ABSTRACT BOOK
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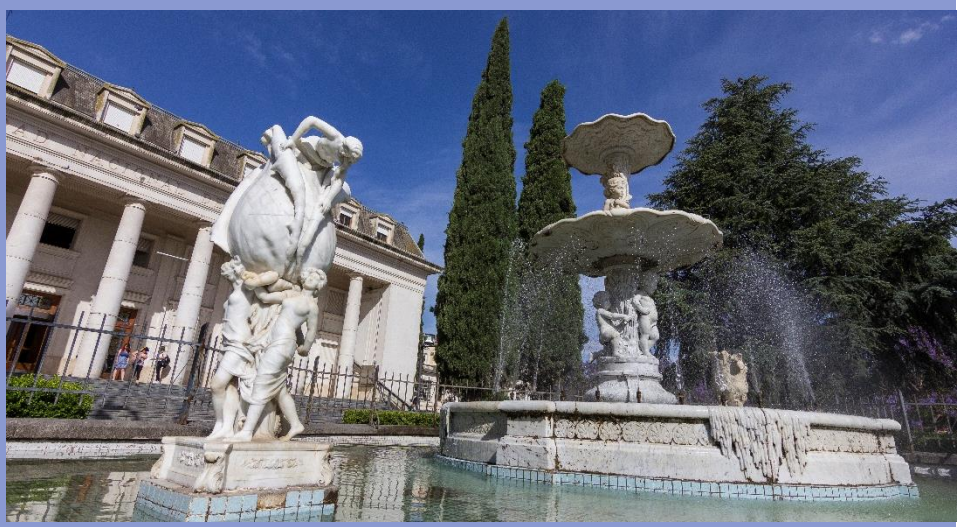

LVI REUNIÓN ANUAL DE LA ASOCIACIÓN ARGENTINA DE FARMACOLOGÍA EXPERIMENTAL

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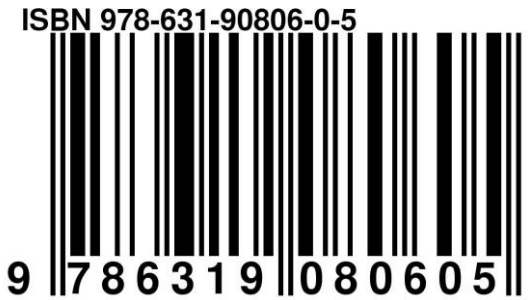

Antimicrobial/Antiparasitic/Antiviral Agents
Chairs: Juan J. Martinez Medina and Santiago Zugbi

71. SWINE FECES AS A SOURCE OF RESIDUAL AMOXICILLIN AND OXYTETRACYCLINE CONCENTRATIONS IN RUNOFF WATER

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In intensive pig farming, the irrational use of antibiotics has diminished their effectiveness and fostered the emergence and spread of antibiotic-resistant strains. Since these antibiotics are not completely metabolized, they can be released into the environment through animal waste, resulting in detectable levels in manure, soil, and both groundwater and surface waters. Nevertheless, thorough monitoring is still lacking. This study aimed to investigate the presence of residual amoxicillin (AMOXI) and oxytetracycline (OTC) which transfer from pig feces to runoff water.

Fecal samples (100 g) from untreated pigs were fortified by triplicate with AMOXI and OTC, considering therapeutic doses and bioavailability (20 mg/kg and 36% and 40 mg/kg and 6%, respectively) to simulate real levels. The excreta were left outdoors on a sloped area with natural vegetation for 30 days. Runoff water samples were collected after precipitation events using passive collectors placed downslope. Analytical studies were conducted using HPLC-UV at the Toxicology Laboratory, Department of Physiopathology, CIVETAN.

Five precipitation events occurred during the assay period on days 4, 8, 9, 11, and 21. For AMOXI, average residual concentrations (0.06 µg/ml) were observed from day 4 to 11, with the highest (0.10 µg/ml) on day 9. For OTC, residuals (0.13 µg/ml) were detected from the first rainfall through day 21, with peaks (0.14 µg/ml) on days 8, 9, and 11. Although AMOXI concentrations appear lower than those of OTC, it is important to consider the different initial fortification doses; when adjusted for these differences, AMOXI levels are 2.36 times greater than those of OTC.

Notably, AMOXI was present in higher proportions over a shorter period, while OTC persisted longer, being detected in the last rainfall sample. In conclusion, both antibiotics were found in runoff water, indicating potential risks to ecosystems and public health, emphasizing the need for systematic monitoring.