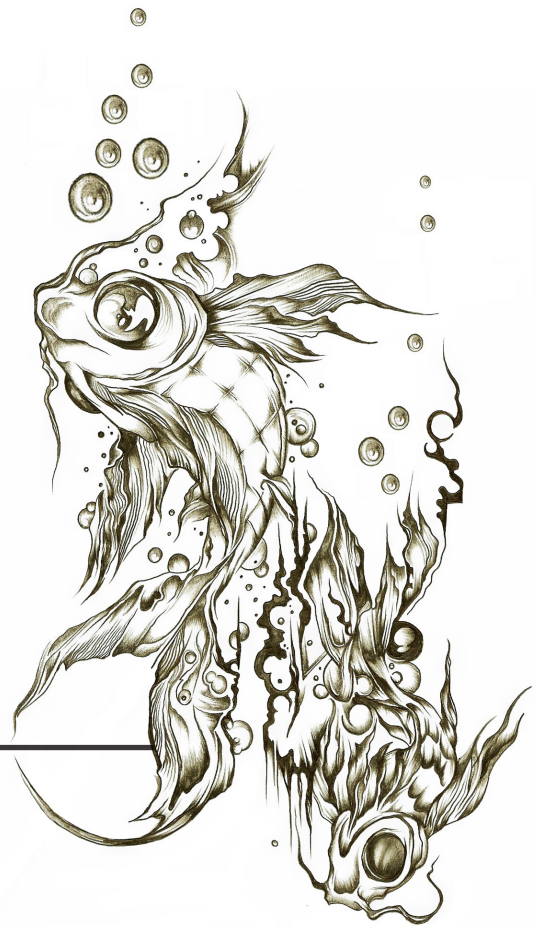
بسم الله الرحمن الرحيم

وَعَلَّمَكَ مَا لَمْ تَكُنْ تَعْلَمُ
وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا

