio of tilapia clearly showed gradual decrease in protein efficiency ratio as the level of mercury, lead in the diet increased,

the control treatment had the best significant ($p < 0.01$) feed conversion. At the level of mercury, lead increased in the diet, as feed conversion values were obtained.

The histology study showed the effect of mercury and lead on some fish organs (gill-liver). The histological alterations in the gills of Nile tilapia fish was affected by mercury and lead showing dilation of the marginal channel, hyperplasia of the epithelial cells and lifting of the lamellar epithelium, epithelial lifting, hyperplasia and hypertrophy of the epithelial cells, besides partial fusion of some secondary lamellae, The main alterations found in the liver were irregular-shaped nuclei, nuclear hypertrophy, nuclear vacuolation and the presence of eosinophilic granules in the cytoplasm, cytoplasm and nuclear degeneration was also observed.

Key words: Toxicity, pollutants, mercury, lead, Nile tilapia and *Oreochromis niloticus*

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