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Do not include prefixes any like Dr., Mr., Mrs., Prof. in front of author names.

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MANUSCRIPT STYLE

ABSTRACT

(Font: Times New Roman, Size-12)

KEYWORDS

(Font; Times New Roman, Size – 12)

INTRODUCTION

(Font; Times New Roman, Size-12, Capital, Bold, Left align)

(Font; Times New Roman, Size-12, Style: Regular, Single space, before – after space: 6pts, Align: Justify) References should be mentioned in superscript format

SUB HEADING

Sub Heading should be each word capitalized

FIGURES

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TABLES

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CONCLUSION

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REFERENCES

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PROTECTIVE ACTION OF SPIRULINA ON BLOOD CHEMISTRY AND LIPID PROFILE OF STINGING CATFISH: HETEROPNEUSTES FOSSILIS, INDUCED BY MERCURIC CHLORIDE

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ABSTRACT: The effect of mercuric chloride on blood, glycogen, and lipid contents of ovaries of carp, *Heteropneustes fossilis* has been studied. The fish were exposed to various concentrations of Mercuric chloride (0.01, 0.1, 0.5 mg/ml) respectively for 30 days. For recovery of health, the spirulina was given in feed at 5mg/ml dose for 30 days. The toxic group treated with mercury chloride showed a decrease in glycogen and lipid content in ovaries. But after feeding spirulina, the level of haematological and biochemical contents maintained and reached almost normal ranges. Therefore, from the study, it can be concluded that the significant alterations are due to the toxic effects of heavy metals at biochemical and hematological levels in ovaries.

KEYWORDS: *Heteropneustes fossilis*, Mercuric chloride, Biochemical and Hematological.

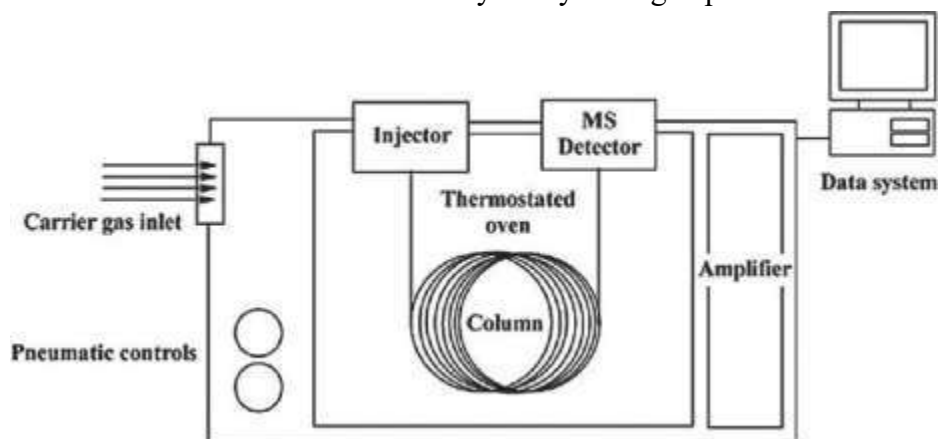
INTRODUCTION:

Toxicity is the primary subject of research in today scenario. The laboratories all over the globe played a leading role in developing technologies for rapid toxicity testing and analysis. For evaluation of adverse effects of toxic chemicals and pesticides in fishes specific testing methods and the proper system is required. Literature was available regarding the noxious status of the environment, but no particular role and mechanism studied for safety prospects. Therefore, in the present study we designed the study of biochemical, toxicological, and haematological parameters in fish to know the organ-specific damage at various concentrations of mercury chloride. In addition to this treatment phase of mercury in fish, the recovery of all changes was also studied using spirulina as a food additive. Changes in biochemical markers in organisms are mostly due to exposure of chemicals and it has direct correlation with the changes in growth (Graney and Giesy, 1986) reproduction (Jarvenian et al., 1983), neurotransmission (MacLee and Knowles, 1988), energy metabolism (Bhaktavatsalam, 1988) and immune system (Gopal et al., 1992). Tort and Torres (1988) observed that changes in blood parameters are often quick in response to environmental or

physiological alteration; furthermore, they are easily measurable and provide an integrated measure of the physiological status of the organism. Blood chemistry offers the potential for several biomarkers of toxicant stress, and it may be possible, in some cases to use biochemistry to extrapolate back from the fish to some features of habitat quality (Lockhart and Metner, 1984). Among various kinds of pollution, heavy metal pollution seems to be the most persistent one (Margarat et al., 2001). It is one of the challenging problems to the environmental biologists, as varieties of heavy metals have potentially harmful effects on the biological organisms (Jagadeesan and Kavitha, 2006). It is easily mixed with surface water and groundwater, and ultimately, they affect the aquatic environment.

MATERIALS AND METHODS:

Fish *Heteropneustes fossilis* The live fish *Heteropneustes fossilis* will be collected from the local fisherman of Indore and acclimated for 7 days in Pinnacle Biomedical Research Institute, Bhopal and kept large in glass aquaria (40 x 30 x 35 cm). Live fishes (irrespective of sex and almost medium size group) were brought to the laboratory. Fishes would acclimatize into dechlorinated water for 30 days and treated with 0.01% of potassium permagnate (KMnO_4) solution to avoid dermal infection. They were fed dried pellet feed every day, and water was renewed alternate days, leaving no fecal matter, unconsumed food or dead fish in aquaria. Water in all aquaria replaced by freshwater at every 48hrs. The fishes were examined for any bruise, lesions, or external infections. *Heteropneustes fossilis* was selected for the recent investigation, as it is available in abundance and could be handled very easily during experimentations.



CONCLUSION:

The current investigation, therefore, concluded that the depletion in the metabolic rate indicates the fact that the whole metabolic pool of the fish gets altered under the toxic stress. Further, the change in the biochemical profile indicates their rapid utilization to provide excess energy to the cellular biochemical process to cope with the stressful condition. The serum cholesterol level was significantly decreased in recovery group (treated with mercuric chloride and spirulina) as compared to treatment toxicant group (treated with mercuric chloride) on 10th, 20th and 30th day of study protocol in all the three targeted organs (liver, testis, and ovary). There is a significant improvement observed in spirulina treated group when compared to normal. Thus, significant changes observed after mercury intoxication on blood profile and metabolic activity of ovaries of *Heteropneustes fossilis*.



ACKNOWLEDGMENT:

A brief acknowledgement section may be given after the conclusion section just before the references. The acknowledgments of people who provided assistance in manuscript preparation, funding for research, etc. should be listed in this section.

REFERENCES:

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Saha, M., Adams, M. L., Nelson, S. C. (2009). Review of digit fusion in the mouse embryo. *Journal of Embryology and Experimental Morphology*, 49(3), (In press).

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