Virulence profile of *Escherichia coli* isolates from surface water samples of two Asuncion Bay tributaries on years 2015-2016

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Escherichia coli strains that cause disease in humans are classified in two groups: diarrheagenic *E. coli* (DEC), comprising 6 pathotypes called enterotoxigenic (ETEC), enteropathogenic (EPEC), enteroinvasive (EIEC), enteroaggregative (EAEC), Shiga toxin-producing (STEC) and diffuse adherence (DAEC) *E. coli*; and extraintestinal pathogenic *E. coli* (ExPEC). In Paraguay, the circulation of these strains in surface water samples was unknown, so this work aimed to determine the virulence profile of *E. coli* isolates from two Asunción Bay tributaries by PCR. Twelve water samples from Ycua Sati and Las Mercedes streams were collected. The physical-chemical test showed that 75% (9/12) of the water samples were none fit for its intended use, while the microbiological test threw a value of 50% (6/12). The molecular analysis revealed that 83% (10/12) were positive for at least one of the evaluated genes. DEC and ExPEC were detected in 58% and 75% of the samples, respectively. The most frequent DEC was EPEC, whereas the most frequent ExPEC gene was *pap*, the latter group showing a greater combination diversity of virulence factors. This study evidenced the circulation of pathogenic *E. coli* in surface water, highlighting the importance of the specific detection of these pathogens by molecular methods, since they go unnoticed with conventional methods of water analysis.

Key words: Diarrheogenic *Escherichia coli*, extraintestinal pathogenic *Escherichia coli*, virulence factors, surface water.