Climatic Change and Its Relationship with the Microbiological and Physical Parameters that Affect the Quality of Water in the Coastal Zones of Puerto Rico

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The microbiological and physical analysis of water quality in the coastal zones of Puerto Rico will show a greater amount of pathogenic microorganisms during rainy weather. Fourteen coastal areas with greater violation to microbiological quality were evaluated performing two rounds of microbiological and physical water quality analysis to detect the presence of pathogen microorganism and its relation to climate change. Microbiological results on blood agar presented ?100,000 colonies/100mL at two stations during drought and five stations during rainy conditions. Gram positive Bacillis related to environmental pollution grew at five stations, and two stations presented Gram Positive Cocci, opportunistic bacteria. MacConkey agar showed: ?100,000col/100 mL in two stations during dry seasons and five stations during rain. Acetinobacter iwoffi, an environmental bacteria pathogenic to humans, was identified at one station in drought and in eight stations during rain. Myroids species, a pathogen microorganism, grew in two stations. There were no growths of enterococci at any station. PH, conductivity, temperature and density comply with water quality standards. Dissolved oxygen in drought ranged from 0 ppm to 4 ppm, in rain 0 ppm to 8 ppm. The saturation percent in drought ranged from 0 to 53 and in rain from 0 to 106 due to pollutants and microorganisms in water. Turbidity ranged from 10NTU to 22NTU in drought, 12NTU to 32NTU during rain, exceeding water quality standards. The hypothesis was confirmed for the presence of pathogenic microorganisms found in rainy weather. The research will expand and the results discussed with different environmental agencies.

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