

Evaluation of Toxicity Diflubenzuron and p-chloroaniline in Biochemical Indicators of Fishes *Oreochromis niloticus*

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Introduction. The use of agricultural products has been the main way to combat parasites in aquaculture, and diflubenzuron (DFB) is the most used compound. DFB can be toxic to non-target species and, when degraded, generates p-chloroaniline (PCA), a potentially carcinogenic and mutagenic metabolite to humans. The purpose of this study was to analyze the acid phosphatase (FAT), alkaline phosphatase (Falc), catalase (CAT) and superoxide dismutase (SOD) activities from liver of tilapia fish (*Oreochromis niloticus*), based on 50% effective concentration (EC50) of DFB and PCA. **Material and Methods.** The EC50 value was obtained by exposing the fishes to different concentrations of DFB and PCA for 96 hours and the number of dead individuals was evaluated. Then the fishes were exposed to the EC50 concentration, and two another concentrations corresponding to 25% and 75% of the EC50 value for 96h. Then, the fish livers were removed and used for preparation of extracts for enzymatic analyzes. **Results and Discussion.** The EC50 for DFB and PCA were >100 mg.L⁻¹ and 24 mg.L⁻¹, respectively. DFB was not toxic to these organisms in acute toxicity test. However, in biochemical tests, 100 mg.L⁻¹ DFB had increased the CAT activity by 25%, decreased the SOD activity by 52% and did not alter the phosphatases activities, compared to control. Twelve, 24 and 48 mg.L⁻¹ PCA increased 0.8, 2.5 and 5 times the FAT activities. These same PCA concentrations provoked increases of 129, 112 and 130% on the Falc activities; 1467%, 943% and 560% on CAT activities and 1782, 1071 524% on SOD activities, when compared to control. **Conclusions.** The enzymes studied were sensitive to the exposure to DFB and PAC and can be used as indicators of water resources pollution by DFB and PCA.

Keywords: diflubenzuron; p-chloroaniline; toxicity; *Oreochromis niloticus*; acid and alkaline phosphatases; catalase; superoxide dismutase.

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