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Short Communication

Effect of Arsenic on Protein of a Short Horned Grasshopper, *Oxya velox* (Fabricius, 1787)

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Abstract

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Short horned grasshopper, *Oxya velox* were exposed to various doses of sodium arsenate and exhibit a significant ($p < 0.05$) dose dependent increase in protein of both gut wall and ovary. Study revealed that the amount of protein increased with the increasing doses of arsenic in comparison to control. The increase in the protein level was probably due to check the effect of toxicant and tries to recover from the stress of arsenic at various doses which indicated that arsenic may be considered as an essential trace element for this grasshopper, which was established for the first time in such type of insect who regarded as primary consumer in the terrestrial ecosystem.

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Introduction

Grasshopper is the most abundant among ground-dwelling insects, representing up to 20 to 30 per cent of arthropod biomass (Schmidt, 1986), and could be regarded as the bioindicators of heavy metal pollution as well as heavy metal concentration in the environment (Nath *et al*., 2008). Augustyniak *et al*. (2005) has been studied the joint effects of dimethoate and heavy metals on metabolic responses in *Chorthippus brunneus* from a heavy metals pollution gradient and its adaptation with the seriously polluted environments. Mukherjee *et al.* (2004)has been reported that chronic oral exposure to arsenic develops an oxidative stress on the pancreas causing diabetes mellitus. The ground water used for irrigation in most areas of India and Bangladesh is arsenic (As) contaminated and accumulation of this element in the soil eventually transfer to different trophic levels through food chain (Imamul Haq *et al*., 2006). This investigation was conducted to study the influence of As on the tissue protein of short horned grasshopper, *Oxya velox* as the effect of this heavy metal on protein of acridids was not conducted so far.

Materials and Methods

Adult acridids of interest,*Oxya velox* (Fabricius, 1787) was collected from field near Amtala, Howrah. The field was selected because this area is not considered as arsenic affected in the state of West Bengal, India. Plastic jars of 5 liters capacity containing 3.0 cm thick sand at the bottom were taken as the rearing cage. The open portion of the cages was covered with nylon net in order to maintain the air supply properly. Rearing