

RESEARCH ARTICLE

Impact of heavy metals cadmium sulphate and mercuric sulphate on protein content in estuarine crab *Scylla serrata*

P.P. SAWANT, A.R. JAGTAP AND R.P. MALI

Author for Correspondence -

R.P. MALI

Department of Zoology (P.G.),

Yeshwant Mahavidyalaya,

NANDED (M.S.) INDIA

Email : ashu_anamica@

rediffmail.com

See end of the article for Coopted

authors'

ABSTRACT..... The estuarine crab *Scylla serrata* were exposed to the sub-lethal concentration of cadmium sulphate and mercuric sulphate for the present investigation up to 24, 48, 72, 96, 120 hrs (17.2 mg/L, 6 mg/L), respectively. The protein content was estimated in the different tissues of estuarine crab *Scylla serrata* such as hepatopancreas, muscle, chelate leg, gill and heart. Both the heavy metals showed decreased rate of protein.

KEY WORDS..... Protein content, *Scylla serrata*, Cadmium sulphate, Mercuric sulphate

HOW TO CITE THIS ARTICLE - Sawant, P.P., Jagtap. A.R. and Mali, R.P. (2012). Impact of heavy metals cadmium sulphate and mercuric sulphate on protein content in estuarine crab *Scylla serrata*. *Asian J. Animal Sci.*, 7(2) : 159-161.

ARTICLE CHRONICLE - Received : 01.11.2012; Revised : 14.11.2012; Accepted : 30.11.2012

INTRODUCTION.....

Proteins are “building blocks of life” found everywhere in an organism (Albert Lehninger). Proteins, which are of vital importance to the survival of living things, are produced without any defects organization in the cell, whose complexity and regularity cannot be compared with any other production system. They constitute a large part of the structure of cells and are present in all tissues. They are composed from chain of amino acids and are vital components of every cell in the living organism which play an important role in physiological functions like structural components of cell membranes enzymes, proteins in blood (plasma proteins and hemoglobin), hormones, nucleoproteins and antibodies (Albert Lehninger *et al.*). In stress condition the biochemical changes occurs, to overcome this alter situation, extra energy is needed. Energy requirement is fulfilled from stored depots in the form of protein, glycogen and fat. The biochemical composition change according to situation like environmental factors, starvation, toxicants etc. The crustaceans resist against such unwanted condition by their own way and try to minimize the effect of this altered situation by removing the toxicant. The level of carbohydrate, protein and fat gives proper idea of the stress. Therefore the assessment of protein can be considered as a

diagnostic tool to determine physical phases of organism.

RESEARCH METHODS.....

The crab *Scylla serrata* used in the present experiment were collected from Shiroda in single stock. They were acclimated to the laboratory conditions for a week prior the bioassay tests during which they were maintained in large aquaria containing filtered sea water. The animals were exposed to sub-lethal concentrations of cadmium sulphate and mercuric sulphate for 24, 48, 72, 96, 120 hrs. (17.2 mg/L, 6 mg/L), respectively. The protein contents were estimated in the various tissues of estuarine crab *Scylla serrata i.e.* hepatopancreas, muscle, chelate leg, gill and heart was determined by the method of Lowry *et al.* (1956). The obtained data were statistically analyzed and plotted in the Tables given below.

RESEARCH FINDINGS AND ANALYSIS.....

Protein being an importance constituent of animal tissues, has a main role in cell metabolism. All enzymes and hormones are made up of protein and involved in the metabolic activities. The total protein content in the hepatopancreas, muscle, chelate leg, gill and heart were found to decrease in