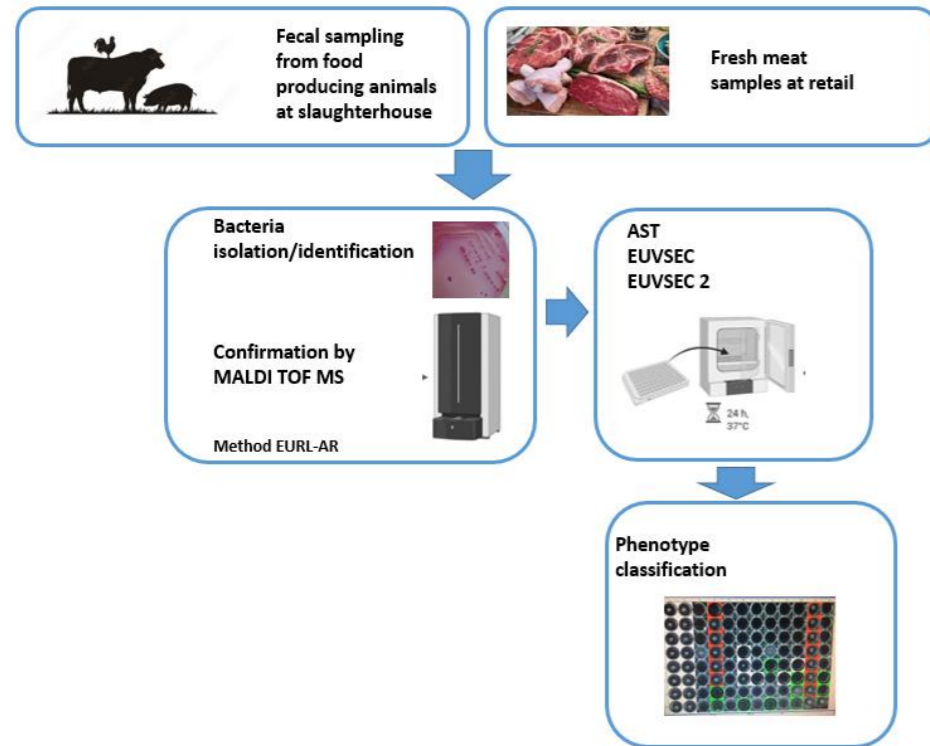


Introduction

The specific monitoring of ESBL, AmpC and carbapenemase producing *E. coli* from caeca from broilers, fattening pigs and veal calves at slaughterhouses and from fresh meat derived thereof at distribution has been implemented in Belgium on a yearly basis. Comparison in terms of prevalence and antimicrobial resistance profile has been done in both food producing environments in order to identify the risk for public health.



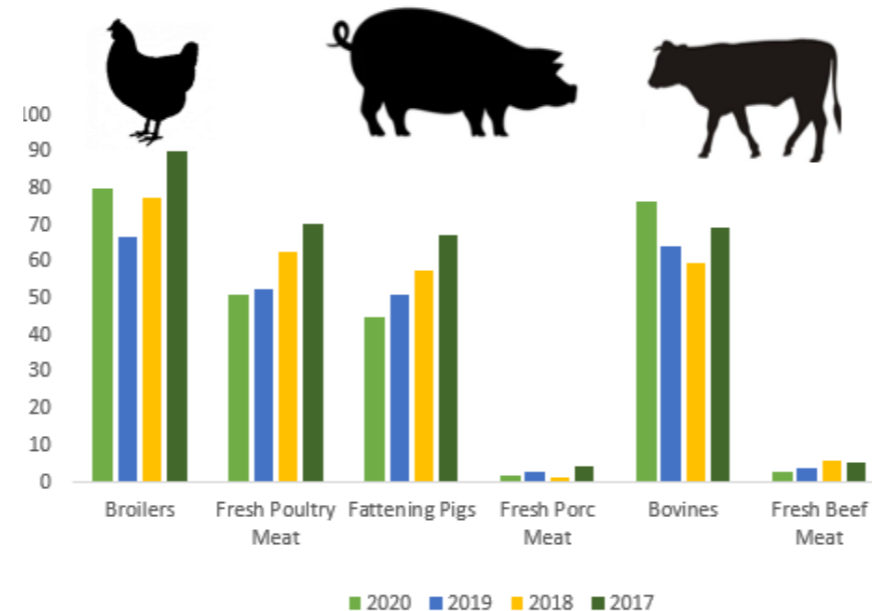
Flowchart of Isolation of ESBL, AmpC and carbapenemase-producing *E. coli* from caecal and meat samples

