TITLE: DETECTION OF ENTEROPATHOGENIC (EPEC) AND SHIGATOXIGENIC (STEC) E*SCHERICHIA COLI* IN CONVENTIONAL AND ORGANIC BROILERS

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ABSTRACT:

Enteropathogenic (EPEC) and Shigatoxigenic (STEC) *Escherichia coli* are food born diarrheogenic pathogens found in poultry and poultry products. The presence of multidrug- resistant strains in those products have been a cause of concern in public health because they may compromise the treatment of bacterial infections in humans. The use of antimicrobials in animal production contributes to the selection of resistant bacteria that can contaminate the poultry meat, representing a health risk to the consumer. In the production of organic broilers, the use of antimicrobials is not allowed, reason why the poultry market in this system has been growing. The objective of this work was to evaluate the frequency and antimicrobial resistance of EPEC and STEC strains isolated from conventional and organic broilers. A total of 84 *E. coli* strains isolated from cloaca and from the broiler carcass of each type of breeding were evaluated. The strains were isolated by the conventional bacteriological method and the virulence genes, which characterize the EPEC strains (*eae* and *bfp*) and STEC (*stx1* and *stx2* genes), were detected by PCR. The disc diffusion test was performed to detect resistance to tetracycline (TET), gentamicin (GEN), enrofloxacin (ENO), ceftriaxone (CTX) and Amoxicillin + clavulanate (AMC). Of 84 strains isolated from conventional broilers, 41,7% (35) were characterized as EPEC and 14.3% (12)as STEC. These strains were resistant to all antimicrobials tested at the following frequencies: TET 38 (45.2%), GEN 20 (23.8%), ENO 20 (23.8%), CTX 16 (19%) and AMC (10, 7%). None of the 84 strains from organic broilers were characterized as EPEC or STEC but resistance was found: TET 30 (35.7%), GEN 4 (4,8%), ENO 8 (9.5%) and CTX 2 (2.4%). Tetracycline was the antimicrobial with the highest frequency of resistance in both breeding systems. In strains isolated from conventional chickens, 8.3% (7/84) were resistant to three or more classes of antimicrobials, being considered multidrug resistant, and only 1.2% (1/84) organic. Among the diarrheogenic strains that were considered multidrug resistant, 5.7% (2/35) were EPEC and 8.3% (1/12) STEC pathotypes. EPEC and STEC strains were detected only in samples from conventional system and none of the organic broilers. The 84 isolates from the conventional system were resistant to all antimicrobials used, while in the 84 isolates from the organic system, all were resistant only to four of the antimicrobials.

Keywords: *Escherichia coli*, diarrheagenic, antimicrobials resistence, broilers

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