PLASMID REPLICON TYPING OF MULTIDRUG-RESISTANT SALMONELLA ENTERICA SEROVAR AGONA ISOLATED FROM TURKEYS

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Non-typhoidal Salmonella infections are common cause of food-borne infections. Emergence and dissemination of multidrug resistance in this pathogen is often reported worldwide and is a public health concern. Plasmids play a crucial role on spread and evolution of antibiotic resistance. This study aimed to investigate plasmid types in Salmonella Agona isolated from feces of commercial turkeys in Brazil. Fifteen isolates of Salmonella previous sorotyped as Agona was subjected to PCR for presence of resistance genes of several classes of antibiotics (qnrABCDS, oqxAB, aac(6)’Ib-cr, pepA, dfr variants, aadA, aphA1, strAB, sul1, sul2, sul3, tetAB, floR, cmlA, cat, blaTEM, blaCMY-2, blaSHV, blaOXA), integrons (class 1 and 2) and insertion sequences related to mobilization of resistance genes (ISCR1, ISEcp1, and IS26). Plasmids were typed by PBRT (PCR-based on Replicon Typing) included 22 incompatibility groups (IncA/C, IncB/O, IncF, IncFII, IncFIA, IncFIB, IncFIC, IncI1, IncK, IncHI1, IncHI2, IncL/M, IncN, IncP, IncR, IncT, IncU, IncX, IncY, IncW, ColE, ColE1). All strains were positive for genes conferring resistance to 4 or 5 classes of antibiotics and were positive to class 1 integron. Four isolates possess a combination of class 1 and 2 integrons. Six strains were positive to plasmid mediated-quinolone resistance gene qnrB19, which was inserted into small ColE-like plasmids with sizes 2.5kb. All strains (100%) possess a ColE-type plasmid, twelve strains (80%) harbor IncI1 plasmids and nine strains (60%) were positive for FIB replicon. Others replicons detected were IncN (3/15) and IncHI2 (1/15). Mobilizing insertion sequences IS26 and ISCR1 were found in 6/15 and 4/15 isolates. All replicons found in our study (I1, FIB, HI2, N, and ColE) were related to plasmids carrying resistance-linked determinants. This report a co-existence of the multidrug plasmid families in Salmonella enterica serovar Agona, which contributing to the spread of antimicrobial resistance in turkey flocks in Brazil.

Keywords: Plasmids, Turkeys, Salmonella

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