DIPHENYL DISELENIDE $(PhSe)_2$ EFFECTS ON Cypr*inus carpio* EXPOSED TO THE COMMERCIAL FORMULATION COLOSSO®

Kássia Silveira Crivellaro[1]; Cintia Rodrigues[1]; Jaíne Ames[1]; Edivania Gelati de Batista[1], Alice Estivalet Visentini[1]; Jossiele Wesz Leitemperger[1]; Vania Lucia Loro[1].

[1] Federal University of Santa Maria, Santa Maria, RS, Brazil

INTRODUCTION: Pesticides are among the most widely used chemical contaminants in agriculture and livestock farming, reaching aquatic ecosystems and contributing to their contamination. One example is Colosso®, a veterinary product used to control parasites in cattle. **OBJECTIVE:** To investigate whether diphenyl diselenide $(PhSe)_2$, through the diet, can protect carp (*Cyprinus carpio*) against the effects of the commercial formulation Colosso®, which contains cypermethrin (CP) 0.5µg/L and chlorpyrifos (CPF) 0.8 µg/L. **MATERIALS AND METHODS:** Juvenile carp were fed with a diet containing $PhSe_2$ or a control diet, while simultaneously being exposed to Colosso® for 60 days. The animals were divided into four groups: control diet (CT), selenium diet [$(PhSe)_2$], Colosso® plus control diet (COL), and Colosso® plus selenium diet [COL+$(PhSe)_2$]. Analyses of the biochemical parameters of lipid peroxidation (TBARS), carbonyl protein (PB), and activities of the enzymes superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPx) were performed in the liver and gills of carp to evaluate the toxic effects of Colosso® and the potential antioxidant effect of the $(PhSe)_2$ diet. **RESULTS AND CONCLUSION:** In the liver TBARS were reduced in fish fed with the $(PhSe)_2$ and [COL+$(PhSe)_2$] diets. The COL group increased PB levels for liver and gill but the $(PhSe)_2$-supplemented diet decreased PB levels in the same tissues showing the protective role of selenium in diet. The SOD, CAT, and GPx activities decreased for both liver and gill tissues in groups exposed to COL, but on the contrary, increased activities were observed in fish fed with diet containing selenium. The antioxidant enzyme results showed a protective effect in selenium-treated fish exposed to Colosso®. These findings indicate that $(PhSe)_2$ supplementation can prevent oxidative damage caused by Colosso®, enhancing antioxidant defenses in carp. Thus, selenium-based diets could play a protective role against aquatic contaminants such as CPF and CP.

Keywords: Pesticides; Oxidative damage; Fish; Antioxidants.