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Antimicrobial Resistance and Biofilm Formation in Foodborne *Staphylococcus aureus* Isolates: Implications for Food Safety

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INTRODUCTION & AIM

Staphylococcus aureus is a significant pathogen that can be transmitted through the food chain, often linked to antimicrobial resistance and virulence factors, which contribute to its persistence and pathogenicity. Biofilm formation enhances its survival under adverse conditions and contributes to AMR dissemination.

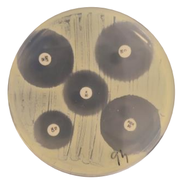
This study aimed to evaluate the antimicrobial resistance profile and biofilm formation of *S. aureus* strains isolated from meat samples and its implications for food safety.

METHOD

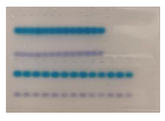
Microbiological analysis

Phenotypic and genotypic characterization

- Kirby-Bauer diffusion method
  14 antibiotics

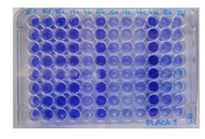


- Polymerase Chain Reaction (PCR)
- Agarose gel electrophoresis



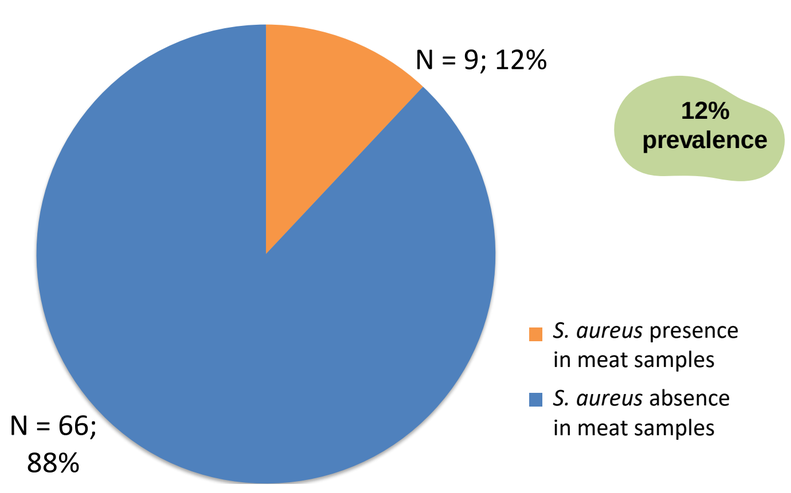
Biofilm production

- 24 h and 48 h biofilms
- Microtiter plate-based method
- Crystal Violet staining method

