



## Impact of oral and intramuscular administration amoxicillin on the selection of amoxicillin-resistant *Enterobacteriaceae* in the digestive flora of piglets

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### ABSTRACT

**Objective:** The aim of this study was to evaluate the level of selection of amoxicillin-resistant *Enterobacteriaceae* in the digestive microbiota of piglets during oral and intramuscular administration of amoxicillin.

**Methodology and Results:** Enumeration of *Enterobacteriaceae* was carried out on MacConkey agar with and without amoxicillin. *E. coli* isolates were identified and subjected to antimicrobial susceptibility test. The percentages of amoxicillin-resistant *Enterobacteriaceae* before treatment were between 10-13% for the three groups of piglets. After starting treatment of amoxicillin, from day 1 to day 4, the percentages of resistant *Enterobacteriaceae* were between 54 to 81% for the intramuscular treated groups and 58 to 87% for those treated orally. In the control group, percentage was 11%. During days of treatments, the percentage of amoxicillin-resistant *E. coli* strains to the associated antibiotics evolved during the treatments. In the control piglets, the percentages of *E. coli* resistant antibiotics did not increase.

**Conclusion and application of findings:** Administration of oral amoxicillin resulted in a greater selection of resistant enterobacteria in the digestive microbiota of piglets than those induced by the intramuscular route. *Escherichia coli*, an important strain in animal and human pathology, was the target of detection in this selection of these resistant enterobacteria. They constitute a public health risk due to the transfer of resistance genes from pathogenic bacteria of porcine origin to the human digestive flora via the food chain. The results obtained from this study are part of a bacterial resistance monitoring policy that will prevent pig farmers from Côte d'Ivoire, the majority user of these antibiotics.

**Keywords:** Piglets, *Enterobacteriaceae*, Amoxicillin, Resistance, Digestive microbiota