

**TITLE:** DISSEMINATION OF BACTERIA INDICATIVE OF FECAL POLLUTION IN SURFACE WATERS IN BELÉM, PARÁ STATE, BRAZIL

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**ABSTRACT:**

Water is a fundamental element for the maintenance of life, becoming indispensable to human needs and activities, given its multiple uses, which includes public supply, agricultural and recreational uses, and for the preservation of aquatic life. This resource has been gradually compromised by human actions, through the process of industrialization and urbanization, leading to the contamination of rivers, lakes, springs, and oceans, causing serious impacts to the aquatic ecosystems and, consequently, putting humanity at risk. This study aimed to analyze the dissemination of bacteria indicative of fecal pollution in surface waters in Belém, Pará State, Brazil. The study consisted of systematic analysis of water samples, in biweekly intervals, from January to December 2014, at three strategically selected areas: Igarapé Tucunduba (P01), Mercado Ver-o-Peso (P02), and Porto do Açaí (P03). Quantification of the most probable number (MPN/100mL) of thermotolerant coliforms and *Escherichia coli* was performed using the chromogenic substrate method. The BioEstat 0.5 software was used for the statistical analysis. A total of 87 collections, 8 monthly collections on average, were carried out in the study areas. The three areas exceeded the limits of Thermotolerant Coliform and *Escherichia coli* in 100% of the analyses, according to the Resolution CONAMA 357/05 for waters of Class 2. P01 presented the highest levels of pollution, followed by P03 and P02. Coliform rates remained constant over the year, and there was no statistically significant difference between the months. There was statistically significant difference between P01 and P02 ( $p < 0.05$ ). All the study areas showed extreme levels of bacteriological contamination. This fact reflects the impacts caused by the release of effluents (*in natura*) in these water bodies, indicating possible problems for public health since water-borne diseases are one of the main health problems resulting from the contamination of water in countries in development.

**Keywords:** Water quality, thermotolerant coliforms, *Escherichia coli*.