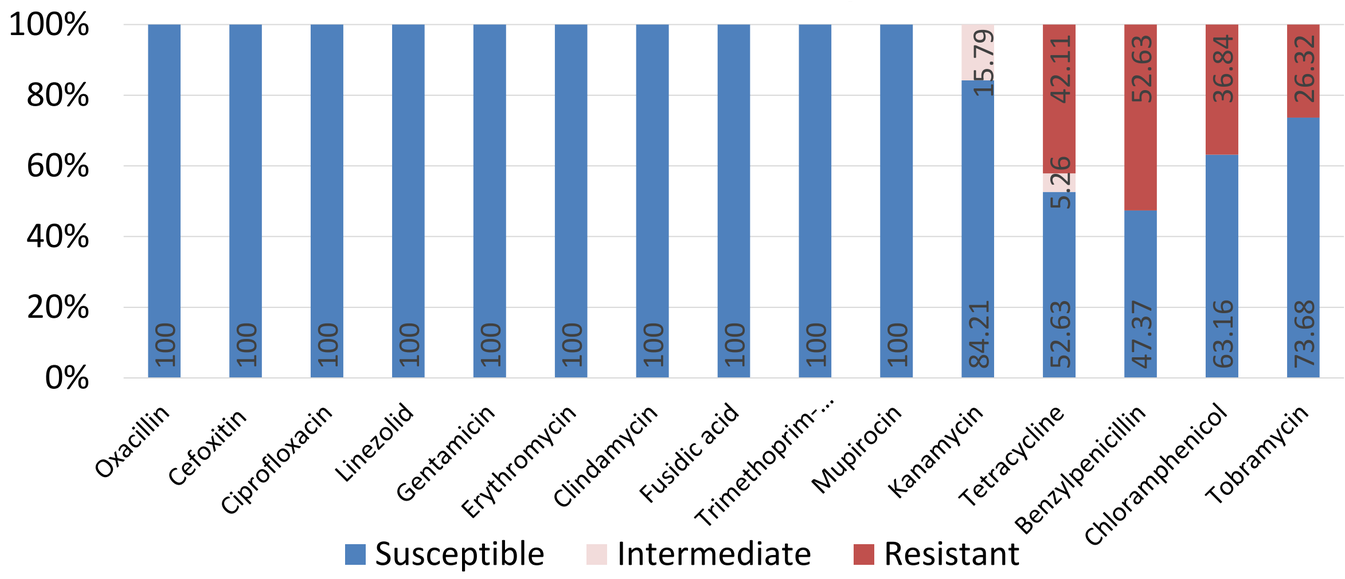


RESULTS & DISCUSSION

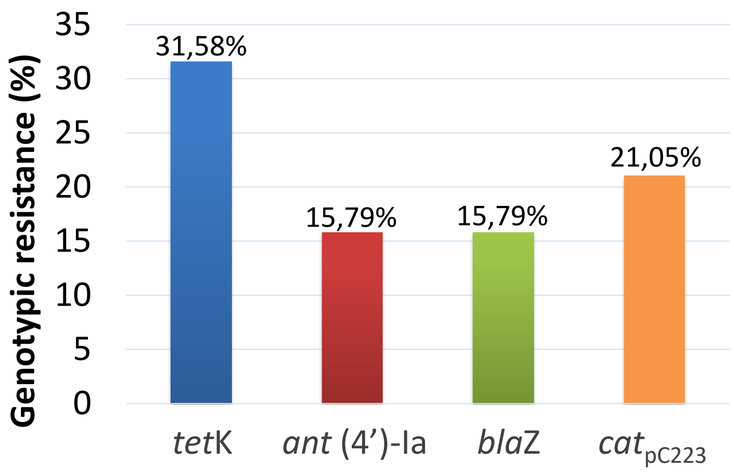
S. aureus prevalence



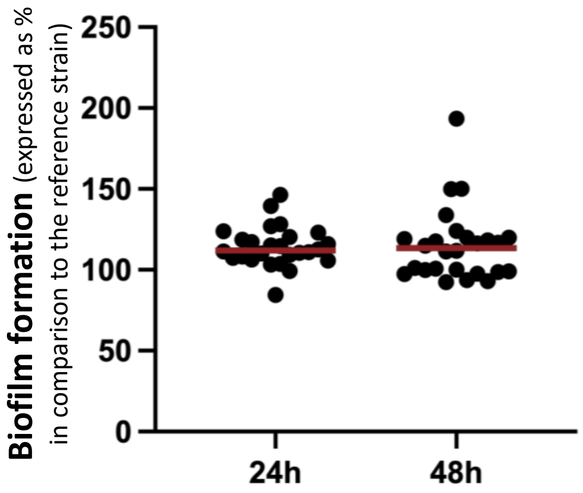
Antimicrobial resistance profile



Resistance genes prevalence



Biofilm formation



- All isolates formed biofilms at 24 h and 48 h
- Biofilm production was lower at 24 h (114.34% ± 12.51), when compared to 48 hours (115.04% ± 22.43) → these differences were not statistically significant ($p > 0.05$)

CONCLUSION

These findings highlight the public health risks posed by food-adapted *S. aureus*, particularly their role in promoting bacterial survival through biofilm formation, and AMR in food environments, emphasizing the need for targeted strategies to mitigate these risks in the food industry.

FUTURE WORK / REFERENCES

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