

Effect of *Bacillus thuringiensis israelensis* against *Culex pipiens* (Insect: Culicidae) Effect of Bti on Two Non-Target Species *Eylais hamata* (Acari: Hydrachnidia) and *Physa marmorata* (Gastropoda: Physidae) and Dosage of Their GST Biomarker

Authors : Meriem Mansouri, Fatiha Bendali Saoudi, Nouredine Soltani

Abstract : Biological control presents a means of control for the protection of the environment. *Bacillus thuringiensis israelensis* Berliner 1915 is an insecticide of biological origin because it is a bacterium of the Bacillaceae family. This biocide has a biological importance, because of its specific larvicidal action against Culicidae, blood-sucking insects, responsible for several diseases to humans and animals through the world. As well as, its high specificity for these insects. Also, the freshwater mites, this necessarily parasitic group for aquatic species such as the Physidae, also have an effective biological control against the Culicidae, because of their voracious predation to the larvae of these insects. The present work aims to study the effects of the biocide *Bacillus thuringiensis* var *israelensis*, against non-target adults of water mites *Eylais hamata* Koenike, 1897, as well as its associated host species *Physa marmorata* Fitzinger, 1833. After 12 days of oral treatment of adults with lethal concentration (LC50:0.08µg/ml), determined from essays on 4th instar larvae of *Culex pipiens* (hematophagous insects). No adverse effect has been recorded for adult individuals of *Eylais hamata*, contrary, snail *Physa marmorata* were sensitive for this dose of Bti. In parallel, after treatment at the Bti by LC50, the enzyme stress bio marker glutathione S-transferase, was measured after 24, 48 and 72 hours. The enzymatic activity of GST has increased after 24 and 48 hours following treatment.

Keywords : biological control, *Bacillus thuringiensis* var *israelensis*, culicidae, hydrachnidia, enzymatic activity

Conference Title : ICSBB 2014 : International Conference on Systems Biology and Bioengineering

Conference Location : Istanbul, Türkiye

Conference Dates : November 28-29, 2014