

Detection of ESBL-producing *Klebsiella pneumoniae* in samples from meat rabbits

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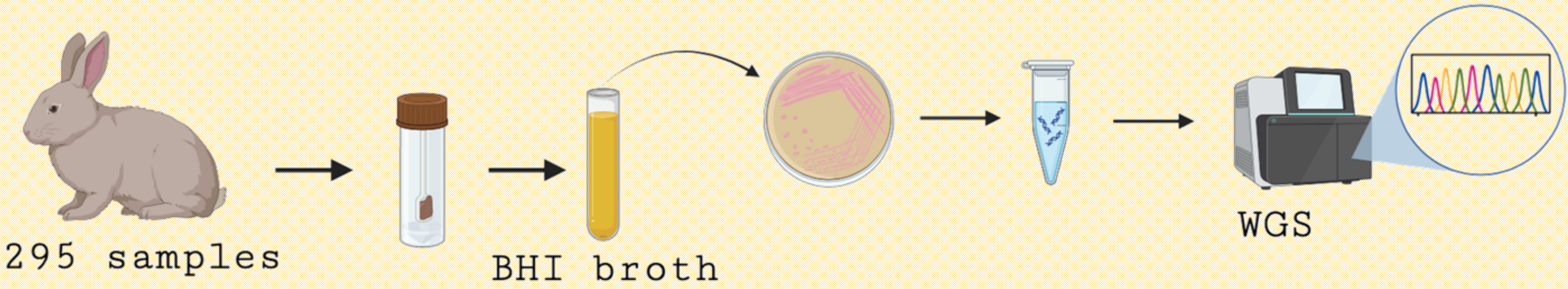
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Introduction

Klebsiella pneumoniae is an opportunistic pathogen that can acquire multiple antimicrobial resistance mechanisms. The presence of multidrug-resistant *K. pneumoniae* in food-producing animals raises concerns about its potential role in the dissemination of resistance genes. This study aimed to investigate the occurrence of *K. pneumoniae* in healthy meat rabbits and characterize its antimicrobial resistance and virulence profiles.

Materials and Methods



Results

Out of 295 samples, only 6 (2%) were ESBL-producing *K. pneumoniae*. All isolates were multidrug-resistant, carrying genes for resistance to antibiotics such as *bla*_{TEM-1}, *bla*_{CTX-M-15}, *bla*_{SHV} variants, and *bla*_{OXA-1}. Resistance genes for aminoglycosides, tetracyclines, sulfonamides, fluoroquinolones, and fosfomycin were also detected (Figure 1). Heavy metal resistance genes (*sil* and *pco*) were present in all isolates, as well as efflux pump regulators (*ramA*, *marA*, and *baeR*). The isolates belonged to sequence types ST307, ST45, ST193, and ST2026 (Figure 2).

	Aminoglicosides	Cephalosporins (3rd gen.)	Fluoroquinolones	Penicillins	Phenicol	Sulfonamides	Tetracycline	Trimethoprim
VS3367	●	●	●	●		●	●	●
VS3368	●	●	●	●		●	●	●
VS3369	●			●	●	●		●
VS3370	●			●		●	●	●
VS3371	●			●	●	●	●	●
VS3372	●		●	●		●	●	●

Figure 1. Phenotypic antimicrobial resistance profiles of *K. pneumoniae* isolates recovered from healthy meat rabbits.



Conclusions

These findings reinforce the need for continuous monitoring of antimicrobial resistance in *K. pneumoniae* from food-producing animals, as their potential role in the spread of resistance genes poses a risk to public health

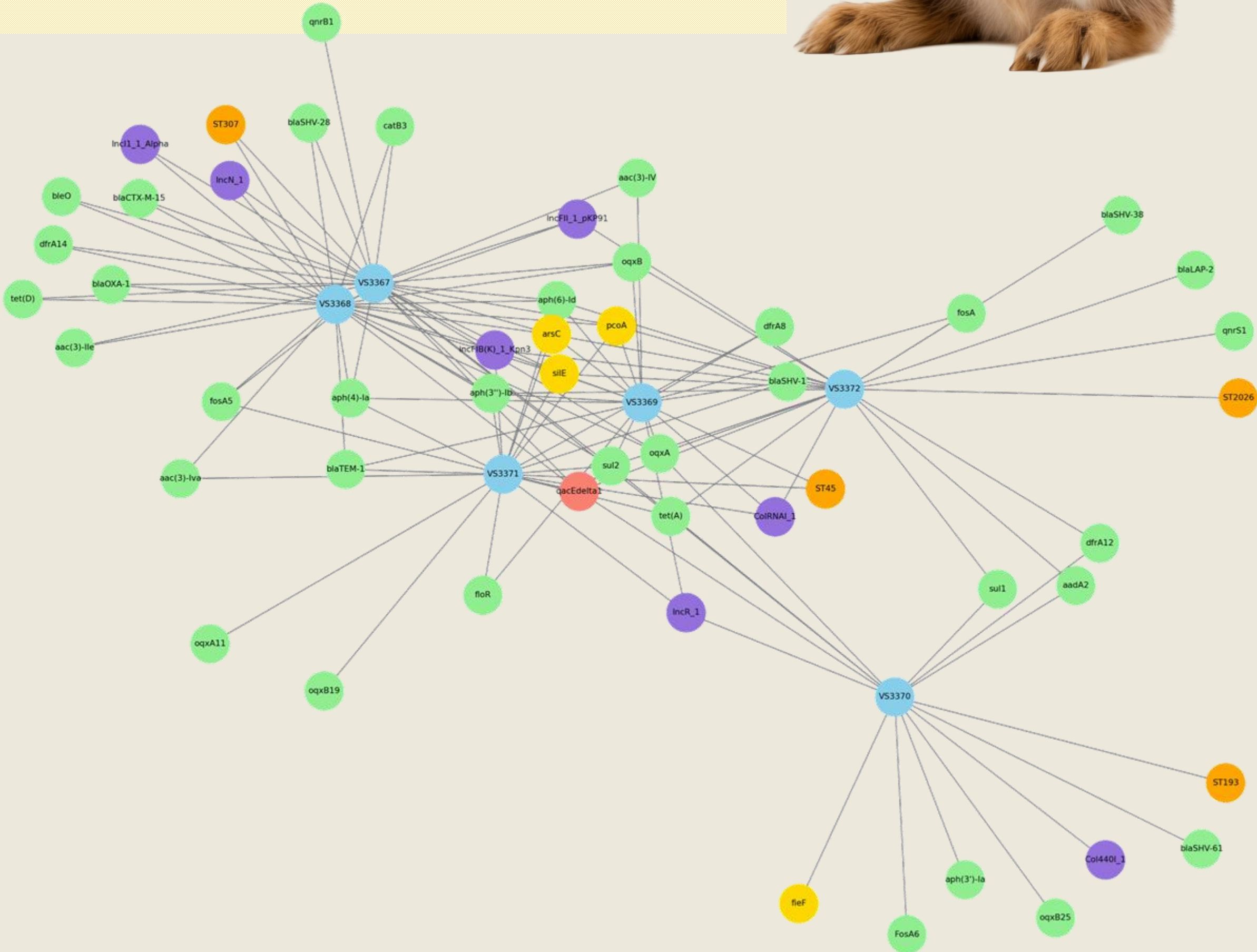


Figure 2. Network of *K. pneumoniae* isolates and associated genetic elements. Nodes represent isolates (blue), resistance genes (green), plasmids (purple), sequence types (orange), and resistance to metals (yellow) or biocides (red). Connections indicate the presence of each element in a given isolate.