Evaluation of the Biochemical Stress Response to Chlorpyrifos in Tissues of the Edible Crab *Barytelphusa guerini*: Withdrawal of Exposure Improves the Nutritional Value

Madhusudan Reddy Narra[a], Kodimyala Rajender[a], J. Venkateswara Rao[b], and Ghousia Begum[b,*]

[a] Department of Zoology, College of Science, Osmania University, Hyderabad 500 007, A. P., India
[b] Toxicology Unit, Biology Division, Indian Institute of Chemical Technology, Hyderabad 500 007, A. P., India. Fax: +91 (40) 27193227.
E-mail: ghousia@iict.res.in or ghousia786@yahoo.com

* Author for correspondence and reprint requests

Z. Naturforsch. **68 c**, 318–326 (2013); received April 20, 2012/May 28, 2013

The sublethal stress of the organophosphate insecticide chlorpyrifos was investigated in different tissues of the freshwater crab (*Barytelphusa guerini*). Crabs were exposed to 1/3 of LC_{50} concentrations for 7, 14, 21, and 28 days. After 28 days, they were released into fresh water and kept for 18 days for recovery. The study was conducted by estimating total proteins, amino acids, ammonia, urea, and glutamine levels, and protease, transaminases, and phosphatases activities. Total proteins level was decreased whereas amino acids and ammonia were increased. The urea content was decreased in all tissues and glutamine exhibited a mixed response. Protease activities and those of alanine and aspartate aminotransferase, respectively, were elevated. Acid phosphatase activity was reduced in hepatopancreas and brain and induced in gills and muscle. Alkaline phosphatase activity was enhanced in gills and hepatopancreas and reduced in muscle and brain. The crabs recovered from the biochemical stress caused by chlorpyrifos after their release into fresh water.

Key words: Chlorpyrifos, Nutritional Value, Edible Crab