

Área: ANA

Avaliação da qualidade da água do Córrego Brasília - Foz do Iguaçu/PR.

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Highlights

Water Quality Assessment of Córrego Brasília – Foz do Iguaçu/PR – Evaluation of chemical parameters in an urban stream using UV-Vis and the AQUA app revealed nitrite, ammonia, and orthophosphate peaks indicating human impact, emphasizing the need for conservation.

Resumo/Abstract

Water is vital for all living organisms, playing key ecological and social roles. However, urban rivers and streams are impacted by population growth, unplanned occupation, and the discharge of effluents. Monitoring water quality is essential to understand the effects of human activities and support conservation efforts. The water quality of the Brasília Stream, located in Foz do Iguaçu/PR, was analyzed between June and August 2025 to evaluate key chemical parameters pH, conductivity, nitrite, ammonia, iron, and orthophosphate and to assess the influence of human activities on the water body. Monthly samples were collected at four distinct points: P1 (source), P2 (before pig farming), P3 (after pig farming), and P4 (outflow). The samples were stored in glass bottles and plastic beakers, kept in thermal boxes, and analyzed in the laboratory using colorimetric methods with a UV-Vis spectrophotometer and the AQUA app, with all analyses performed in triplicate. Analytical curves were constructed for each parameter using different standard concentrations and specific reagents, ensuring proper homogenization before spectrophotometric readings. The results showed determination coefficients (R^2) above 0.93 for AQUA and 0.99 for UV-Vis, confirming high reliability. Nitrite concentrations ranged from 0.02 to 0.60 mg/L with AQUA and from 0 to 0.10 mg/L with UV-Vis, all within the limits set by CONAMA Resolution No. 357/2005. Ammonia levels were higher at points P2 and P4, reaching a peak of 1.43 mg/L in August, likely related to surface runoff and domestic wastewater discharge. Iron concentrations remained low (0–0.05 mg/L), while orthophosphate exceeded the established limit in June, particularly at point P2 (7.70 mg/L), but returned to acceptable values in August, indicating improvement in water quality. Visual changes in water color were also observed, suggesting anthropogenic influence. Overall, although some parameters exhibited temporary peaks, the water quality of the Brasília Stream remained mostly within acceptable standards. The study emphasizes the importance of continuous monitoring and environmental conservation measures, highlighting the precision of the UV-Vis method and the potential of the AQUA app as a supportive tool for rapid field analyses.

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