Influence of Abiotic Factors on the Density of Fecal Indicator Bacteria in the Urban Estuary of the Itanhaém River – São Paulo, Brazil

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Abstract

Urban estuaries are frequently impacted by microbiological contamination from various sources such as domestic and industrial sewage, organic and inorganic compounds. This study evaluated the influence of abiotic factors on the density of fecal indicator bacteria (FIB) at different salinity gradients and periods (Nov21-Aug22) in Itanhaém River, Brazil. *Enterococcus sp* density was positively correlated with rainfall (Φ = 0,72, $p<0,05$) and *Escherichia coli* density was correlated with salinity (Φ = 0.53, $p<0,05$). *Escherichia coli* exhibited densities above legislation (CONAMA 274/00) in 89% of all collection sites, while *Enterococcus sp* exhibited restrictive densities in 69% of all collection sites, indicating a high degree of contamination and potential risks to public health associated with the rivers use for recreational purposes, seafood consume among others. *Escherichia coli* densities were higher than *Enterococcus sp* densities, even in brackish and saline waters, during all campaigns. The results obtained indicate that *Escherichia coli* is a better indicator of contamination by domestic sewage, including brackish waters and *Enterococcus sp* better correlated with precipitation.

Keywords

Escherichia coli, Enterococcus sp, Microbiological Quality, Estuary, Salinity, precipitation.