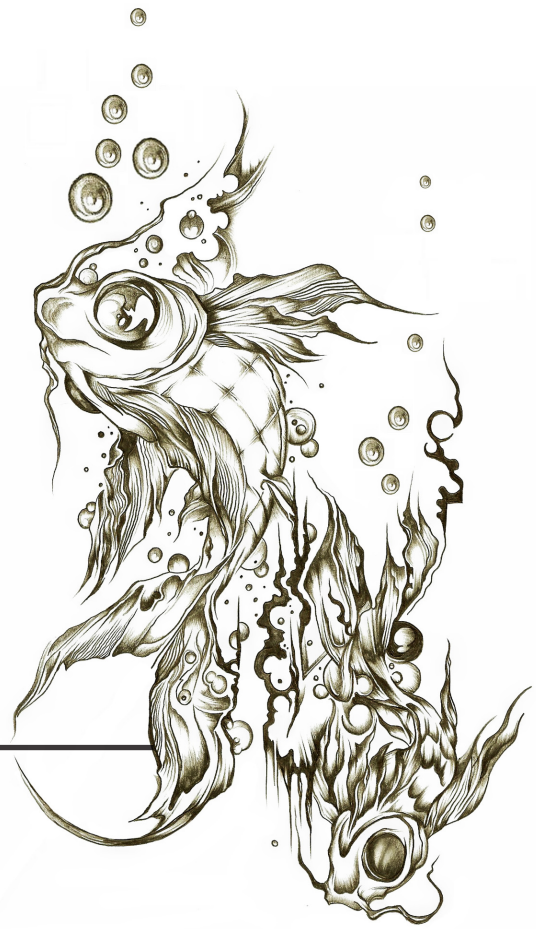
صدق الله العظيم

ABSTRACT



INTRODUCTION

AIM OF THE WORK



REVIEW OF LITERATURES

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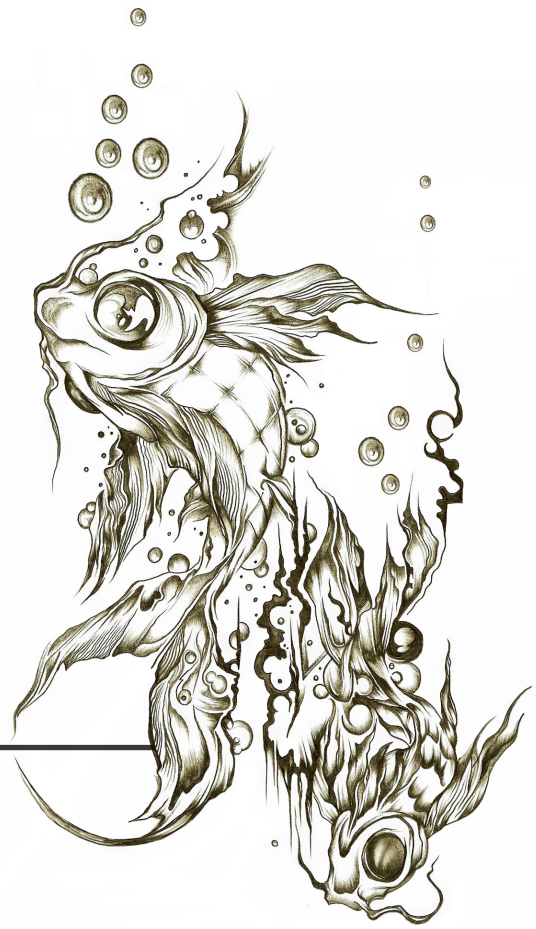
RESULTS



DISCUSSION

SUMMARY & CONCLUSIONS

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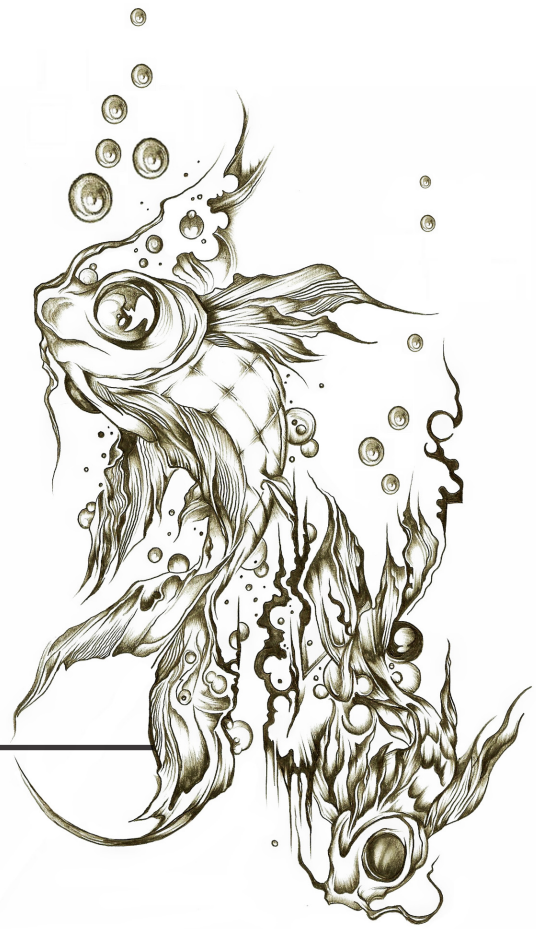
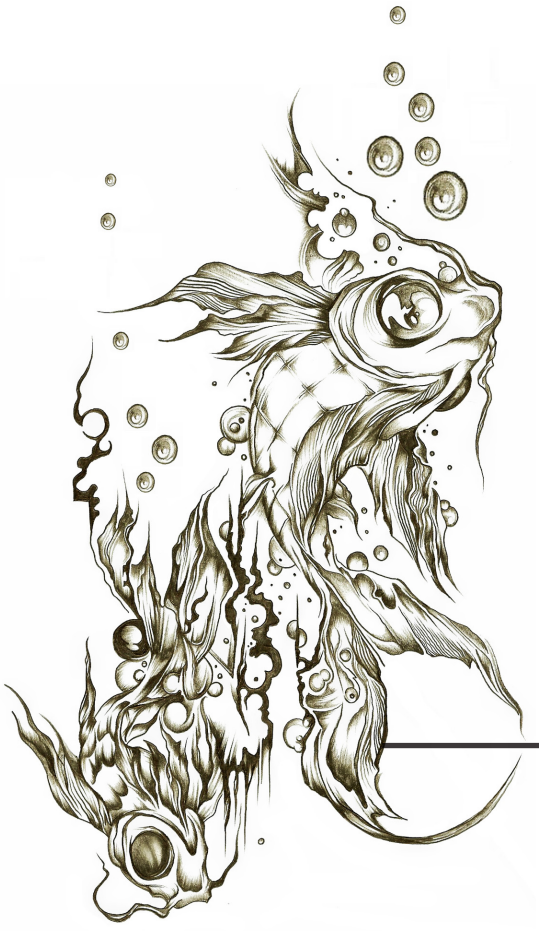
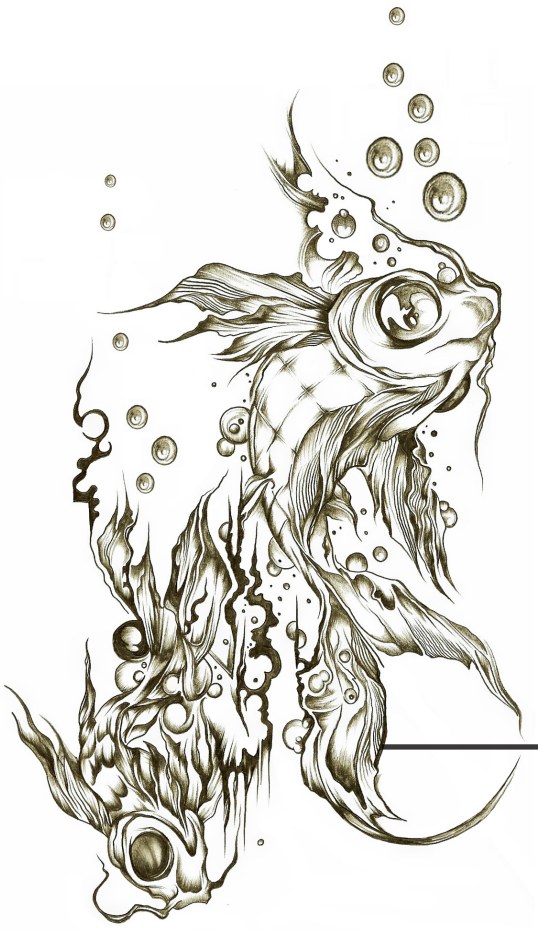
ARABIC SUMMARY



