

## PLASMID-ENCODED CMY-2 AMONG CEFTIOFUR-RESISTANT *ESCHERICHIA COLI* ISOLATED FROM BROILERS AND LAYING HENS

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The amount of antibiotics consumed by food-producing animals around the world is more than that used by humans, according to some estimates. Transference of plasmids is a key mechanism for the spread of antibiotic resistance genes by horizontal gene transfer. Ceftiofur is a veterinary antibiotic of third generation cephalosporin class widely use in food-producing animals worldwide. The aim of the present study was to investigate the prevalence of plasmid-mediated AmpC determinants among ceftiofur-resistant *E.coli* isolates from chickens. A collection of 158 isolates, 80 isolates of avian pathogenic *E. coli* (APEC) and 78 isolates of fecal *E. coli* of health broilers and laying hens from four States (SP, MG, PR, RS) were screened for ceftiofur resistance. 48 strains that showed MIC  $\geq$  8 mg/L for ceftiofur was investigated to presence of plasmid-mediated AmpC  $\beta$ -lactamases (DHA, ACC, CMY) through PCR. Presence of mobilizing elements (ISCR1, ISEcp1, IS26) was determined by PCR. Resistance phenotype was determined by disc diffusion test to 23 antibiotics. *bla*<sub>CMY-2</sub>  $\beta$ -lactamase was positive in 12/48 (25%) strains (APEC=3, fecal=9). None *bla*<sub>ACC</sub> or *bla*<sub>DHA</sub> was found. All 12 strains exhibited multidrug resistance (MDR) phenotype, included resistance to aminoglycosides, quinolones,  $\beta$ -lactams, tetracyclines, sulfas, phenicols, nitrofurans and polimyxins. 7/12 (58.3%), 12/12 (100%), and 12/12 (100%) was positive to ISCR1, ISEcp1, and IS26, respectively. Considering the economic importance of poultry industry in Brazil, efforts are needed to prevent development and spread of antimicrobial resistance in poultry production to reduce the risk for human health. These results showed that plasmid-mediated AmpC  $\beta$ -lactamase CMY-2 is circulating in *Escherichia coli* isolated from both diseased and healthy broilers in brazilian poultry farms, contributing to the dissemination of antimicrobial resistance.

Keywords: Betalactamases, Poultry, antibiotic resistance.

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