

Enzymatic Induction of Resistant and Susceptible Populations of the Maize Weevil Exposed to the Cypermethrin

Veloso, R.V.S.², Visôto, L.E.¹, Oliveira, M.G.A.¹, Guedes, R.N.C.², Pilon, A.M.¹, Apolinário, M.F.¹, Teixeira, N.C.¹, Dutra, T.R.¹, Costa, N.C.S.¹, Oliveira, J.A.³

¹Departamento de Bioquímica e Biologia Molecular, ²Departamento de Biologia Animal/ Entomologia, ³Departamento de Química, Universidade Federal de Viçosa, Minas Gerais, Brazil

In this study, insects of a population susceptible of the *Sitophilus zeamais* Motschulsky (Coleoptera: Curculionidae), and two resistant populations to insecticides pyrethroid, were exposed to the cipermetrin to evaluation of the enzymatic changes of seven enzymes (lypase, amylase, trehalase, cellulase, cysteine-proteinase, serine protease amydolitic and serine protease esterolytic). The lethal concentration that it causes 10% of mortality of the insects susceptible (1,29 µg/cm²) it was used in the treatment of the three populations for accomplishment of the assay. The resistant populations had larger amylase activity, lypase and trehalase, reinforcing the hypothesis of the involvement of those enzymes with the mitigation of the costs physiologic associates to the resistance to insecticides in those populations. However, the treatment with insecticide reduced the specific activity of most of the studied enzymes. Reduction in the enzymatic activity can be resulted of the interference of the insecticide in the synthesis and neuropeptides liberation associated with regulation of the enzymes activity. Finally, the reduction of the activity of those enzymes might have affected the synthesis and liberation of a group of detoxification enzymes and the additional production of energy to mitigate the physiologic stress provoked by the insecticide.

Keywords: *Sitophilus zeamais*, enzymes, insectides pyrethroid

Financial support: CNPq, FAPEMIG, CAPES