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METABOLIC IMPACT ON GLYCOGEN CONTENT OF *OREOCHROMIS MOSSAMBICUS* IN LEAD NITRATE MEDIA

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ABSTRACT

The present investigation was carried out on glycogen content of different tissues of fresh water fish *Oreochromis mossambicus* after lead nitrate intoxication. The heavy metal pollutants released into the natural aquatic environment by human activities interact with the living organisms. In present study the amount of glycogen content decreased after exposure to lead nitrate as compared to control set. The observations and results discussed in detail.

KEY WORDS: Glycogen, *Oreochromis mossambicus*, Lead nitrate.

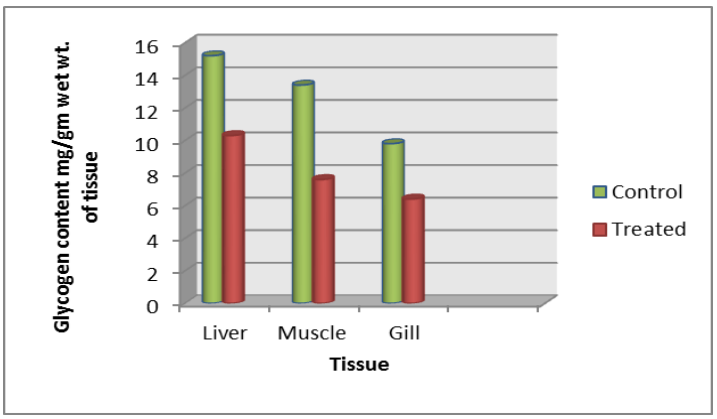
INTRODUCTION

The nutritive and medicinal values of fish have been recognized from immemorial time. The main source of water pollution are pesticides, domestic sewage, industrial effluents, fertilizers etc. which pollute major water resources (Maruthanayagam and sharmila 2004). The higher concentration of heavy metal leads to alteration in physic-chemical and biological properties of water and can cause hazardous effect on aquatic biota (Jagadeesan et al, 2001). The concentration of heavy metals in the tissues of fish enters into human beings through food chain (El-Shehawi et al 2007). The impact of heavy metals directly affects the biochemical constituents of aquatic organisms. Hence it is necessary to understand the significance of these variations in the organic compounds of the tissues. The present study was carried out to investigate the glycogen content in different tissues of fish after exposure to lead nitrate.

MATERIAL AND METHOD

The fish *Orochromis mossambicus* were collected from Godavari River Nanded (M.S.) with the help of local fisherman. The fishes were kept in glass aquarium and fed with slice of tubifex. They were acclimatized in laboratory condition for 10 days. Then these fishes are divided into two groups. The group A for control set and group B for sub lethal concentration of lead nitrate of 10 ppm. The tissue like Liver muscle and gill were selected for experimentation. The estimation of glycogen content was carried out by the method of Anthrone (Seifter et al 1950).

RESULT AND DISCUSSION



OBSERVATION TABLE

Sr. No.	Tissue	Glycogen content mg/gm wet wt. of tissue	
		Control	Treated
1	Liver	15.2 ±0.30	10.3± 0.47
2	Muscle	13.4 ±0.34	07.6 ±0.37
3	Gill	09.8±0.79	06.4±0.22

(Each value is mean of six observations ± SD)

The results of glycogen content in different tissues like liver, muscle and gills are given in the table. There was a remarkable change in the total glycogen content in fish. In control set the amount of glycogen in liver 15.2, while the treated fish showed 10.3 glycogen mg/gm wet wt. of tissue. The muscle of control set showed13.4, where as treated fish showed 7.6 mg/gm wet wt. of tissue. The gill of control set showed 9.8, and treated fish 6.4 glycogen mg/gm wet wt. of tissue. The present investigation showed decline in the glycogen content of fish as compared to control set. Similar results were observed in fresh water fish *Cyprinus carpio* and *Labeo rohita* after exposure to heavy metals (Ranbhare and Bakare 2012). Thangam and Sivakumar (2005) showed that glycogen content decreased in liver, muscle and kidney with increase in heavy metal concentration. Dange and Ajit (1986) showed carbohydrate metabolism changes in Tilapia, *Oreochromis mossambicus* after short term exposure to different types of pollutants. In present study glycogen content was decreased significantly in various tissues like liver, muscles and gills. The decrease in glycogen content may be due to heavy metal toxic stress, similar results were made by Amutha et al (2002). Patil and Malwadkar (2012) also reported decrease in glycogen content in liver, muscle, gill, kidney and ovary under pollutant stress.

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