TITLE: FIRST DETECTION OF PLASMID-MEDIATED mcr-1 COLISTIN RESISTANCE GENE IN EXTENDED-SPECTRUM β–LACTAMASE-PRODUCING *Eschericia coli* IN CHICKEN MEAT IN PARAIBA STATE, BRAZIL.

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ABSTRACT

In spite of the high toxicity of polymyxins, colistin (polymyxin E) has become a last-resort antimicrobial to treat human infections caused by multidrug resistant (MDR) Gram-negative bacteria mainly because of the lack of novel antimicrobials. After firstly detected in China, *Enterobacteriaceae* harboring the plasmid-mediated colistin resistance gene (mcr-1) have been now found in animals, environment and more sporadically in humans from different parts of the world. Although previous investigations showed the occurrence of the gene mcr-1 in *Enterobacteriaceae* isolated from animals sources in Brazil, this is the first study to report extended spectrum β-lactamase (ESBL)-producing *E. coli* harboring mcr-1 gene in chicken carcasses in Paraiba State, Northeastern Brazil. A total of 21 ESBL-producing *Enterobacteriaceae* cultured from 50 chicken carcasses were screened by PCR for the presence of the *mcr-1* gene. Positive isolates (n=2) were whole genome sequenced (WGS). The mcr-1 gene was confirmed in an O100:H25 *E. coli* strain ST359 that also harbored resistance genes against β-lactams (bla_{TEM-1B} e $bla_{CTX-M-2}$), aminoglycoside (*aadA1, strA, aph(3')-Iia, strB, aph(6)-Ic,* sulphonamides (*sul1* and *sul2*), tetracyclines (*tetB*) and trimethoprim (*dfrA1*). The detection of colistin resistant *E. coli* from such a small sample size indicates the need to further investigate the epidemiology of mcr-1 positive *Enterobacteriacea* in animal production systems and the role of the use of colistin in the veterinary practice. Colistin-resistant bacteria have been emerged as major public health problem worldwide and the increasing presence of these bacteria in foods could also pose a risk to the Brazilian poultry industry as a major player in the global market.

Key words: Bacterial Resistance, mcr-1, ESBL, chicken meat