Comparative Analysis of ESBL-Carrying Plasmids from *Escherichia coli*, *Klebsiella pneumoniae* and *Salmonella enterica* Strains Isolated from Poultry, Pigs and Humans

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**Background:** Cephalosporin resistance is emerging in animal and human bacteria in Belgium. Cephalosporin resistant microbiota of food-producing animals may represent a reservoir of resistance genes for pathogens of humans and animals. In this study the location of three extended-spectrum ß-lactamases (ESBLs), *bla*TEM-52, *bla*CTX-M-2 and *bla*CTX-M-15, present in different members of *Enterobacteriaceae* isolated from humans, broilers and pigs were studied.

**Methods:** Thirteen isolates were investigated based on their origin. Conjugation experiments were carried out with *E. coli* J5, resistant to rifampicin, as the recipient strain. Transconjugants were selected on MacConkey agar plates supplemented with ceftiofur (8 mg/liter) and rifampicin (250 mg/liter). After Plasmid DNA purification, size and incompatibility (inc) group of each plasmid was defined. Restriction fragment length polymorphisms with EcoRI on plasmid DNA was carried out. Southern blotting with probes *bla*TEM and *bla*CTX-M was performed.

**Results:** Plasmid analysis revealed a ~ 150 kb ESBL-carrying plasmid for all isolates, except for one *Salmonella* Infantis strain (*bla*TEM-52 ~ 100kb). The *bla*CTX-M-2, *bla*TEM-52, and *bla*CTX-M-15-carrying plasmids belonged to IncI2, IncI1 and IncI1, respectively. Within the *bla*CTX-M-2 or *bla*CTX-M-15-carrying plasmids, only the plasmids of *E. coli* from human origin gave a different fingerprint. Small differences in fingerprints indicated that the *bla*TEM-52 gene occurred on different but related plasmids.

**Conclusion:** These results may indicate that bacteria share a common gene pool. Further studies are needed to better understand the link between these related plasmids.

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