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Phenotypic Antimicrobial Susceptibility of *Listeria monocytogenes* Detected in Animal-Origin Food Products from Harghita County, Romania

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ABSTRACT

Listeria monocytogenes is a foodborne pathogen of major public-health concern. This study evaluated phenotypic antimicrobial susceptibility in 15 animal-origin food samples collected in Harghita County, Romania. Conventional culture and VITEK 2 Compact identification confirmed 10 L. *monocytogenes* isolates (66.7%). Kirby–Bauer testing found 100% susceptibility to gentamicin, while the highest resistance was observed for trimethoprim–sulfamethoxazole (30%). Penicillin, ampicillin, erythromycin and meropenem each showed 20% resistance. These preliminary findings support continued food-chain monitoring and hygiene control.

INTRODUCTION

Listeria monocytogenes is an important foodborne pathogen responsible for severe listeriosis. Its ability to grow at refrigeration temperatures and form biofilms contributes to its persistence in food products and processing environments. Emerging antimicrobial resistance represents an increasing public health concern.

This study aimed to evaluate the phenotypic antimicrobial susceptibility of *L. monocytogenes* isolates recovered from animal-origin food products in Harghita County, Romania.

MATERIALS AND METHODS

15 food samples: pork meat and processed products, sheep meat preparations, and sheep-milk cheese (brânză de burduf).

01 SAMPLE COLLECTION
Harghita County; refrigerated transport (~4 °C).

02 ISOLATION
Enrichment broth → Brilliance™ Listeria chromogenic agar → pure cultures.

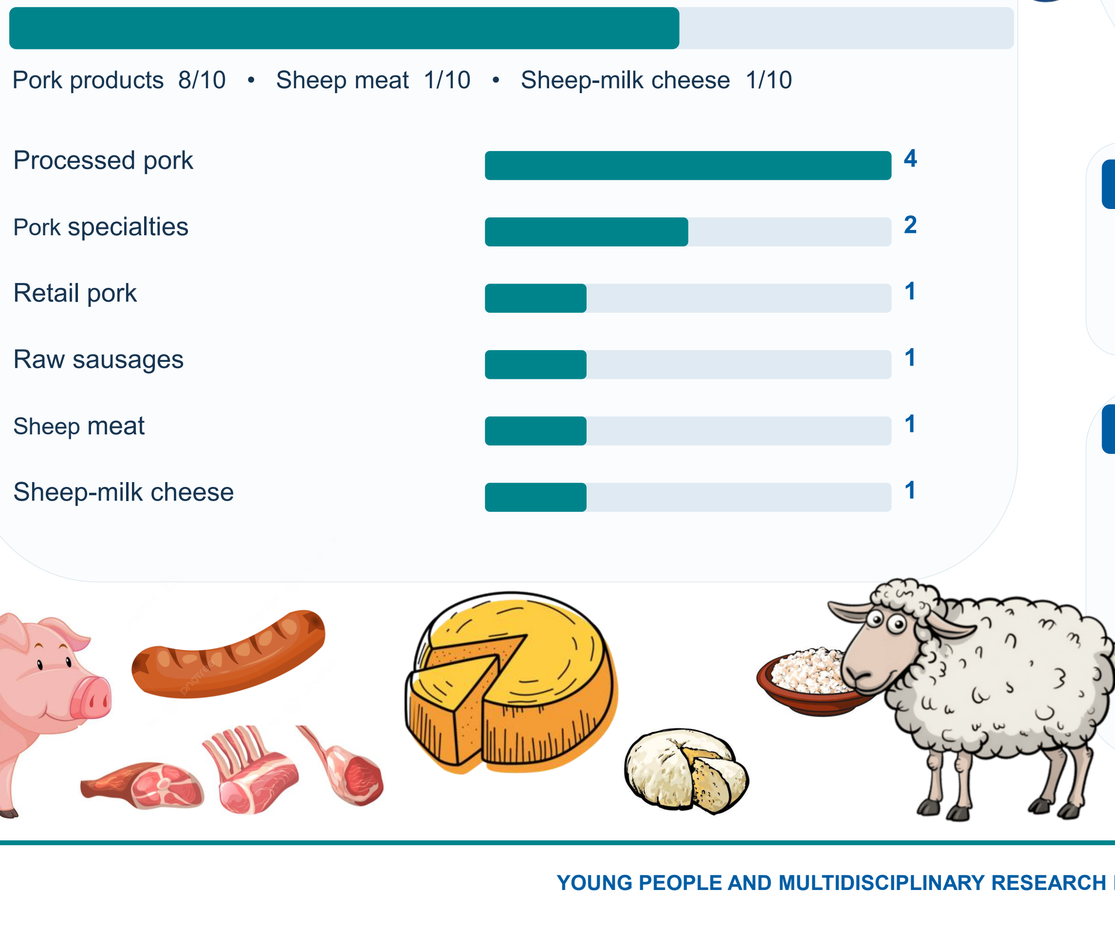
03 IDENTIFICATION
Gram staining and VITEK® 2 Compact (GP cards).

04 SUSCEPTIBILITY
Kirby–Bauer disk diffusion on Mueller–Hinton agar; 9 antimicrobials.

DISTRIBUTION OF POSITIVE SAMPLES

10 / 15 positive food samples (66.7%)

Pork products 8/10 • Sheep meat 1/10 • Sheep-milk cheese 1/10



RESULTS AND DISCUSSIONS

66.7% positive samples

100% gentamicin susceptible

30% highest resistance (SXT)

ANTIMICROBIAL SUSCEPTIBILITY (n = 10)

Susceptible (S) Intermediate (I) Resistant (R)



Bar segments represent percentages of the 10 confirmed isolates.

KEY FINDINGS

No resistant isolates were recorded for tetracycline, ciprofloxacin or vancomycin, but 50% had intermediate susceptibility to each.

CONCLUSIONS

L. monocytogenes was detected in pork products, sheep meat and sheep-milk cheese. Gentamicin susceptibility was preserved, while resistance to several other antimicrobials was observed.

Because only 15 samples were tested, results are preliminary and cannot be generalized. Larger studies and standardized testing, alongside food-chain hygiene and surveillance, are needed.