

PHYSICAL-CHEMICAL MICROBIOLOGICAL AND ECOTOXICOLOGICAL ANALYSES OF GRAVATAÍ RIVER WATER – RS

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INTRODUCTION: The Gravataí River basin covers an area of 2,015 km² and supplies water to the populations of municipalities in the Metropolitan Region. The river is among the most polluted in the country. It is repeatedly highlighted on social media due to the high impact of the population's disposal of personal items, such as cars and furniture. **OBJECTIVES:** Evaluate the water quality of the Gravataí River through microbiological, physical-chemical, and ecotoxicological analyses. **MATERIAL AND METHODS:** In April 2024, water samples were collected from two sections of the Gravatá River: one near the source (S1) and the other in a region close to industries and highways (S2). The vials used for collection were previously sterilized and subsequently transported under refrigeration. The physical-chemical analyses were performed at Feevale University, using a benchtop photometer. The ecotoxicological analyses were conducted in the same laboratory, where an acute toxicity test was performed with the freshwater microcrustacean *Daphnia magna*. The microbiological analyses were performed at CESUCA University Center. Tests were performed to quantify the total number of microorganisms, total coliforms, in addition to culturing the samples on blood and McConkey agar to identify possible pathogens. **RESULTS AND CONCLUSION:** From the physicochemical analyses, the high level of copper in section S1 (149 µg L⁻¹) stands out. The acute toxicity test performed on *Daphnia magna* did not result in toxicity to the microcrustaceans. In the quantification of microorganisms, 110 CFU of total coliforms were observed in S1 and 140 CFU in S2. Regarding the identification of potential pathogens, the analysis is still in progress. However, microorganisms such as *Serratia marcescens*, *Escherichia coli*, *Providencia stuartii*, and *Klebsiella oxytoca* have been identified in S1, and *Escherichia coli* and *Shigella sonnei* have been identified in S2. Once the identification is complete, the antimicrobial susceptibility test (AST) will be performed on these samples, aiming to identify any possible resistance. In addition, the search for possible antibiotics in the water will also be conducted using mass spectrometry. Therefore, although the results are partial, they indicate the presence of microorganisms considered pathogenic in the water, which can harm the entire ecosystem.

Keywords: Ecotoxicology; *Daphnia magna*; environmental microbiology