المستخلص



الملخص العربي



ABSTRACT

The study is carried out at seven sites along Rosetta branch of the River Nile. Some physico-chemical parameters (water temperature, electrical conductivity, transparency, pH value, oxygen studies, nutrient salts) and distribution of some heavy metals (iron, zinc copper, cadmium and lead) in water were estimated seasonally from spring 2011 to winter 2012. Fish analysis was represented by studying the heavy metal accumulation in fish flesh and histopathological changes in some organs of *Oreochromis niloticus* and *Clarias gariepinus* fish. The results showed decrease in transparency and dissolved oxygen in addition to increase in biological oxygen demand, chemical oxygen demand, ammonia, nitrate and heavy metals in water and muscles at discharge point of El-Rahawy drain and Kafr El-Zayat. Gill alterations were characterized by necrosis, hyperplasia, separation and hemorrhage in primary and secondary lamellae as well as curling and parasite forms. Vacuolar degeneration, necrosis, hemorrhage and hemolysis between the hepatocytes, hemosidrin and parasite forms were seen in liver. In addition, hemorrhage, hemosidrinosis, degeneration, hemolysis, dilation, parasite forms and necrosis in spleen tissue were observed. The alterations in kidney were characterized by necrosis, hemosidrin, degeneration, hemorrhage and hemolysis in hematopoietic tissue and renal tubules. The muscles and skin showed degeneration of some fibers and layers of the skin in addition to parasite forms and degeneration in the muscle bundles. It was noticed that, the collected samples of both fish from downstream of El-Rahawy and Kafr El-Zayat

areas suffer from severe pathological changes than those collected from El-Kanater El-Khayria. It was concluded that the discharge of different types of wastes, especially heavy metals, deteriorate the water quality in the River Nile and consequently affecting fauna, fish production and human health. It is recommended to treat the different wastes before discharging to the River Nile stream.

Key words: El-Rahawy drain, Kafr El-Zayat, Liver, Spleen, Heavy metals, Degeneration, Necrosis, River Nile.