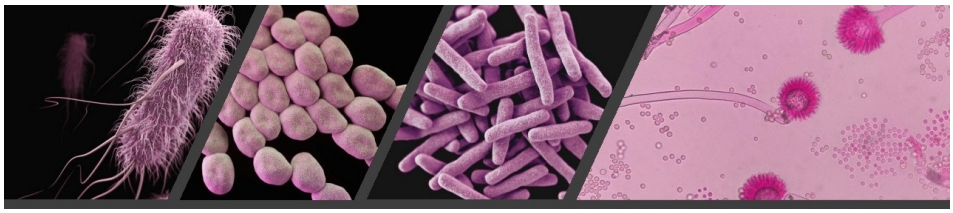

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Accelerating blood culture diagnostics in veterinary medicine: pathogen identification and antimicrobial susceptibility testing

Friday 12 September 2025 12:15 (15 minutes)

Background and objectives: Blood cultures (BCs) are the gold standard for the diagnosis of sepsis, with rapid diagnostics being crucial for treatment. The current standard in veterinary medicine includes pathogen identification (ID) and antimicrobial susceptibility testing (AST). We aimed to accelerate BC diagnostics and compare its performance to the currently applied methodologies.
Methods: A manual BC system (Oxoid) was inoculated with frequently detected clinical pathogens. ID and AST were determined before positive signal of the BC system without cultivation steps or after short-term incubation of five hours on agar plates. ID was performed using matrix assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-ToF MS). AST was performed by broth microdilution according to the Clinical and Laboratory Standards Institute (CLSI) standards.
Results: Short-term incubation allows determination of ID and preparation of the inoculum for AST of relevant clinical pathogens. The ID- and AST inoculum preparation of negative BCs without a cultivation step yielded less reliable results. Gram-positive species such as staphylococci posed limitations.
Conclusions: Shortening BC diagnostic steps in the microbiological laboratory is possible, but limitations exist presumably due to the species-specific growth rates. Together with improved management, short-term incubation of negative BCs can reduce the time to ID and AST communication to the clinician.

Keywords

blood culture, diagnostics, clinical infectiology, bacteriology

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