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RESEARCH ARTICLE

Alterations in blood glucose level in freshwater male crab Barytelphusa guerini on exposure to lead nitrate toxicity from Godavari river, Nanded

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ABSTRACT : Heavy metals due to their potential toxicity, produce biochemical changes in the organs of animals. The present study was conducted to evaluate the effectiveness of lead nitrate on the freshwater male crab, Barytelphusa guerini. Remarkable decrease in blood glucose level was observed in freshwater male crab, Barytelphusa guerini on exposure to lead nitrate as compared to control set at 24hr, 48hr, 72hr and 96hrs.

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Key words : Heavy metal, Lead nitrate, Blood glucose, Barytelphusa guerini

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INTRODUCTION

Lead, one of the highly toxic heavy metals, is being found in increasingly high amounts in living matter, in both marine and terrestrial ecosystems, largely due to the continuous and increasing pollution of the environment by industrialized regions all over the world. It is included in the grey list of International Conventions (Taylor et al., 1985). The environmental contamination is high due to the wide use of lead in dyes, paint, electrical equipments and PVC plastics (Hodson et al., 1984). Our coastal water bodies are highly polluted due to industrial and urban wastes (Shanthi and Gajendran, 2009). Heavy metal i.e. lead is now normal constituents of marine and estuarine environments due to pollution. When additional quantities are introduced from industrial effluents, they enter into the bio-geochemical cycle of organisms. All heavy metals become toxic at some concentration (Bryan, 1971). They are neurotoxic and affect the metabolism in aquatic animals (Nagabhushnam et al., 1972; McKee and Knowels, 1986). The concentration of heavy metal in sea water and in fresh water has been observed. Lead has the tendency to accumulate and undergo food chain magnification (Vinikour et al., 1980).

The aim of the present study is the effect of toxicant *i.e.*lead nitrate on the blood glucose level of freshwater male crab, Barytelphusa guerini from Godavari River, Nanded.

RESEARCH METHODS

The freshwater male crabs, Barytelphusa guerini, used in the present investigation were collected from the paddy fields and were brought to the laboratory. The animals were acclimated in the laboratory condition, for six days and used for experimentation. The healthy male crabs of same size were selected for experimentation to avoid the effect of sex and size (Ambore, 1976). The animals were fed with small pieces of goat muscles to avoid the effect of starvation. The feeding was stopped one day prior to experiment. The physio-chemical parameters of the water used for the maintenance of crabs were analyzed (Table A) as per the methods given in APHA and AWWA (1985). The animals were divided into two sets on which one served as control and other served as experimental. The LC_{50} value calculated was found to be 20 ppm. The crab were exposed to acute exposure of lead nitrate for 24 hr, 48 hr, 72 hr and 96 hr. The blood of crab obtained by injecting the animal. First few drops were discarded and 2ml of blood was taken to estimate the blood glucose level in crab. The blood glucose was determined by the method of Nelson and Somogyi (1944).

RESEARCH FINDINGS AND ANALYSIS

The fresh water male crab, Barytelphusa guerini