INFECTIOUS DISEASES

Prevalence and antimicrobial susceptibility of BRD pathogens isolated from cattle with respiratory disease for over 10 years of supported testing program in Germany.

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INTRODUCTION

Trans-tracheal aspiration (TTA) is a technique used for in vivo identification of mainly bacterial pathogens from cattle with bovine respiratory disease (BRD).

OBJECTIVE

The objective of this study was to investigate the dynamics in the prevalence of BRD associated bacteria:

Mannheimia haemolytica,
Pasteurella multocida,
Histophilus somni,
Trueperella pyogenes

in the lower respiratory tract of calves with respiratory disease and their antimicrobial susceptibility over the past 13 years.

MATERIALS AND METHODS

During the period of 2009 to 2021 samples were collected through TTA from calves with respiratory disease after a specific request by veterinarians to identify BRD related pathogens **(Fig.1)**.

Samples collected from calves located on farms in all regions of Germany, dairy farms as well as fattening units.

None of the sampled animals received an antimicrobial treatment prior to sampling.

Isolation and identification performed using bacterial culture, MaldiTof and subsequent determination of antimicrobial susceptibility by microdilution (samples collected since 2013 only).

For *T. pyogenes* no antimicrobial testing was done as antimicrobial therapy is not considered viable and therefore no CLSI methods are available.

P. multocida was the most prevalent bacterium isolated from the lower respiratory tract of calves with respiratory disease during the period of 2009 - 2021 in Germany. However, *M. haemolytica* prevalence of up to 30% was found in certain years.

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RESULTS

1726 calves were sampled on 361 farms, resulting in 611 pooled samples.

BRD-associated bacteria were isolated from 66,3% of all samples with a 55,2 – 78,8% yearly range.

P. multocida was the most prevalent bacterium isolated **(Fig.2)**. However, *M. haemolytica* prevalence of up to 30% was found in certain years.

None or only a few isolates of *P. multocida*, *M. haemolytica* and *H. somni* were resistant to amoxycillin, ampicillin, ceftiofur, florfenicol, gentamicin, and trimethoprim sulfonamide.

The isolated bacteria showed high susceptibility to several other antimicrobial treatments **(Fig.3a-c)**.

FIGURE 1. Performance of TTA.

FIGURE 2. Frequency of bacterial pathogens isolation from TTA samples collected during 2009-2021.

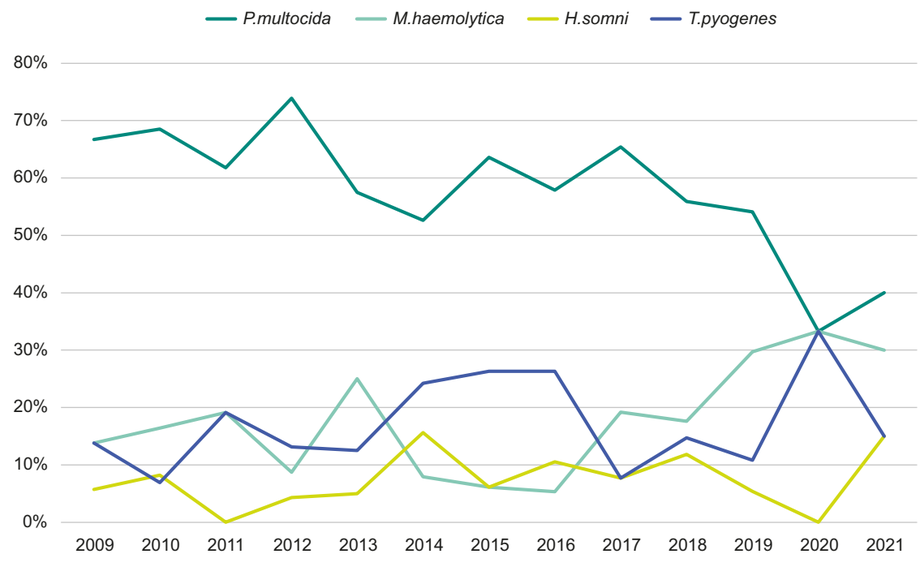
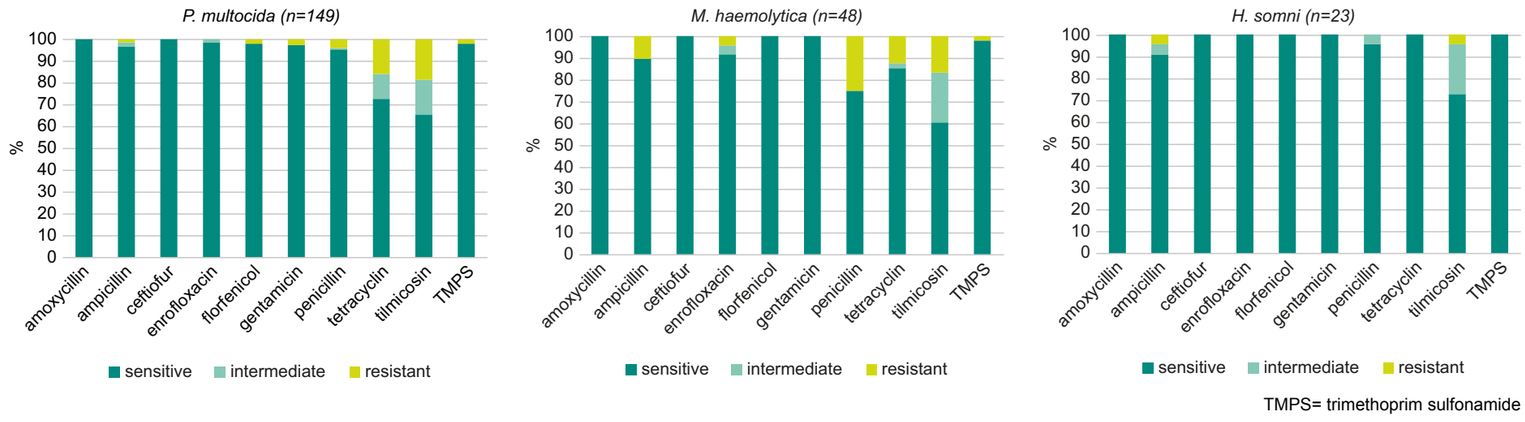


FIGURE 3. Antimicrobial susceptibility of bacterial pathogens isolated from TTA samples collected during 2009-2021.



TMPS= trimethoprim sulfonamide

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