The Concentration of Lead and Cadmium in the Gill and Muscle of Common Carp Fish (*Cyprinus carpio)* in Three Fish Farms in DhiQar City–South Iraq

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Abstract

The present study was conducted to estimate the concentration of lead and cadmium element in gill and muscle of fish *Cyprinus carpio* in three fish farms derive their water from Garraf channel, a branch of the Tigris River in the province of DhiQar. The results of the present study that the concentration of trace elements (cadmium and lead) in the gills was higher than delimiters standard for joining the World Health where it is dangerous for human consumption, either in the muscles was lower concentration of them in the gills, we conclude from this study that fish consumption Farm at the present time does not cause marked damage but in the future cause a problem should be avoided.

Keywords: *Cyprinus carpio trace elements, fish farms.*

Introduction

The fish farming tributaries economic task in many countries of the world and taking this role is rising day after day, especially in recent years for several reasons articulated by the report issued by the bound food and agriculture and organization[1], which pointed out that most of the marine fisheries reached the stage saturation so that it cannot increase no matter how wild fish harvests increased fishing activity, and that fish stocks continues to decline due to an environmental fettle and overfishing, and the same source pointed out that aquaculture can contribute to the increase of fish products.

Aquaculture's success on a number of interrelated factors and may vary from the most important of those that specializes in environmental and water and the quality of water basins and of the most important environmental factors affecting fish farming, including pollutants that affect its presence on the suitability and appropriate environment and water for fish breeding and including trace minerals process[2]

The aim of the study: Due to the lack of an integrated study on fish farms and the extent of contamination of trace elements and what are the cause

Materials and Method

Description study area: Samples are taken the common carp (*Cyprinus carpio)* seasonally from winter 2018to the autumn of 2018, the number 9 fishs per season from careless stations ranged in length from 20-25 cm of the three fish farms in the province of DhiQar inches these farms manner drill and fill the docks using pumps diesel, the area of each farm almost one acre and derive their water from Garraf channel, a branch of the Tigris River.

The study stations:

1. **The station (Fish Farm) first:** Located near the Gharraf River after leaving the hand victory north of DhiQar surrounding this Farm Agricultural Land and population centers on the opposite bank of the farm on the river Garraf
2. **The station (Fish Farm) Second:** Just 15 km away from the first is located near the Gharraf River after

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leaving the contraption area in the district of Shatra surrounded by agricultural lands and small villages the station

3. **The station (Fish Farm) third:** Just 15 km from the second substation and is considered one reference where is located near the River Garraf before entering to hand Garraf and surrounded Port Lands uncultivated and localities do not exist around. Separated gill and muscles Fish separately and cut into small pieces and dried oven electric degree 120 ◦ and milled and Nkhalt and digested by acid intensive depending on how [6] and measured trace elements by spectrum atomic absorption flame device and expressed it units (mcg/g dry weight).

Results

The results show as in figures below:

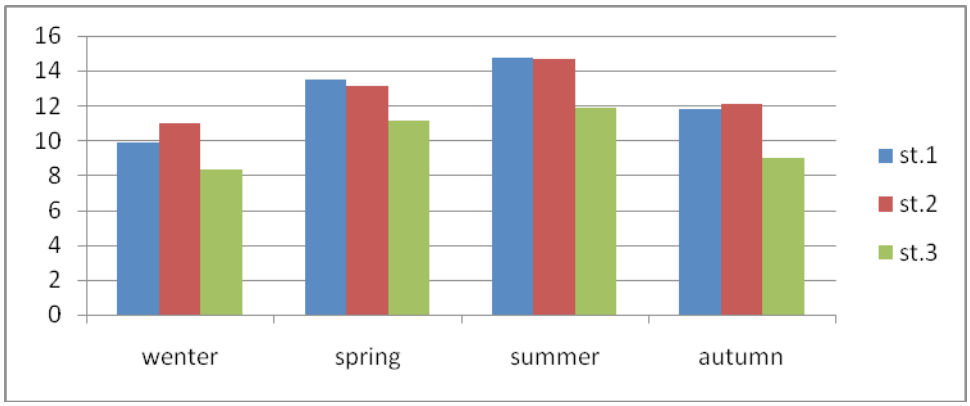

Figure 1: Concentration for cadmium (mg/l) in fish gill of common carp fish in the study stations

