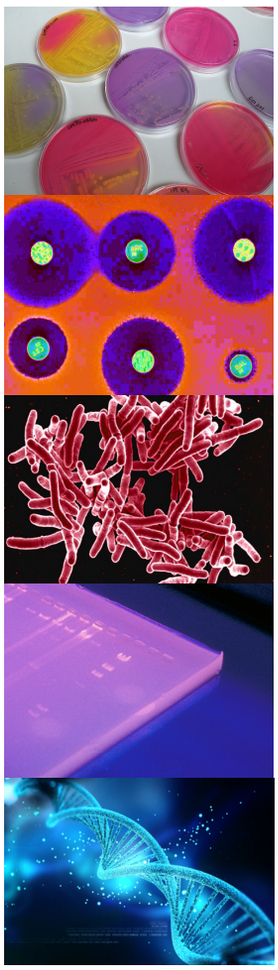

Abstracts book

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High occurrence of carbapenemase- and extended-spectrum-β-lactamase-producing *Escherichia coli* and *Klebsiella pneumoniae* from migratory birds (*Ciconia ciconia*) with detection of high-risk clones

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Background: The presence of Enterobacterales producing carbapenemases (CP) and extended-spectrum β-lactamases (ESBL) is closely monitored in humans and animals, but the potential of migratory birds as carriers of resistance genes remains poorly understood. The aim of the study was to detect and characterize CP- and ESBL-producing *E. coli* (EC) and *K. pneumoniae* (KP) obtained from storks feeding on two landfills in Spain.

Methods: ESBL and CP-producing EC/KP were isolated from 211 stork faecal samples using chromogenic culture media, and collected isolates were sequenced using NovaSeq6000 (Illumina) and MinION (Oxford Nanopore) technologies. Resistome, virulome, sequence types (ST) and replicon profiles were determined using bioinformatic tools. Localization of ESBL/CP genes was performed using Southern blots on S1-PFGE gels.

Results: ESBL-EC/KP were detected in 71 samples (33.6%; 28.4%-EC and 5.2%-KP), while 28 samples (13.3%) contained CP-producing EC/KP (11.8%-EC and 1.4%-KP). Different sequence types (ST) (EC, n=33; KP, n=3) were identified, including high-risk clones associated with humans (EC: ST131, ST58 or ST69; KP: ST307), potential high-risk clones (EC: ST10 and ST48) and more ubiquitous clones (EC: ST46, ST155, ST117, ST617). A wide range of ESBL/pAmpC-conferring genes (*bla*$_{\text{CTX-M-1}}$/*bla*$_{\text{CTX-M-14}}$/*bla*$_{\text{CTX-M-15}}$/*bla*$_{\text{CTX-M-27}}$/*bla*$_{\text{CTX-M-32}}$/*bla*$_{\text{CTX-M-55}}$/*bla*$_{\text{CTX-M-65}}$/*bla*$_{\text{SHV-12}}$/*bla*$_{\text{CMY-2}}$/*bla*$_{\text{DHA-1}}$) was identified, as well as a large variety of CP-genes (*bla*$_{\text{KPC-2}}$, *bla*$_{\text{KPC-3}}$, *bla*$_{\text{NDM-1}}$, *bla*$_{\text{NDM-7}}$, *bla*$_{\text{OXA-48}}$, *bla*$_{\text{VIM-1}}$ and *bla*$_{\text{GES-7}}$), including in some cases a combination of up to three types of CP (*bla*$_{\text{KPC-2}}$, *bla*$_{\text{NDM-7}}$ and *bla*$_{\text{VIM-1}}$) and/or with co-detection of ESBL/pAmpC genes. Likewise, a variety of ESBL/pAmpC- and CP-carrying plasmids were identified, such as IncY (n=30), IncF (n=60), IncX3 (n=25) IncN (n=19) or IncL (n=8). The genetic characterization of these plasmids is ongoing.