

## Antimicrobial resistance of Enterobacteriaceae in poultry in Lebanon

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### Introduction:

Poultry farms contribute to the contamination of the environment with resistant bacteria, mainly Enterobacteriaceae which can be transmitted to Humans in contact or through contaminated food products. In Lebanon, antibiotics are administered uncontrollably to animals to treat infectious diseases but also for prophylactic reasons and as a dietary supplements and this to improve the productivity of farms. This study was realized to decipher the spread of resistant Enterobacteriaceae in poultry farms in Lebanon.

### Methods and materials:

Rectal swabs were collected from 280 broilers in 56 Lebanese farms (5 swabs from each farm). A survey has been completed by the veterinarian in each farm about the antibiotic usage. Three-hundred and forty-one strains were isolated on MacConkey agar containing different antibiotics (Cefotaxime, Cefepime and Ertapenem). All isolates were identified using Biomérieux API® 20E strips. Antimicrobial susceptibility testing was performed by the disk diffusion method according to the recommendations of the CA-SFM (Comité de l'antibiogramme de la Société Française de Microbiologie). The production of Extended-Spectrum b-lactamases (ESBL) was assessed using the double-disk synergy test.

### Results, discussion and conclusion:

Among the 341 isolated strains, 285 *Escherichia coli* (83.6%), 22 *Enterobacter cloacae* (6.4%), 20 *Klebsiella pneumoniae* (5.9%), 6 *Klebsiella ornithinolytica* (1.7%), 5 *Proteus mirabilis* (1.5%) and 3 *Klebsiella oxytoca* (0.9%), were detected. Based on the double-disk synergy test, a total of 70.7% of the strains were ESBL producers. Furthermore, 18 strains were resistant to carbapenem. This study estimated the prevalence of ESBL-producing *Enterobacteriaceae* from broilers in Lebanon. Unfortunately, no national plan has been set up yet to fight the alarming threat of antimicrobial resistance in food-producing animals. In the next steps, we will characterize the strain collection by whole genome sequencing and molecular analysis (resistance genes, genetic supports, genomic analysis...).

**Mots clés :** Antimicrobial resistance - Poultry - Antibiotics - Enterobacteriaceae.

### Références :

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