

Título: CHARACTERIZATION OF MICROBIAL CONTAMINATION AND HEALTH RISK ASSESSMENT OF A WATERWAY LOCATED IN A LIVESTOCK AREA IN BUENOS AIRES ARGENTINA.

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Resumo

Contaminated water in livestock agriculturally areas can contain a wide range of disease-causing infectious agents. Livestock contribute to water pollution through the discharge to waterways with excrement sediments from the consequent spread of pathogens. Extremes events such as heavy rainfall lead to increase in suspension river sediment, which all lead to peak concentration of pathogen in surface water. The purpose of this study was to characterize the microbial contamination of a watercourse which connects a feedlot with Arroyo Burgos. Concentrations of fecal coliform, *E coli*, *Enterococcus*, and *Salmonella* spp organisms were measured. Water and sediment-water samples of the feedlot (point 1) and 5 km from feedlot (point 2) were taken seasonally during 2012-2014. A quantitative microbial risk assessment was conducted to evaluate the probability of infection or illness resulting from incidental ingestion of contaminated sediment-water samples, especially for people exposed to agricultural works who have direct contact with water. In point 1, mean values of 1.60×10^5 /100 mL of *Escherichia coli* and 6.47×10^4 /100 mL of Enterococci were observed. In point 1, The mean coliform and enterococci in the point 2 were from *E coli* and Enterococci 6.96×10^3 /100mL and 2.16×10^3 respectively. The mean *Salmonella* concentration for sampling point 1 was 4.06 NMP/100 mL. There were not a significant difference in *Salmonella* concentration between the two studied sites. In point 2, during the period of highest precipitation increased drag of waste and consequently an increase in the number of *E coli* and enterococci were detected. *Salmonella* spp was detected in all samples, The estimated annual risk of infection, with *Salmonella* ranged from 2.63×10^{-2} to 2.76×10^{-3} and 5.66×10^{-2} to 3.23×10^{-3} for average detected concentration at point 1 and 2 respectively. The health risk did not decrease enough to demonstrate a self-purification activity of the course in the segment considered.

Keywords: feedlot, QMRA, *Salmonella*