

TITLE: GENOTYPIC INVESTIGATION OF VIRULENCE FACTORS ASSOCIATED WITH AVIAN PATHOGENIC *Escherichia coli* (APEC) IN SAMPLES OF WATER FOR HUMAN CONSUMPTION IN LONDRINA, PARANA STATE, BRAZIL

AUTHORS: LOPES-DAMBROZIO, A. M.; KLEIN, A. L.; SCHUROFF, P. A.; BURGOS, T. N.; SILVA, C. R.; MACEDO, K. H.; RECHENCHOSKI, D. Z.; WALDRICH, T. L.; ROCHA, S. P. D.; PELAYO, J. S.

INSTITUTION: UNIVERSIDADE ESTADUAL DE LONDRINA, LONCRINA, PR (RODOVIA CELSO GARCIA CID, KM 380, S/N - CAMPUS UNIVERSITÁRIO, CEP 86057-970, LONDRINA – PR, BRAZIL)

ABSTRACT:

Escherichia coli is an important bacterium in modern poultry farming. Pathogenic *E. coli* was classified into two large groups: those with their established pathogenicity mechanisms in the intestine are grouped as Diarrheagenic *Escherichia coli* (DEC) and those that have the ability to colonize and disseminate to other regions of the body that are identified as Extraintestinal Pathogenic *Escherichia coli* (ExPEC). In this group is present of Avian Pathogenic *Escherichia coli* (APEC), responsible for causing infectious diseases in chickens, such as, avian colibacillosis. Data obtained from epidemiological studies support the hypothesis that the water is reservoirs to pathogens, including avian pathogenic strains and is responsible for several animal outbreaks worldwide. Considering these hypotheses, the present study aimed to investigate the presence virulence factors associated with APEC in drinking water. A total of 107 *E. coli* colonies were isolated from 57 drinking water samples from different points in urban and rural areas located in Londrina, northern of Paraná State, Brazil, between January 1 to December 31, 2012. This study investigated the virulence markers of APEC (*iroN*, *ompT*, *hlyF*, *iss* and *iutA*) using the technique of Polymerase Chain Reaction (PCR). The biofilm formation test were also performed. Of the 57 samples surveyed, 20 (35%) presented at least one of the five virulence factors investigated, while three (5%) samples presented positivity for all. In relation to biofilm formation test 24 samples did not produced biofilm. The results achieved in this study showed that water may be reservoir of virulence genes for APEC strains. Thus, it is essential that potential reservoirs of these microorganisms be investigated and these findings will be able to inform the population of the health risks related to the consumption of these waters, in order to developing prevention and treatment efforts.

Keywords: avian, pathogenic, *Escherichia coli*, virulence factors

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