

Cross-sectional prevalence study of CTX-M-type extended-spectrum beta-lactamases in *Escherichia coli* strains isolated in healthy poultry

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OBJETIVE

Detect the prevalence of CTX-M-type extended-spectrum beta-lactamases (ESBL) in *Escherichia coli* strains isolated in healthy chicken at poultry farms in Tenerife, Spain.

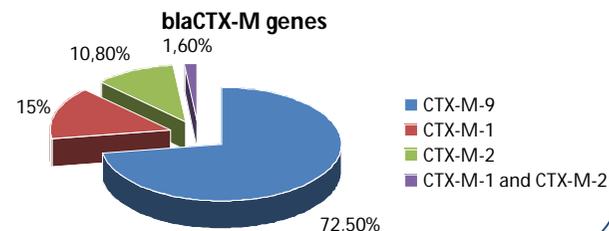
METHODS

A cross-sectional prevalence study. During the period of November 2012 to February 2013 a total of 260 chickens alive were screened with a rectal swab: a randomized selection of twenty animals from 10 farms (out of 26) for local consumption. All samples were cultured in chromogenic media (chromID™ ESBL, bioMérieux®). Suspected strains were also identified by Vitek 2 system (bioMérieux®) and confirmed the ESBL production by double disk synergy test (Oxoid®). PFGE were performed with *Xba*I (Promega®) to ESBL- *E. coli* isolates to define their epidemiological relation. The presence of CTX-M-type ESBL were detected by real time polymerase chain reaction (RT-PCR) (RealCycler, Progenie molecular®) to detect CTX-M-1, CTX-M-2 and CTX-M-9 groups.

RESULTS

260 rectal swab → 237 (91.1%) ESBL-*E. coli*.

- ✓ 44 different band patterns were detected by PFGE in 196 strains and 41 (17.3%) were non-type strains. RT-PCR of gen *bla*CTX-M was performed in these characterized strains.
- ✓ The *bla*CTX-M genes were detected in 120 (61.2%) ESBL- *E. coli*.



CONCLUSION

In our area, the prevalence of CTX-M-type ESBLs in *E. coli* isolated from rectal samples of chicken is even higher than those found in other countries. The impact of food animals as a possible reservoir for ESBL- *E. coli* especially CTX-M-type ESBL and the dissemination of such strains into the food production chain need to be assessed. We consider that is necessary the implementation of screening measures and surveillance in chicken farms to control the emergence of antimicrobial resistance in human and veterinary medicine.