Antimicrobial susceptibility of large intestinal Escherichia coli isolates from cattle and sheep abattoir samples

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Escherichia coli reside in gastrointestinal tracts of warm-blooded animals and can serve as an indicator organism for monitoring antibiotic resistance that is considered an important global issue. In this study, E. coli (n=49) were isolated from 40 samples of colon contents consisting from 20 cattle and 20 sheep carcasses and identified based on standard biochemical tests. The identification was also verified by chromogenic media. All isolates were tested against 13 antibiotic agents by disc diffusion method for determining antimicrobial susceptibilities. Double Disk Synergy test was applied for the detection of the ESBL producing isolates. Nearly all isolates were found to be susceptible to most of the antibiotics. The resistance to tested antibiotics was low; only 6 (12.24%) of 49 E. coli isolates were resistant to at least one antibiotic agent. Furthermore, different resistance rates to antibiotics were observed for cattle and sheep isolates. Among 28 isolates from cattle, the highest resistance levels were observed for trimethoprim-sulfamethoxazole (n=3; 6.12%), imipenem (n=2; 4.08%) and cefpodoxime (n=1; 3.57), while only ciprofloxacin resistance (n=2 9.52%) was observed among 21 isolates from sheep. This is the first report about imipenem resistant E. coli of animal origin from Turkey. Furthermore, no ESBL positive isolate was detected at all. In conclusion, continuous and strategic surveillance of antimicrobial resistant bacteria in livestock is essential to suppress further dissemination of these bacteria into Turkish society.

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