

RESEARCH NOTE

Protein content of *oreochromis mossambicus* after lead nitrate intoxication

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ABSTRACT : The present investigation was the event on estimation of protein content from different tissues of *Oreochromis mossambicus* after exposure to lead nitrate intoxication. The heavy metal pollutants released into the natural aquatic environment by human activities interact with the living organism and interfere the metabolic and excretory processes. Presently in liver, the protein content was higher than that of gills and muscle. But after exposure of fishes for 15 days showed significant decrease in protein content in liver, muscle and gills.

Key words : Tissue protein, *Oreochromis mossambicus*, Lead nitrate

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Indian fishery fulfills the need of food of certain population to some extent. The nutritive and medicinal value of fish have been recognized from immemorial time. Fish meal is still a preferred protein source for fish diets corresponding to its high protein quality (NRC, 1993). Freshwater fish flesh provides an excellent source of protein for human diet. This protein is of high digestibility, biological and growth promoting value for human consumption. Proteins are important biomolecules involved in a wide spectrum of cellular function. They interplay between enzymatic and non-enzymatic proteins to govern the metabolic harmony (Lehinger, 1984). Fish protein comprises of essential aminoacids in desirable strength namely lysine (high concentration), arginine, histidine, leucine, isoleucine, valine, theonine, methionine, phenylalanine and tryptophan, Fish flesh also offers minerals, iodine, vitamins, and fats essential for human body. Fish meal is the preferred protein source in fish diets due to its high protein quantity [excellent aminoacid profile] and palatability (Lovell, 1989). Hence, it is necessary to understand the significance of these variations in the organic compounds of the tissues. Carbohydrates and non-protein compounds are also important constituents but are present in small amounts and are usually ignored during analysis (Cui and Wootton, 1988). Hence, present study was undertaken to account for the variations in the protein content of selected freshwater fishes.

The fish, *Oreochromis mossambicus* was collected in January 2011 from Godavari river, Nanded, Maharashtra. The fishes were kept in glass aquarium and fed with slice of tubifex. They were acclimatized in laboratory conditions and subjected to sub-lethal concentration of lead nitrate of 10 ppm for 15 days. The tissues like muscle, gill and liver were removed from slant and bones and weighed accurately and sacrificed on 1, 4, 8, 12, 15 day and average value considered for per cent level of protein. These tissues were analysed for determination of proteins (Lowry *et al.*, 1951).

The results of protein content in different tissues like liver, muscle and gill are given in Table 1. There was a remarkable changes in the total protein content in fish. The optimal protein requirements may vary with fish species, size, water temperature and quality, variation in diet formulation as well as culture system (Ai *et al.*, 2004). The protein content ranged between 39 to 60 per cent in control and 27 to 42 per cent in treated set mg/g wet/wt. of tissue. Both the endogenous and exogenous factors operate simultaneously to influence the body composition of fish (Haard, 1992).

In control set, the amount of protein in liver was 60 ± 0.5 , while the treated fish showed 42 ± 0.9 protein mg/g wet weight of tissue. The gill and muscle of control set showed 51.4 ± 0.6 and 39.4 ± 0.3 proteins mg/g wet weight of tissues, respectively, where as the treated tissues showed 38.8 ± 0.5 and 27.4 ± 0.4 proteins mg/g wet