INTEGRATED ANALYSIS OF WATER QUALITY IN COASTAL CITIES OF SANTA CATARINA: PHYSICOCHEMICAL, MICROBIOLOGICAL, AND PARASITOLOGICAL EVALUATION

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Water quality in coastal regions is a topic of great relevance for public and environmental health, especially in areas with intense tourist activity. Brazil, a popular summer destination, attracts many visitors to its beaches, however, the lack of sewage treatment in many citys causes contamination in these waters, affecting public health. Thus, this study aimed to comprehensively evaluate the water quality of rivers flowing into the sea and beaches of three tourist municipalities in southern Brazil: Balneário Piçarras, Balneário Camboriú, and Itapema, which have 20,23%, 95% and 76,55% urban sewage treatment, respectively, from June 2022 to May 2023. Water temperatures, turbidity, pH, salinity, and conductivity were analyzed. In addition, the occurrence of total coliforms, *Escherichia coli*, Enterococos, *Giardia* spp. and *Cryptosporidium* spp. were also evaluated. The physicochemical analyses were conducted *in situ* using a multiparameter meter, while the microbiological analyses were performed using the Quanti-Tray system with Colilert and Enterolert reagents, and the parasitological analyses were carried out using the Merifluor kit with identification of the structures of interest under an epifluorescence microscope, following standardized laboratory protocols. The results revealed that Balneário Camboriú showed the highest averages in microbiological parameters and *Giardia* spp. cysts, while Itapema showed the highest average regarding *Cryptosporidium* spp. oocysts. When comparing the different types of water matrices, the river samples showed higher concentrations of total coliforms and *E. coli.* The seasonal analysis showed the highest detection values of total coliforms and *E. coli* in the fall and Enterococos, *Giardia* spp., and *Cryptosporidium* spp. in the summer. It was also possible to observe a positive correlation between fecal indicator bacteria and enteric protozoa. These results highlight the need for more efficient and integrated management involving sewage treatment and tourism development in these regions.

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