*The Asian Journal of Animal Science* (December, 2010), Vol. 5 Issue 2 : 202-204 | RESEARCH ARTICLE

# Studies on the protein content of blood of *Channa punctatus* (Bloch) exposed to Furadan

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## ABSTRACT

Blood directly or indirectly takes part in almost all the activites of the vertebrates and hence fish can not be an exception to it. The blood can be regarded as a good indicator of stress condition and biocides have been found to disturb the protein contents in blood exposed to sublethal and lethal concentration of Furadan, thus bringing a change *i.e.,*a decrease in the protein content and hence also brings a change in the physiology of fish, *Chana punctatus* (Bloch). In this study more blood protein level was found in females than males (Normal) and a significant decrease of protein level was found in the furadan exposed fishes (at lethal and sublethal conc$^{n}$ of furadan).

**Key words :** *Channa punctatus*, Furadan, Protein content, Exposure period

Studies have been made on the hematological and biochemical changes in some fishes exposed to different organochlorine, organophosphate, carbamates and other pesticides. Obviously their entrance in the natural water leads to several ecological and biological imbalances, which is yet to be analyzed and evaluated. They bring detrimental impacts on the aquatic organisms including fish, causing abrupt changes in their metabolic activities at biochemical levels. According to toxic effects of pollutants may result from their binding with biologically active constituents of the body such as proteins, amino acids, enzymes, lipids etc.

## MATERIALS AND METHODS

For carrying out this experiment, 100 live specimens of *C. punctatus* of similar body wt (35-50g) were collected from the Sadha Market of Chapra town of Bihar. All the specimens were transferred to the large aquaria and were acclimatized to aquarium condition. They were provided goat liver, earthworms at regular intervals as feed.

The fishes were placed in 6.0; 3.0 and 0.75mg Furadan concentrations along with a set of control fishes. At selected hours of exposures *i.e.,* 10, 20, 30, 40, 50 and 60 days in different selected concentrations, five sets of the fish of each sex were taken out from each concentration and after blotting the trunk with the filter paper, fresh blood samples were collected separately (for males and females) from the caudal artery by severing the tail and /or by direct puncture of heart. With the use of anticoagulant, the protein content of blood (serum) was calculated by Biuret Method.

**Reagents used:**

Biuret reagent (freshly prepared): by mixing 5.0 ml of 25 % Aq. NaoH solution with 1.0 ml of 2% of $CuSO_4$ solution (aquous). It is a full strength reagent. To make it half strength, equal volume of distilled water was added to it.

## RESULTS AND DISCUSSION

The total protein content in the serum (blood) of normal male *C.punctatus* has been recorded to be 2.52±0.12 to 3.04±0.12 g/dl and from 3.17±0.10 to 3.32±0.10g/dl during February to April and June to August, respectively, whereas in female fish, it varied between 2.75±0.14 to 3.08±0.12 g/dl and from 3.30±0.10 to 3.67±0.11g/dl during February to April and June to August, respectively. It indicates that the females have comparatively more blood protein content than the males and also comparatively more during mature/spawning periods than the early maturing/mature phases.

However, a gradual decrease in the total blood protein content in the fish exposed to both lethal and sublethal concentrations has been observed in male and female fishes depended on the concentration and exposure periods.

In the male fish exposed to 6.0 mg/l Furadan concentration, the total protein content in the blood showed a significant decrease ($P< 0.05$) at 30$^{th}$ day of exposure

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