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Detection of atypical class 1 integrons in multidrug-resistant *Salmonella* Hadar from chickens in Cameroon

Ariane Nzouankeu

Centre Pasteur du Cameroun, Cameroon

Introduction: Among the 2500 *Salmonella* serotypes known worldwide, Hadar is recognized as a poultry-related serotype in many countries. The growing resistance of this serotype to antimicrobials has raised the concern that the widespread use of antimicrobials in poultry production may promote the development of resistant genes that can be transferred to humans. This study was conducted to investigate the occurrence of mobile genetic elements and evaluate clonality among Hadar isolates from chickens bought from retail markets in Yaounde.

Material & Methods: During a year, *Salmonella* were isolated from chicken and serotyped according to the Kauffmann-White scheme. Hadar isolates were examined for their susceptibility to 16 commonly used antimicrobial agents according to CASFM guidelines. Resistant isolates were examined for the presence of selected resistant genes, as well as class 1 and class 2 integrons using PCR. Genetic relationship among the isolates was determined by PFGE and compared to Hadar isolates recovered from human in the same year.

Results: A total of 29 *Salmonella* Hadar were isolated from 150 chickens. Antimicrobial sensitivity testing results showed that the 86% (25/29) isolates were multidrug resistant (MDR), commonly to streptomycin, tetracycline and nalidixic

acid as described in other African countries. The carriage rate of class 1 integrons was 34% (10/29) and 6.89% (2/29) for class 2 integrons in these MDR isolates. However, the *sul1* gene described as part of 3 conserved regions end of class one integron, was not detected in any of these isolates suggesting the circulation of atypical class 1 integron among Hadar isolates in Cameroon. MDR isolates possessed the *tetA* (19/29), *aadA1* (3/29) *strA* (12/29), *strB* (22/29) and *dhfrA1* (2/29). None of the *qnr* genes was found in these strains. Though most isolates had similar antimicrobial resistance patterns, they showed a diversity of restriction patterns and no link was established between poultry and human isolates through PFGE.

Conclusion: A high frequency of a typical class 1 integrons and other mobile genetic elements was revealed among Hadar isolates in this work, highlighting the needs to implement control measures in the Cameroonian poultry production to ensure that these mobile elements do not pass through the food chain and limit human therapeutic options.

Speaker Biography

Ariane Nzouankeu is currently working at Centre Pasteur du Cameroun, Laboratory of Bacteriology at Yaoundé, Cameroon.

e: nzouankeu@pasteur-yaounde.org

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