Identification of Bioindicator Organisms in the Parana Coast through Correlation between Biotic and Abiotic Factors, Year III

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The coast of Paraná in Southern Brazil presents increasing pollution levels and incipient monitoring systems. To overcome this deficit, we sought to identify relationships between phytoplankton and abiotic factors, to verify the usefulness of these organisms as bioindicators. Our aim was to establish relationships between the faecal coliforms, inorganic nutrients and phytoplankton. Four collections were conducted at six points of the Paraná coast, one for each season. A planktonic 45cm diameter net with a 200µm mesh size was used. Two hauls of 2 minutes were employed and samples were fixed in 3% formol. Temperature, salinity and pH were also measured at the sampling points. Two 100ml water samples removed from the surface to be used for inorganic nutrients analysis, which was performed using colorimetric tests. Faecal coliform analysis which is conducted in the Univali laboratory by Coliert method. The qualification and quantification of the organisms found was using an optical microscope. Analysis of similarity between the sample points and Canonical Correspondence was applied. Similarity analysis showed high cohesion between sampling points and seasons. A correlation analysis between the diversity of microalgae and the physicochemical parameters obtained. Specific relationship between Acanthostomella, Leptocylindrus, Chaetoceros and Bacteriatrum algae with increasing temperature and salinity. Furthermore, a population explosion of dinoflagellates from the Ceratium genus seems to be correlated with the concentration of nitrate, an important factor because of the toxicity of these organisms. Was found a positive relationship between the levels of phosphate and Asterionella, Peridinium and Triceratium indicates that these organisms can be used as bathing indicators.

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