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SUMMARY

This study was carried out to investigate tilapia zilli fishes in three stations of fresh water, and the effect of some pollutant on some biochemical parameters in the 1st study (agriculture Abbassa drainage). In the 2nd study the same investigation for tilapia zilli fish in three stations of marine water (Timsah Lake El-Ismailia). This survey was conducted in two sides:

A] Location of study area:

a) Sampling of fresh water sites:

Site 1:

Which is considered as the end of agriculture Abbassa drainage and surrounding by population area.

Site 2:

Which is linked between the agriculture drainage and Timsah Lake, usually the level of water in Abbassa drainage higher than in the Timsah Lake.

Site 3:

1000 meters far from the second sample site and 2000 meters from the first site.

b) Sampling of marine water sites:

Site 1:

Which is considered as the end of Timsah Lake and surrounding by population area.

Site 2:

Which is located nearest between the agriculture Abbassa drainage and Timsah Lake, 1000 meters far from the first sample site.

Site 3:

1000 meters far from the second sample site and 2000 meters from the first site.

The determination of different parameters were taken from three different points at each particular sampling site in order to obtain the mean value for each site.

The present study aims to spot the light on the effect of sewage and industrial systems on some water physico-chemical parameters and biochemical parameters of fish, which directly affect fish production in agriculture drainage abbassa and Timsah lake. In addition an investigation of the effect of some water pollutants on biochemical parameters of fish and the quality of fish muscles. The study was attempted by the following items:

I - Monthly collection of water samples from different sites.

II- Determination of different physico-chemical parameters of water.

III- Monthly collection of fish samples from different sites.

IV- Investigation the effect of environmental condition on T3, T4 and prolactin hormones in fish plasma.

V- Determination of lead, zinc and iron in water and fish muscles.

B| The results are summarized as follows:

I. Water quality:

The physico-chemical properties of water from the three sites of fresh and marine water are illustrated in 6 tables and 6 figures.

Temperature:

The highest temperature was observed during summer especially June-02, June-03 Aug-02, (28 C) and the lowest value was observed during Dec-02, and Feb-03 was (13.7C).

pH value:

The pH values ranged from 9.1 to 7.9 for the different sites, there was no significant differences between the seven times along years in the same site of fresh and marine sites.

Dissolved oxygen (DO) mg/l:

The highest dissolved oxygen (DO) was showed during Dec.-02 (19.5±0.5 mg/l) in 3rd marine site and the lowest DO was observed at June-03 (8.2±0.2 mg/l) in 1st fresh site.

Secchi disk (SD):

The secchi disk was highest at Dec-02 (72.2±2.5) in 1st site while the lowest value was observed during June-03 (32±2 cm) in fresh water sites, but in marine sites. The secchi disk was highest at Feb-03 (122±2.5 cm) in 2nd site while the lowest value was observed during Aug -02 (65±3.2 cm), respectively.

Chlorophyll-a:

Chlorophyll-a was highest value in June-03 (55±5 mg/l) in 3rd fresh water site, and the lowest chlorophyll-a values were recorded during Dec-02 (20.5±2.5 mg/l) in the 1st sit of Timsah Lake.

Salinity:

The highest values of salinity was observed at June-03 (2.4±0.2ppt) in 2nd site in fresh water site, while the lowest salinity values were recorded at Aug-02 (0.68±0.15 ppt). Moreover The highest values of salinity was observed at Aug-02 (39±1 ppt) in 3rd site in marine water, while the lowest salinity values were recorded at Oct-02 (24±0.5 ppt).

Total alkalinity:

Total alkalinity was recorded highest value in water samples Feb,-03 (287.5 ±7.5 mg/l) in the 3rd site of fresh water and the lowest total alkalinity measured at June-02 (122.5±2.5 mg/l) in the 2nd site of marine.

Total hardness (TH):

The highest value TH content in water recorded in Feb-03 (10,000±50 mg/l as $CaCO_3$) in 1st site in marine water, and the lowest

value of TH in June-03 (466.6±16 mg/l as $CaCO_3$) in the 1st site of fresh water.

II. Lead, zinc and iron concentrations:

A] Water:

The lead, zinc, and iron were measured monthly and recorded in table (13-18) as means of bimonthly during the study. The highest average concentration of lead was 0.03 ppm in the 3rd site in fresh water. Whereas the highest average concentration of lead was 0.054 ppm in the 1st site in marine water

The highest average concentration of zinc was 0.027 ppm in the 3rd site in fresh water. Whereas the highest average concentration of zinc was 0.046 ppm in the 1st site in marine water

The highest average concentration of iron was 0.063 ppm in the 2nd site in fresh water. Whereas the highest average concentration of iron was 0.1 ppm in the 1st site in marine water

B] Fish muscles:

The lead, zinc, and iron were measured monthly and recorded in table (7-12) as means of bimonthly during the study.

The highest average concentration of lead was 0.222 ppm in muscle tissue in the 2nd site of fresh water, and the highest average concentration of lead was 0.143 ppm in 1st sit of marine water.

The highest average concentration of zinc was 1.273 ppm in muscle tissue in the 2nd site of fresh water, and the highest average concentration of zinc was 1.143 ppm in 1st sit of marine water.

The highest average concentration of iron was 4.37 ppm in muscle tissue in the 1st site of fresh water, and the highest average concentration of iron was 4.677 ppm in 3rd sit of marine water.

III. Hormones:

The prolactin, T3, and T4 were measured monthly and recorded in tables (19-24) as means of bimonthly during the study. The highest average concentration of prolactin was 19 ng/dl in the 2nd site in fresh water. Whereas the lowest average concentration of prolactin was 3.04 ng/dl in the 3rd site in marine water

The highest average concentration of T3 was 1.88 nmol/l in the 1st site in marine water. Whereas the lowest average concentration of T3 was 0.8 nmol/l in the 2nd site in fresh water.

The highest average concentration of T4 was 20.2 nmol/l in the 2nd site in marine water. Whereas the lowest average concentration of T4 was 14.3nmol/l in the 3rd site in fresh water.

CONCLUSION

The water quality affects in fish adaptation for salinity by helping prolactin an thyroid hormones. Tilapia zilli presented in high salinity absorb lead, zinc and iron less than those presented in fresh water although the later have concentration of these metals in water more than the first.