



Phenotypic characterization of the resistance of *Salmonella* – *Shigella* isolates to colistin and detection of *mcr1/2* genes

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ABSTRACT

Objective: Colistin is one of the latest line of therapeutics used in the management of infections due to multi-resistant Gram-negative bacteria. The current emergence of colistin resistance, in particular through the mediation of plasmid resistance genes (*mcr1* and *mcr2*) in intestinal bacteria is a worldwide concern. The objective of this study is to evaluate the sensitivity of *Salmonella* and *Shigella* strains to colistin and the detection of *mcr1* and *mcr2* genes within these strains.

Methodology and Results: The colistin sensitivity profile of 30 *Salmonella* strains and 5 *Shigella* strains was determined using the Minimum Inhibitory Concentrations in liquid medium of Mueller Hinton and the results were interpreted in accordance with the standards of the European Committee on Antimicrobial Susceptibility Testing Epidemiological cut-off 2020 version 10.0. Finally, the *mcr1* and *mcr2* genes were detected by a conventional PCR. Overall, a phenotypic resistance rate of 20% was recorded for *Salmonella-Shigella* pathogens, with a frequency of 17.1% for *Salmonella* and 2.9% for *Shigella*. Molecular screening of these isolates revealed a lack of detection of the *mcr1* and *mcr2* genes in their genetic heritage.

Conclusion and application of results: this study shows that *Salmonella* and *Shigella* strains are resistant to colistin, however the *mcr1* and *mcr2* genes have not been amplified. To this end, the rational use of colistin must be applied in the human and animal field in order to curb the increase and spread of resistance to this molecule.

Keywords: Colistin, Gabon, *mcr*, resistance, *Salmonella-Shigella*