

TITLE: BACTERIOLOGICAL CHARACTERIZATION OF DIFFERENT AQUATIC ECOSYSTEMS OF BELÉM, PARÁ, BRAZIL.

AUTHORS: CORRÊA FILHO, L.C.G; TRINDADE, L.M.; SANTOS, D.S.A.S; VALE, E.R.; MORAIS, L.L.C.S.

INSTITUTION: INSTITUTO EVANDRO CHAGAS, ANANINDEUA, PA (BR 316, KM 7, S/N, LEVILÂNDIA, CEP: 67030-000)

ABSTRACT

Water is an element of fundamental importance for health, but the anthropic factor has been detrimental to this resource. In this context, the inadequate conditions of basic sanitation stand out, resulting in the contamination of the water bodies by the large amount of effluent released inadequately, creating an environment conducive to the dissemination of several potential pathogens, such as *E.coli* e *Salmonella*. *Escherichia coli* is a Gram-negative bacterium, which belongs to the Enterobacteriaceae family, native to the intestinal tract, but several serogroups are pathogenic to humans. *Salmonella spp.* has several pathogenic serotypes, some extremely adapted to humans, such as *Salmonella Typhi* and *Paratyphi A, B* and *C*, and others may affect both animals and humans. The objective of this study was to characterize from a bacteriological point of view different aquatic ecosystems of the metropolitan region of Belém from August 2012 to August 2013. Biweekly collections were carried out at four sampling points: Mercado do Ver-o-Peso, (Guajará Bay); Porto do Açaí (Guamá River), in the Tucunduba stream; And at the UNA Sewage Pumping Station. The quantification of the bacteriological indicators was performed using the Colilert commercial kit, following the manufacturer's recommendations. And the isolation of the bacteria of interest from the study followed the recommendations described in the Standard Methods for Examination of Water and Wastewater (APHA / AWWA / WEF, 2012). During the study period, 90 samples were collected and it was possible to observe that all of them had levels of contamination that exceeded the limit established by Resolution 357 of the National Council for the Environment (Conselho Nacional de Meio ambiente - CONAMA), either for thermotolerant coliforms or *Escherichia coli*. From the analyzed samples, eight strains of *E.coli*, and five strains of *Salmonella* were isolated and biochemically identified. The high level of fecal contamination of sampling points indicates to the serious problems of precarious sewage systems, which end up impacting the quality of the water bodies, once they receive high effluent loads. The isolation of *E.coli* and *Salmonella spp* shows that potential pathogenic bacteria are viable in the environment. This poses a major risk in disease transmission, therefore a public health alert.

Keywords: Water quality, coliforms, pathogens.

Development Agency: Conselho Nacional de Desenvolvimento Científico e Tecnológico