Methodology

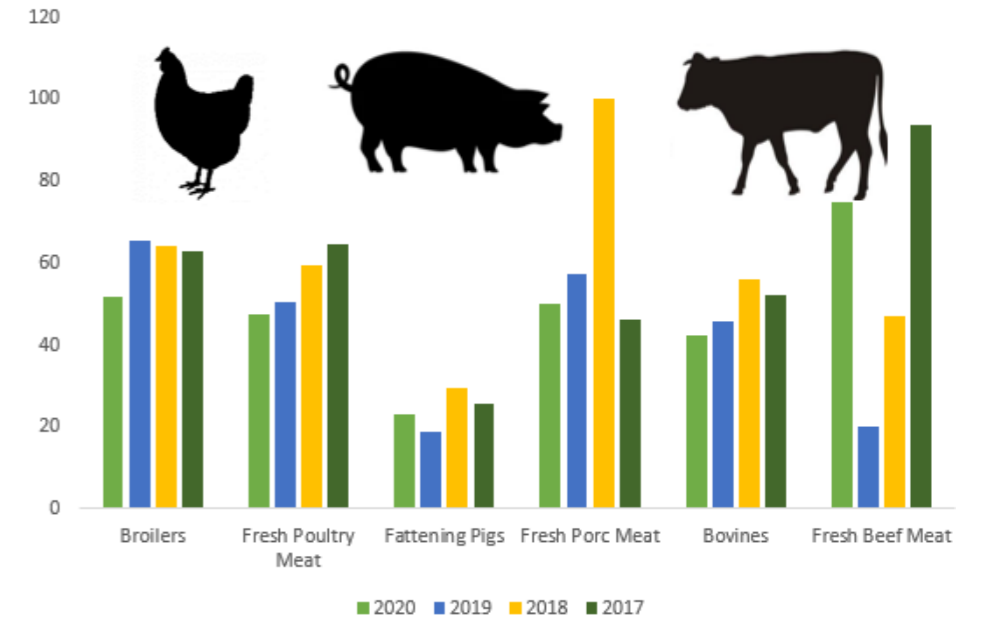
300 samples per animal production population/food matrix and environmental site (slaughterhouse and distribution) per year have been analyzed. The selective monitoring has been done following the EURL-AR protocol (<https://www.eurl-ar.eu/protocols.aspx>). AST was done following the commission implemented decision 2013/652/EU.

Results

- Prevalence of *E. coli* ESBL and/or AmpC over the four years varied among the animal population and the meat categories. Extremely to very high prevalence was found at the slaughterhouse environment
- In average, the highest values were from broilers (78.48) following by bovines (67.41 %) and fattening pigs (55.24 %) at slaughterhouse. In fresh meat at retail, very high prevalence was found in fresh poultry meat (59,24%) and low prevalence in fresh pork meat (2,6%) and fresh beef meat (4,3%)
- A decreasing prevalence of *E. coli* ESBL/AmpC in fresh poultry meat was observed from the period 2017-2020
- Co-resistance of *E. coli* ESBL/AmpC to fluoroquinolones was much higher in pork and beef meat at distribution sector than in the corresponding category of animals at slaughterhouse



Prevalence of *E. coli* ESBL/AmpC isolated in food producing animals and derived meat



Percentage of *E. coli* ESBL/AmpC isolates presenting co-resistance to Ciprofloxacin

Conclusions

Prevalence of ESBL/AmpC *E. coli* was extremely high in the slaughterhouse environment and very high in fresh poultry meat at distribution in Belgium. This may pose a high risk of contamination to humans if hygiene measures are not taken in place during handling and cooking. Although ESBL/AmpC *E. coli* prevalence in pork and beef fresh meat was low, isolates displayed a multiresistance phenotype and a high level of co-resistance to fluoroquinolones was reported.

In conclusion, it is of great relevance the AMR monitoring in different environmental sites of the food chain of food producing animals in order to identify potential sources of contamination and implement interventions.

Literature cited and acknowledgments

- <https://www.eurl-ar.eu/protocols.aspx>
- <https://eur-lex.europa.eu/legal-content/EL/TXT/PDF/?uri=CELEX:32013D0652&from=EN>

Further information

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