

SUSCEPTIBILITY OF TILAPIA (*Oreochromis niloticus*) FINGERLINGS TO HERBICIDES MIXTURES USED IN SUGARCANE CROPS

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The predominant crop of São Paulo State is sugarcane, comprising between years 2009-2011 the use of approximately five million of hectares and a production of 393 million tons, meaning São Paulo is the country's biggest sugarcane producer. The eventual contamination of water bodies by pesticides is a result of this practice, mainly by herbicides (80%) used in control weeds. In some cases less than 0.1% of the amount applied reaches the target and the impact on non-target organisms is little known, although mutagenic and genotoxic effects in fish exposed to herbicides have already been observed. The aim of this work was to evaluate the effects of the mixture of ametryn, tebuthiuron and a commercial mixture compounded by herbicides diuron and hexazinone, widely used in sugarcane cultivation, to tilapia (*Oreochromis niloticus*), the main specie cultivated and caught in São Paulo State. Six concentrations of the mixture were tested [0 (control), 9, 15, 30, 54, 96 and 174 mg L⁻¹] in duplicate. Fish (Ls = 4.72 ± 0.81 cm Wt = 3.67 ± 1.61 g) (n = 70) were stocked in 10L aquarium with forced aeration, maintaining a density approximately 2 g of fish L⁻¹. The experimental units were kept in a room with controlled photoperiod (16:8 h light: dark) and temperature (26 ± 2 ° C). The endpoints monitored included abnormal behavior and death. Statistical analysis was performed with Stratgraphics version 5.1. The LC_{50-96h} determined to fish exposed to herbicides are: Ametryn LC_{50-96h} 4.41 (3.63 - 5.26) mg L⁻¹; mixture of diuron+hexazinone LC_{50-96h} 18.62 (14.79 – 24.45) mg L⁻¹ and Tebuthiuron LC_{50-96h} 223.04 (199 - 250) mg L⁻¹. When fish were exposed to the mixture of these herbicides the LC_{50-96h} was 11.09 (9.25 – 15.85) mg L⁻¹, showing a very lightly antagonism between the components (Additive Index = -0,129). Fish exposed to concentration over 15 mg L⁻¹ exhibited loss of equilibrium, abdominal enlargement and remained constantly at the top of tanks, after 96 hours of exposition. The endpoints used on this study allow a better understanding of the toxicity and mode of action of this mixture, suggesting that, data of this work are important to scheme long-term studies, which would lead to significant alterations in the organisms that might disrupt the functioning of aquatic ecosystems. Thus, as these chemicals are widely used in the field, an evaluation of risk should be performed based on the monitoring of sublethal parameters in organisms belonging to several trophic levels.

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