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76 - COMPARISON OF WATER QUALITY BETWEEN LAKE BANYOLES AND THE SEINE FOR OLYMPIC WATER SPORTS

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Resumen

Background/Objectives: Water is essential for recreational and sports activities, promoting health and well-being. In recent years, water sports have gained popularity, highlighting the need to manage water quality to ensure participants' safety. Two different environments illustrate this challenge: Lake Banyoles in Catalonia, a protected natural area, and the Seine River in Paris, which hosted the 2024 Olympic Games. Banyoles benefits from conservation efforts, while the Seine faces pressures from urban pollution. Microbiological contamination, especially from Escherichia coli and Enterobacter, raises concerns, as these bacteria are indicators of fecal contamination and pose health risks. This study compares the microbiological water quality of Lake Banyoles and the Seine River by analyzing the concentrations of Escherichia coli and Enterobacter bacteria. The aim is to evaluate which of the two environments is safer for water sports activities. The results will be key for managing water quality in recreational and sports areas, in order to protect the health of those who use these waters.

Methods: Water quality was analyzed between 2014 and 2022 in Lake Banyoles and the Seine River, with samples taken from frequently visited areas. The data were provided by Aigües de Banyoles and Eau de Paris. Escherichia coli and Enterococci were quantified using membrane filtration techniques and selective media. Statistical analyses (t-Student, ANOVA, regressions) were performed to compare concentrations and detect significant differences between locations and periods, identifying trends and microbiological variations.

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Results: The concentrations of *Escherichia coli* and *Enterococci* were significantly higher in Paris. In Banyoles, the averages were 1.70 and 1.58, while in the French capital they were 3.31 and 2.47, respectively. Variability was higher in Paris, with wider ranges and higher maximum values. The temporal analysis (2014-2022) indicates that contamination in Paris remained constant over this period, while in Banyoles, there was an improvement in the concentrations of the two bacteria studied, except in 2022 when there was an increase in Enterococci.

Conclusions/Recommendations: The analysis reveals differences in the concentrations of *Escherichia coli* and *Enterococci*, with significantly higher levels in Paris. Additionally, the variability in this city is greater, with wider ranges and higher maximum values. The temporal analysis shows that contamination in Paris is persistent, while in Banyoles there is a continuous improvement.

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