الآية

(وَقُلِ اعْمَلُواْ فَسَيَرَى اللّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ وَسَتُرَدُّونَ إِلَى عَالِمِ الْغَيْبِ وَالشَّهَادَةِ فَيُنَبِّئُكُم بِمَا كُنتُمْ تَعْمَلُونَ)

صدق الله العظيم

التوبة : الآية 105

Dedication

,To my Mother

,Husband

And my Kids

I dedicate this work with deep love

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With respect and gratitude I thank my supervisor, Dr. Mohamed El MukhtarAbd El Aziz,who had patiently

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:Abstract

Heavy metals are the most important form of pollution of the aquatic environment because they are toxic and bioaccumulate in the body of aquatic organisms of which fish is the most valuable. Inaddition to protein and vitamins, fish (which forms part of the human diet) is a rich source of minerals which play essential role in human health .Polluted fish is then a dangerous source of toxic metals to humans.

The present work examined the concentration levels of Pb, Cd, Ni, Cu, Mn and Fe in water and inOreocromisniloticus fish of Jebel Aulia dam Lake. A correlation between the concentration of each of the metal contaminants in fish and its body size (weight and length) was also investigated

Samples of water and fish (which were decomposed by dry ashing) were collected from Jebel Aulia Dam Lake, and their metals content (Pb, Cd, Ni, Mn, Cu and Fe) were determined by inductively coupled plasma-emission spectroscopy (ICP-ES).

The concentration levels of metals in fish flesh were generally much greater than those present in water. The highest concentration of metal in water was found for Fe (1.4179 mg dm^{-3}); in fish, the highest, for Pb(8.9448 mg kg^{-1}), and the lowest, for Cd (0.8434 mg kg^{-1}). Concentrations of heavy metals in water followed the order: Fe>Pb>Mn> Ni> Cd>Cu; in fish they followed the order: Pb> Fe> Ni>Cu>Mn>Cd. Fish size was proportional to concentration of Pb and Ni contaminants; in contrast, it was inversely

proportional to that of Cd contaminant; however, it had no correlation with that of Fe, Mn and Cu contaminants.

Key words : Heavy metals, fish body size, Oreochromisniloticus

ملخص الدراسة

المعادن الثقيلة هي من أكثر الملوثات في البيئة البحرية لأنها تتراكم في أجسام الكائنات الحية المائية وبما ما فيها الأسماك التي تشهل أكبر أهمية لاحتوائها على البروتين والفيتامينات وهي غنية بالمعادن التي تلعب دوراً هاماً في صحة الانسان.

تم تعين تراكيز العناصر الثقيلة التالية (Pb, Cd, Ni, Mn, Cu and Fe**)في لحوم سمك البلطي ومياه النيل الابيض في خزان جبل اولياء باستخدام جهاز مطياف البث المزدوج للبلازما (ICP-AES) تبين من الدراسة ان تراكيز العناصر الرصاص,الكادميوم,النيكل, المنجنيز و الحديد قد بلغت**

(0.0165, 0.0002, 0.0014, 0.0137 and 1.479)لهذه العناصر في مياه النيل الابيض في خزان جبل اولياء.اما تراكيز العناصر في لحوم سمك البلطي فقد بلغت

((and 6.8500 1.8835, 2.0480, 2.1606, 0.8434, 8.9448)

وجدت أن تراكيزهذه العناصر أعلى من تراكيزها من مياه النيل الأبيض تبين أن الحديد ($1.4179mg\ dm^{-3}$) هو الأعلى تركيزفي الماء والأعلى تركيز في الأسماك الرصاص ($8.9448\ mg\ kg^{-1}$)وقد تبين من الدراسه ان فقط (Pb, Ni, Cd) لديهم علاقه ارتباطية ذات دلالة احصائية بين تراكيزها فى لحوم سمك البلطي وبين حجمها(الطول , الوزن)اما (Cu, Mn, Fe) ليس لديهم علاقة ارتباطية ذات دلالة احصائية بين تراكيزها في لحوم سمك البلطي وبين احجامها (الطول, الوزن)

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List of Abbrviations

(g)	Gram
(mg)	Milligram
cm	Centimeter
kg	Kilogram
WHO	World Health Organization
JADL	Jebel Aulia Dam Lake
ICP-AES	Inductively Couple Plasma-Atomic Emission

	Spectrometry
EC	European Commission
EPA	Environmental Protection Agency
AES	Atomic Emission Spectroscopy