

TITLE: ANTIBIOTIC RESISTANCE PROFILE OF *ESCHERICHIA COLI* ISOLATES FROM PIG'S SLAUGHTERHOUSE

AUTHORS: RODRIGUES, H. V.; AZEVEDO, E. C.; GARCIA, L. N. H.; VENTURA, N. K. O; NERO, L. A.; YAMATOJI, R. S.

INSTITUTION: UNIVERSIDADE FEDERAL DE VIÇOSA, DEPARTAMENTO DE VETERINÁRIA, INSPOA – LABORATÓRIO DE INSPEÇÃO DE PRODUTOS DE ORIGEM ANIMAL, VIÇOSA - MG (R. PH ROLFS S/N, CEP: 36.570-900, VIÇOSA-MG, BRAZIL)

ABSTRACT:

The swine production chain is one of the productive systems that most use antimicrobials for prevention in order to enhance feed conversion. The use of antibiotics for this purpose raises national and global concerns, mainly, about the Multidrug Resistant bacteria - MDR. In this context, several bacterial genera have presented resistance to many active principles and *Escherichia coli* stands out as a versatile bacteria, being able to acquire and disperse factors that contribute to the resistance to many antibiotics. Thus, the aim of this study was to evaluate the phenotypic resistance of *E.coli* isolates obtained in a swine slaughterhouse to six antibiotics commonly used in the pork production chain by the breakpoint method. In total, 229 *E.coli* isolates were used and grouped into: feces (n=191), after bleeding (n=5), after scalding (n=16), after evisceration (n=4), after final wash (n=4) and wastewater (n=8). The isolates, previously purified, were resuspended in brain heart infusion broth and incubated at 37°C/18-24 hours, then breakpoint was conducted, testing the following antibiotics: Amoxicillin - 32 µg.mL⁻¹, Ceftiofur - 8 µg.mL⁻¹, Ciprofloxacin - 1 µg.mL⁻¹, Chloramphenicol - 32 µg.mL⁻¹, Sulfamethoxazole - 76µg.mL⁻¹/4 µg.mL⁻¹, Tetracycline - 16 µg.mL⁻¹. Overall, the frequency of resistance to the antibiotics tested were similar in the different isolates groups. All isolates showed resistance to at least one active principle tested. The most frequent antibiotics were tetracycline (83%), amoxicillin (69%) and chloramphenicol (65%), when considering the entire study population. Faecal isolates showed higher rates of resistance to ciprofloxacin (31%) and sulfamethoxazole (36%). Another remarkable result is the high frequency of MDR isolates, which totaled a frequency of 58,5%. The results found in this study emphasize the importance of the swine production chain as a considerable system that contributes to the emergence of resistant bacteria. Beyond this point, the totality of isolates with at least one type of resistance to one antibiotic and the high presence of MDR bacteria is a worrying factor. This study reinforces that more official programs should be established and applied to raise awareness of the population and the production system.

Keywords: Amoxicilin; Antibiotic Resistance; Ciprofloxacin; MDR; Swine

Development Agencies: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – CAPES (Financial Code001), Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq e Fundação de Amparo à Pesquisa do Estado de Minas Gerais – FAPEMIG.