

INTERNATIONAL JOURNAL OF UNIVERSAL PHARMACY AND BIO SCIENCES

IMPACT FACTOR 1.89***

ICV 5.13***

Bio Sciences

RESEARCH ARTICLE!!!

ZINC AND CALCIUM SUPPLEMENTATION TO COMBAT CADMIUM INDUCED BIOACCUMULATION IN SELECTED TISSUES OF FRESH WATER TELEOST, *OREOCHROMIS MOSSAMBICUS* (TILAPIA)

Obaiah Jamakala and A. Usha Rani*

Division of Environmental Biology, Department of Zoology,
Sri Venkateswara University, Tirupati – 517502 A.P. India.

KEYWORDS:

Cadmium,
Bioaccumulation,
Trace elements, Fish.

For Correspondence:

Prof. A. Usha Rani ***Address:** Division of
Environmental Biology,
Department of Zoology,
Sri Venkateswara
University, Tirupati
517502, Andhra Pradesh,
India.Email:
aur_svu9@yahoo.co.in

ABSTRACT

The present study is carried out to know the therapeutic role of zinc (Zn) and calcium (Ca) supplementation to combat cadmium (Cd) induced bioaccumulation in selected tissues of fresh water teleost, *Oreochromis mossambicus* (Tilapia) exposed to Cd. Fish were exposed to cadmium chloride (CdCl₂) at a sub lethal concentration of 1/10th LC₅₀/48 hrs i.e. 5ppm for 7, 15 and 30 days (d) time periods. After 15d Cd exposure, fish were supplemented with trace elements like Zn (1ppm) and Ca (1ppm) individually and also in combination and observed for again 7, 15 and 30d long sojourn. After the specified time periods, the test tissues like liver, kidney, gill, muscle and brain were isolated and tested for bioaccumulation levels of Cd by Atomic Absorption Spectrophotometer (AAS – Shimadzu AA6300). There was a significant elevation in Cd concentrations in all the test tissues with increased period of exposure to the heavy metal. Maximum Cd accumulation was found in 30d Cd exposed fish kidney (22.353±0.41 µg / gm wet wt. of the tissue). However there was significant reduction in Cd bioaccumulation with Zn and Ca supplements both individually and in combination suggesting their vital role in heavy metal detoxification. Maximum decrease in Cd accumulation was found in 30d fish kidney (6.996 ± 0.284 µg / gm wet wt. of the tissue) supplemented with only Ca. Our findings clearly envisages that Ca alone supplementation is more effective in reducing the Cd body burden when compared to other modes of supplementation in fresh water fish, *Oreochromis mossambicus*.