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Impact of water contamination on tilapia (*Oreochromis niloticus*) fish yield

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Abstract : The aim of this work is to study the impact of water contamination on the survival as well as the yield of tilapia (*Oreochromis niloticus*) fish during a complete cycle. The fish culture located in Sharkia Governorate, the source of water was Ismailia channel. Two identical fish ponds were studied. The first pond culture (I) feed with raw water and the other (II) feed with treated water. Water treatment was carried out using a combined sand filter and activated carbon. The treated water was disinfected using 0.4 ppm of chlorine and aeration for 3 to 4 days. The concentrations of bacteriological, physicochemical and heavy metals were determined in all types of samples. The results showed that, total viable bacterial counts at 37°C, 22°C, *E. coli*, *Streptococcus fecalis, Pesudomonas auerognosa, Salmonella* spp., *Staphylococcus aureus* were lower in pond (II) compared with pond (I) for both water and fishe tissues. In contrast, DO, BOD, TDS and total alkalinity were higher in pond (I) than pond (II), while pH was nearly equal in both of them. Moreover, heavy metals were detected with variable concentrations in pond (I) for water and fish tissues samples. While, Cd and Ni were not detected in pond (II). Also, the growth rate (gm/fish/day) was 2.09 in pond (II) but in other site was 1.27. Similarly, the mortality ratio of fish was 25.4 and 7.24% for I and II ponds, respectively. Consequently, this work provides some advisees through water treatment for improving of fish cultures and safety of this type of food to human consumption as well as preservation of the public health.

Keywords: Water Pollution of Ismailia canal, Bacteria, water treatment, Physicochemical, Heavy metals, Tissues of fish.

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