



PharmTech

International Journal of PharmTech Research

CODEN (USA): IJPRIF, ISSN: 0974-4304, ISSN(Online): 2455-9563
Vol.9, No.5, pp 177-186, 2016

Alteration of Morphology, Phagocytic Behaviour and Aggregation of Insect Haemocytes Exposed to Contaminated Food with Arsenic and Lead

Srikanta Guria*, Shahina Parveen and Deb Shankha Goswami

Post Graduate Department of Zoology, Barasat Govt. College, Barasat,
Kolkata-700124, West Bengal, India

Abstract : Grasshopper species may provide good systems to evaluate the toxic effects of some environmental contaminants. Arsenic and lead are widespread heavy metals that are released into the environment from different sources. Their accumulation in the soils can become dangerous to all kinds of organisms, including plants, animals and human life, causing many adverse effects. The aim of the present study was to determine the toxic effect of lead and arsenic on the cytomorphology of haemocytes of *Gesonula punctiformis* and to evaluate its potential as a bio monitor for detecting a heavy-metal polluted environment. Microscopic analysis of normal haemocytes showed different stages of phagocytosis like attachment of charcoal particle on cell surface, internalization of charcoal by cell. The haemocytes in treated group were not able to phagocytose the charcoal particles. As and Pb inhibited the degree of haemocyte aggregation. Significant number of treated haemocytes showed trypan blue positive response. Mean mortality index was significantly increased in treated group. Treated cells showed apoptosis or necrosis or paraptosis (vacuolation) like features. Morphological analyses suggest an irretrievable destruction of normal morphology of haemocyte. Sublethal toxicity of arsenic and lead is reported to affect the insect population by reducing its environmental fitness thus increasing its vulnerability to higher degree of disease, parasitama and predation.

Keywords: Haemocytes, Insects, Phagocytosis, Aggregation, Cellular Death, Arsenic (As), Lead (Pb).

Srikanta Guria *et al* /International Journal of PharmTech Research, 2016,9(5),pp 177-186.
