Environmental Studies of Water Quality and Its Effect on Fish of Some Farms in Sharkia and Kafr El-Sheikh Governorates

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بسم الله الرحمن الرحيم

[قالُوا سُبْحَانَكَ
لا عِلْمَ لَنَا الا
مَا عَلَّمْتَنَا إِنَّكَ
أَنْتَ الْعَلِيمُ
الْحَكِيمُ]

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ABSTRACT

Monitoring of water quality is very important, where it is the main factor affecting the cultured fish. So, the present study investigated the quality of drainage water sources and their impacts on the quality of water and fish reared in two different farms at Al-khashaa, kafr El-Sheikh governorate and at Abbassa, Sharkia governorate, Egypt. Water and fish samples were taken monthly during 2011 fish farming season, to evaluate the physico-chemical and biological characteristics and heavy metals distribution in water and fish organs (muscles ,gills and liver).

The obtained results indicated significant difference between the water of two farms, particularly in their physical and chemical characteristic (water temperature, transparency, pH, DO, NH_3,$NO_{2,}NO_3$, total alkalinity, total hardness and phosphate). The levels of most parameters increased in ponds and outlet, but decreased at the inlet (drains). Heavy metals varied depending upon the organ, location and the month of sampling. Also, the order of occurrence of heavy metals in water ranked at the following order, Fe > Zn > Cu>Cd > Pb at Al-Khashaa farm, but at Abbassa farm it was Fe > Zn > Cu>Pb>Cd, while they were found in muscles and gills as Zn> Fe> Cu > Pb > Cd at Al- Khashaa fish farm, but in muscles, gills and liver tissues at Abbassa fish farm were Fe> Zn > Cu > Pb>Cd. The levels of heavy metals exceeded the permissible limits according WHO (1989), in gills and liver, but in muscles did not exceed the permissible limits, except Fe. Comparison of the values of condition factor (K) and hepato-somatic index (HSI) of the two fish farms indicated that fish of Abbassa ponds was the best condition**.** In the present study phytoplankton was represented by four groups namely Chlorophyceae, Cyanophyceae, Bacillariophyceae and Euglenophyceae,

where Chlorophyceac dominated over other groups of phytoplankton. Zooplankton was found in four groups Rotifera, Copepoda, Ostracoda and Cladocera . Rotifera and Cladocera were the dominant groups over other groups. Results indicated that the drainage water has a great effect on physical, chemical and biological characteristics of fish farms. Also, the fish farms effluents effect on the surrounding water.

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