

Fluctuation in comparative account of lipids and iodine number in *Barytelphusa guerini* on exposure to zinc and cadmium sulphate toxicity

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ABSTRACT

The fresh water female crab, *Barytelphusa guerini* was selected for experimentation. It was abundantly available in the paddy fields of Nanded district. The animals were collected and brought to the laboratory to acclimatize them with laboratory conditions. Alterations due to the effect of metallic pollutant on the lipid content and iodine number of leg muscle, gill, hepatopancreas, heart and blood of freshwater female crab, *Barytelphusa guerini*, after exposure to sublethal concentration of zinc sulphate and cadmium sulphate for 24, 48, 72 and 96 hours were observed. The values of iodine number content were expressed in terms of iodine number/g dry weight and I₂ number/100 ml of blood and total lipid contents were expressed in terms of mg/lipid content /g wet weight and mg lipid/100 ml of blood.

Key words : Lipids, Iodine, *Barytelphusa guerini*, Zinc sulphate, Cadmium sulphate

Lipids are naturally occurring compounds used as energy reservoir in the form of esters of long chain fatty acids. It plays an important metabolic role and provides energy for almost all processes but they are of almost important in maintaining the physiological and structural integrity of cellular and sub cellular membranes. Ram and Sathyans (1987) have reported reduction in total protein, lipid can elevation in cholesterol and alkaline phosphatase content in liver of *Channa punctatus* exposed to mercurial fungicide. The elevated levels of total lipids, phospholipids and cholesterol in liver and decrease in kidney in *H. fossils* exposed to mercury chronically has been reported. The lipid concentration decreases both in ablated and ablated exposed crab, *B. guerini* after exposure to pesticidal impact (Chandrakala *et al.*, 2008). The iodine value is a measure of degree of unsaturation in an oil. It is constant for a particular oil or fat. Iodine value is a useful parameter in studying oxidative rancidity of oils since higher the unsaturation gratear the possibility of the oils to go rancid. The oils contain both saturated and unsaturated fatty acids. Iodine gets incorporated into the fatty acid chain wherever the double bonds exist. Hence the measure of iodine absorbed by an oil, gives the degree of unsaturation. Iodine value or number is defined as the 'g' of iodine absorbed by

100g of the oil.

MATERIALS AND METHODS

The *Barytelphusa guerini* were collected from their natural habitat and brought to the laboratory. The animals were kept in the glass aquarium and maintained with sufficient amount of water. The crabs were fed with small pieces of goat muscle to enable the animals from overcoming effect of starvation. The crabs were acclimatized to prevailing laboratory conditions for three days. The temperature was about $26 \pm 2^{\circ}C$. Healthy female crabs weighing between 40-50 g were selected for present work to avoid effect of sex and size (Ambore, 1976). After acclimatization the crabs were treated to different sublethal concentrations of zinc sulphate and cadmium sulphate. After the exposure to above mentioned two heavy metal salts for definite periods, the tissues chelate leg muscle, gills, hepatopancreas and heart were dissected out and kept in clean watch glass and (wet) weighed and a sample of blood was taken for the study of biochemical tissue metabolism such as lipid and iodine number. Lipid contents were estimated (Barnes and Blackstock, 1973). Iodine numbers were determined according to Hanus Iodine bromide method by (Winton and Winton, 1947).

RESULTS AND DISCUSSION

The results for total lipids and iodine numbers in *Barytelphusa guerini* after exposure to zinc sulphate and cadmium sulphate were given in (Tables 1, 2 , 3 and 4).

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