RESEARCH PAPER

Asian Journal of Bio Science Vol. 6 Issue 2 (Oct., 2011) : 246-247

Study of carbohydrate metabolism in selected tissues of fresh water bivalves, *(Lamellidens marginalis)* under copper sulphate toxicity

S.K. PADEWAR, A.B. HARKAL, **A. R. JAGTAP AND** L. M. MUDKHEDE
Department of Zoology, Yeshwant Mahavidyalaya, NANDED (M.S.) INDIA
Email: ashu_anamica@rediffmail.com

(**Received:** May, 2011; **Accepted :** Sep., 2011)

Sub-lethal toxicity of copper sulphate on carbohydrate metabolism was studied in selected tissues of freshwater mussel *(Lamellidens marginalis)* Levels of glycogen decreased up to 96 hours due to toxic effect of copper sulphate.

Key words : Copper Sulphate Toxicity, Carbohydrate Metabolism, Glycogen, *Lamellidens marginalis*

Padewar, S.K., Harkal, A.B., Jagtap, A.R and Mudkhede, L.M. (2011). Study of carbohydrate metabolism in selected tissues of fresh water bivalves, (*Lamellidens marginalis*) under copper sulphate toxicity. *Asian J. Bio. Sci.*, **6** (2) : 246-247.

INTRODUCTION

Toxic influence of metals produces physiological changes in organs of animal. Industrial effluents contributing to aquatic pollution contain a vast array of toxic substances which include heavy metals. Indiscriminate discharges of these wastes alter the quality of water and cause hazards to flora and fauna. Copper is a micronutrient and is present as a metal ion in certain enzymes and plays an important role in the transfer of electrons in electron transport chain. It is a component of haemocyanin, the respiratory pigment of molluses. However, at high concentrations it is toxic to organisms and occupies third place in the order of metal toxicity (Waldichuk, 1974). Reports are available in fishes on the toxicity of copper on oxygen consumption (Sultana and Uma Devi1995). It is also shown to inhibit oxygen consumption in bivalves (Sultana and Lomte, 1998) and carbohydrate levels in snails (Ramalingam and Indra 2002). There is a lot of information available on the effect of copper on carbohydrate metabolism in bivalves. Bivalves circulate large amounts of water through their bodies to obtain oxygen and food by ciliary mode of feeding. They are known to accumulate metal ions from the surrounding environment to a very high level relative to the concentration of water (Nambison *et al.,* 1977). Present work deals with the toxicity of copper on carbohydrate metabolism in selected tissues of a fresh water bivalve (*Lamellidens marginalis).*

RESEARCH METHODOLOGY

The freshwater mussels were obtained from Godavari River, Nanded, Dist. Nanded (M.S.). The animals were maintained in laboratory in small aquariums with aerators and allowed to acclimatize for about 4-5 days. To obtain LC_{50} value, the animals were exposed to different concentrations of copper sulphate for 96 hrs and the value was determined by the method of Finney (1952). The LC_{50} value obtained was 3.99 mg/l and 1.33 mg/l was considered as sub lethal.

The mussels were exposed to sub lethal concentration of copper for 96 hr. After the exposure, the animals were sacrificed and the tissue *viz.*, gill, foot and mantle were isolated and processed for estimation. Tissues in experimental and control set of bivalves were isolated and dried in oven, used for estimation of glycogen. Glycogen content in different tissues was estimated by using Anthrone Method (Seifer.*et.al.,* 1950).

RESULTS AND ANALYSIS

The concentration of glycogen levels in different tissues of fresh water bivalves is presented in the Table 1. The animals were exposed to different periods *i.e.* 24,