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Metabolic impact on lipid content of *Oreochromis mossambicus* after lead nitrate intoxication

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ABSTRACT

The heavy metal pollutants released into natural aquatic medium by anthropogenic activities which later interact with aquatic organisms. The contamination of water through heavy metal is potential problem for aquatic organism. The present investigation was the event on estimation of lipid content from different tissues of *Oreochromis mossambicus* after exposed to lead nitrate intoxication. In present study the impact of lead nitrate on *Oreochromis mossambicus* has been studied for 15 days at 96 hours exposure and compared with control set. The observation and results discussed in detail.

Keywords: Lipid, *Oreochromis mossambicus*, Lead Nitrate

INTRODUCTION

Among the different habitats aquatic environment is the major target of pollution. Most of the heavy metals are natural constituents of the aquatic environment. The pollution of water is the greatest and most problematic source due to industrialization. The impact of pollution on aquatic biota and ecosystem, human health is a recent international issue which creates the environmental disturbances. Most of the heavy metals are natural constituents of the aquatic environment, some of them are biologically essential and some metals like lead, cadmium and mercury are hazardous to aquatic biota (Mali, 2002). The main source of water pollution is domestic sewage, pesticides, fertilizers and industrial effluents which pollutes water resources (Maruthanayagam and Sharmila, 2004). The contamination of water through heavy metal is potential problem for aquatic biota. The higher concentration of heavy metal leads to alteration in physico-chemical and biological properties of water and can cause hazardous effect on aquatic biota (Jagadeesan *et al.*, 2001).

The nutritive and medicinal values of fish have been recognized from immortal time. The heavy metal concentration in different tissues of fish enters into human beings through food chain (EL-Shehawi *et al.*, 2007).

The impact of heavy metal directly affects the biochemical constituents of aquatic organisms. Hence it is necessary to understand the significance of these variations in the organic compound of the tissues. The present study was carried out to investigate the lipid content in different tissues of fish after exposure to lead nitrate.

MATERIAL AND METHOD

The fish *Oreochromis 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 ten days. Then these fishes are divided in 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 total ipid content was done by Methanol-Chloroform method by Folch *et al.*, (1957).

RESULT AND DISCUSSION

Lead nitrate is one of the most common heavy metal that affect adversely on freshwater fishes. The results of different tissues of fish are presented in Figure 1.

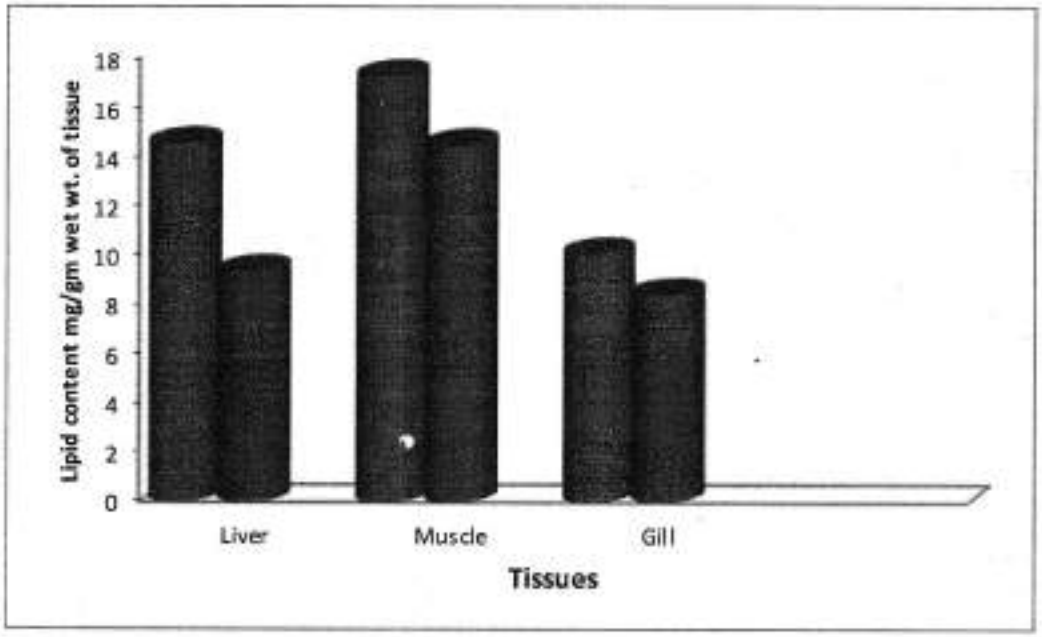

Figure 1: Lipid content in liver, muscle and gill of *Oreochromis mossambicus* after lead nitrate intoxication.

There was a remarkable change in the total lipid content in fish. In control set the amount of lipid in liver 14.50, while the treated fish showed 9.31 lipid mg/gm wet wt. of tissue. The muscle of control set showed 17.22, whereas treated fish showed 14. 44 lipid mg/gm wet wt. of tissue. The gill of control set showed 10.02 and treated fish 8.40 lipid mg/gm wet wt. of tissue. The present investigation showed decline in the lipid content of fish as compared to control set. Similar results were observed in fresh water fingerling *Labeo rohita* (Raja and Puvaneshwari,2017). Leela *et al.*, (2000) showed significance decrease in total lipid content of muscle, liver and gill of *Tilapia mossambica* under the stress of phosalone. The decrease in lipid content in the different tissues suggested that the lipid have been channalised to meet the metabolic demand for extra energy need to overcome the toxic stress. Katti and Sathyanesan (1983) showed that decreased cholesterol and lipid level in brain,testis and ovary of *Clarius battrachus* exposed to 5ppm of lead nitrate for 150 days. In the present investigation there was decrease in the lipid content of all the tissues of fresh water fish after lead nitrate intoxication, similar results were obtained in *cirrhinus mrigala* after acute and chronic exposure of heavy metals (Bhilave *et al.*, 2008).

Conflicts of Interest: The author declares no conflict of interest

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