

TITLE: *ESCHERICHIA COLI* BETA-LACTAMASE PRODUCERS OF EXTENDED SPECTRUM (ESBL) ISOLATED FROM SAMPLES OF CHICKEN SLAUGHTERING

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ABSTRACT:

Extended-spectrum beta-lactamase (ESBL) producing *Escherichia coli* are a public health risk due to their ability to hydrolyze several classes of medically important antimicrobials, such as beta-lactams, cephalosporins and monobactams, making the therapeutic action of these drugs difficult. The purpose of the study was to evaluate the presence of ESBL-producing *E. coli* isolates in samples from the broiler production chain. The isolates were obtained from samples of the poultry transport box, chicken carcass after bleeding, plucking, evisceration and after the chiller step, scalding and chiller wastewater and human feces. For ESBL detection, four antimicrobials were used: amoxicillin with clavulanic acid (20/10 µg), ceftazidime – 30 µg, cefotaxime – 30 µg and cefepime – 30 µg. In addition, these isolates were evaluated by disk diffusion, against ten different classes of antimicrobials: AMO (10 µg); CTF (30 µg); aztreonam - ATM (30 µg); imipenem – IPM (10 µg); CIP (5 µg); TET (30 µg); gentamicin - GEN (10 µg), SUT (23.75/1.25 µg), CLO (30 µg) and azithromycin - AZI (15 µg). Of the 701 isolates, only 15 (2.2%) were ESBL positive, eight from carcass after bleeding, four from carcass after plucking, one from carcass after evisceration and two from scalding water. The 15 ESBL isolates were multidrug-resistant, with a frequency of 100% resistance to the antimicrobials AMO, CTF and CIP. For the other antimicrobials evaluated, the results showed a high resistance to the antimicrobials ATM (93.3%), TET (53.3%), GEN (73.3%), SUT (73.3%), and AZI (73.3%). The lowest antimicrobial resistance was detected for IPM (6.7%) and CLO (26.7%). Obtaining ESBL-producing *E. coli* isolates in the broiler chain is a concern for public health, given the possibility of serving as a source of dissemination for humans, directly or indirectly, and for the environment. The detection of resistance to IPM, even if low, is a warning sign, as this drug is used for the treatment of serious infections, mainly due to its broad spectrum and its action against ESBL-producing microorganisms. These results contribute to reinforce the need for the conscious use of antimicrobials in veterinary medicine, as well as to demonstrate the need to develop control and monitoring programs for antimicrobial resistance in animal production.

Keywords: Antimicrobials; beta-lactams; public health

Development Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) pela bolsa concedida; Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) pelo financiamento do projeto.