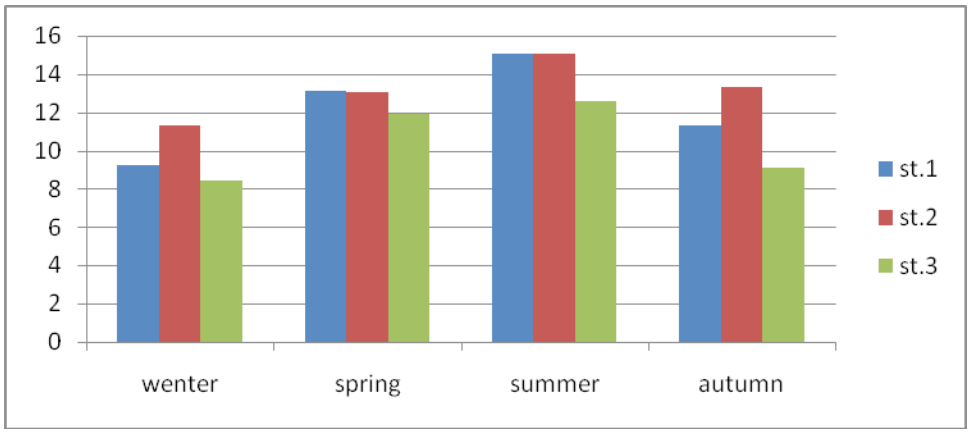

Figure 2: Concentration for lead in fish gill of common carp fish in the study stations

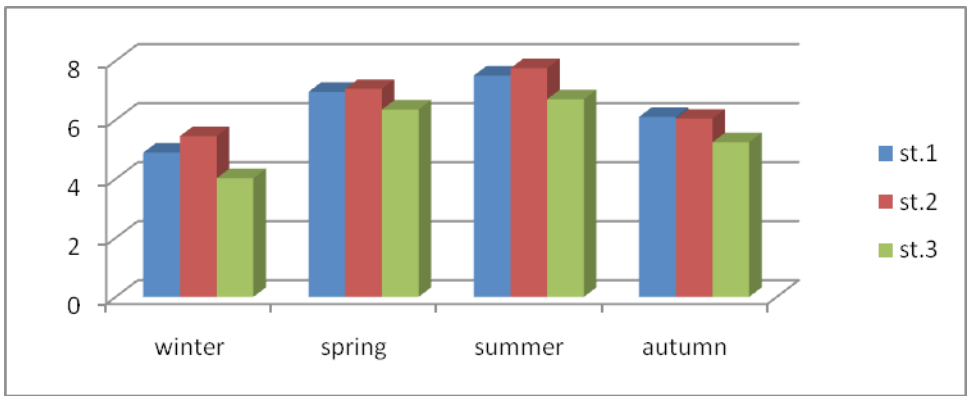

Figure 3: Concentration for cadmium in the muscles of the common carp fish in the study stations

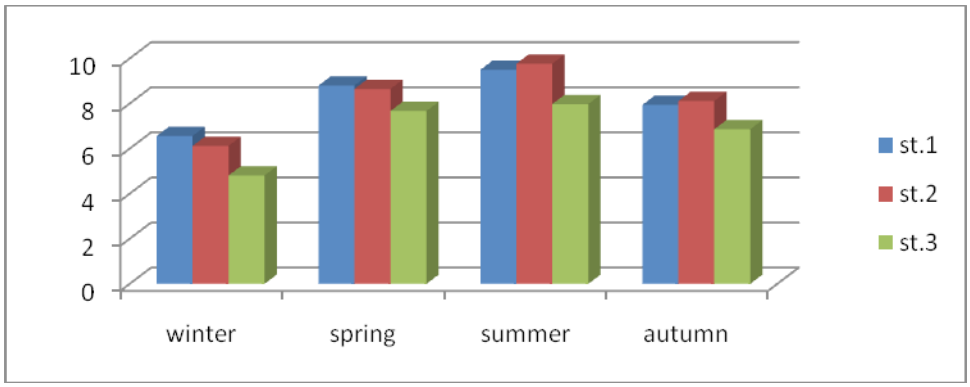

Figure 4: Concentration lead in the muscles of common carp fish in the study stations.

Discussion

The study of fish muscle content of trace elements is important and that which is to know the amount up to which the human body as a Gmaoua key and cheap[3] as the concentration of the components found in the body of water does not reflect the degree of contamination without necessarily accumulation in the neighborhoods[4] the study results showed high cadmium and lead concentration in the gill and muscles Blowfish

Careless for the first, the second station Compared with the third leg the fact that the station (1.2) are similar in pollution sources trace elements waste human, fertilizers and pesticides[8]. The concentration of cadmium and lead is the highest in the gills of it in the muscles because of that first considered the site is important to enter the heavy elements and cause the effects of destructive gill[5], and have their accumulation in the muscles less because of the lack of correlation trace elements muscle protein[6]. The increase in the concenteration careless in the summer due to evaporation, leaving the salts of heavy metals to increase its concentration in the water, which shows its effect by increasing its accumulation in fish as a result of increasing the amount of heavy-element taken from the water[7].

Conclusions

1. Eating gills is safer because it is more exposed and in contact with trace elements.
2. The cause of the accumulation in the tissues of the fish careless that elements in the water freely easier for fish taken from her.
3. The severity of the tendency of these elements to the accumulation in the members fish shows easily lured and its association with elements ubiquitous organ and this form does not exist in a natural state (in the absence of pollution) indicating that they entered the outsourcing of polluting downtown.

Conflict of Interests: Nil.

Ethical Clearance: Take from stations in DhiQar by approval ethical committee.

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