

ASSESSMENT OF ECOTOXICITY AND GENOTOXICITY IN A CONTAMINATED STREAM: IMPACTS OF URBAN, INDUSTRIAL, AND AGRICULTURAL ACTIVITIES

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INTRODUCTION: Water resources are extremely important for the health and maintenance of all living beings. Human activities have contributed to changes in water quality, and these changes can lead to several environmental problems. **OBJECTIVES:** The water quality of the Sapucaia stream was evaluated in four locations influenced by anthropogenic factors, analyzing the potential for toxicity, cytotoxicity, and genotoxicity in the test organisms *Allium cepa* and *Eisenia fetida*. Acute and subchronic toxicity in *Daphnia magna* was also evaluated. **MATERIALS AND METHODS:** The collection sites were Site 1: residential area; Site 2: residential area influenced by urban and industrial effluents; Site 3: residential and industrial area, a location that receives all the contribution and influence of the metallurgical and petroleum refining industries of the city; and Site 4: contribution of urban and industrial effluents and rice cultivation area. Seeds of *A. cepa* were used to evaluate the germination index, mitotic index and micronucleus analysis; *E. fetida* to evaluate toxicity and micronucleus analysis; and *D. magna*, with acute and subchronic tests. **RESULTS:** For *A. cepa*, a significant increase was observed in the sites sampled in the Sapucaia stream, except in S1 in the micronucleus analysis. Toxicity below 70% in relation to the negative control was observed in the germination index in *A. cepa* only in S2. In the MI analysis, there was no significant result. For *E. fetida*, there was toxicity at site 2 related to mass loss. In the micronucleus analysis in *E. fetida*, there was no statistical difference in this parameter. And for *D. magna*, there was greater mortality at site 3, but there was no LC50 (mortality in half of the organisms). **CONCLUSION:** The study revealed that the four sampling points along the Sapucaia stream are significantly impacted by anthropogenic activities, ranging from domestic sources to urbanization, industrial presence and agriculture. Toxicity and mutagenicity tests with *A. cepa*, *E. fetida* and *D. magna* demonstrated toxic and genotoxic effects, especially at sites 2, 3 and 4. Continuous monitoring and further study of emerging pollutants are essential to mitigate impacts and restore the balance of affected aquatic ecosystems.

Keywords: Ecotoxicity; Genotoxicity, Micronucleus assay.

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