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Drug Resistance Patterns Of Some *Enterobacteriaceae* Isolated From Chicken In The West Of Algeria

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Abstract

Antibiotic-resistant bacteria may arise and proliferate as a result of the overuse of antibiotics in the chicken business. Antibiotics may be less effective in treating human illnesses if humans eat chicken products that include antibiotic-resistant bacteria or their genes. Determining the antimicrobial resistance (AMR) patterns of *E. coli* isolates obtained from poultry in different regions of the west of Algeria, is the goal of the current investigation. In order to isolate *E. coli*, samples from chicken (kidney, bones, and intestines) were gathered and prepared for culture using conventional microbiological techniques. While isolated *E. coli* was typed for O1, O2, and O78 antigens using slide agglutination with certain antisera, isolates were identified biochemically using API 20E. In accordance with CLSI guidelines, all isolates were identified and analyzed using the Kirby Bauer disk diffusion technique against 26 antibiotic disks. To find transferable resistance characteristics in 75 carefully chosen *E. coli* isolates, conjugative plasmid transfer, plasmid incompatibility, and colicin assays were employed. A total of 150 distinct species of *E. coli* were isolated. Fifty two agglutinable *E. coli* isolates with O78:K80 (n = 28), O1:K1 (n = 15), and O2:K1 (n = 9) were found using serotyping. *E. Coli* resistance to nalidixic acid (95.6%), tetracyclin (79.2%), streptomycin (73.5%), nitrofurantoin (71.4%), ampicillin (53.6%), ticarcillin (39.7%), piperacillin (37.9%), and chloramphenicol (21.3%) was highly prevalent when it came to antibiotic susceptibility. *Salmonella* present a resistance of 59.62% to nalidixic acid, ofloxacin and ciprofloxacin and 29.54% to streptomycin. The *Klebsiella* species shows no resistance for gentamicin, amikacin and kanamycin, but 73% ciprofloxacin 48% ofloxacin, and a total resistance to ampicillin and tetracyclin. All the *Enterobacter* isolated were resistant to ampicillin, cefoxitin and cefazolin, however no resistance was observed for gentamicin, amikacin and kanamycin. Multidrug resistance, or resistance to more than four antibiotic classes, was present in 81.8% of the isolates. The predominant plasmid-mediated resistance markers in 75 *E. coli* isolates, as determined by conjugative transfer, are ASTeSuTnp (25.8%) and SSuTnp (13.6%). Regarding the clustering of plasmids only 9 plasmids were not grouped out of the 67 tested (Com1 and F1). The colicin test shows that 5 transconjugants were colicin positive, these results let us suppose that colicin production and antibiotic resistance are two characters carried by the same plasmid structures. This work demonstrates that these antibiotic resistance characteristics may be easily transferred by plasmids, which has important health consequences for humans. It also confirms that meat chicken in the western region of Algeria has multidrug resistance *E. coli*.

Key Words: Chicken, *Enterobacteriaceae*, multidrug resistance, plasmid, colicin

