PHENOXYPEN ®

TECHNICAL BULLETIN 2026

Antimicrobial susceptibility of *Streptococcus suis* isolates (2015-2024) from different parts of Europe

Introduction

Although farmers and veterinarians focus on the prevention of *Streptococcus suis*, as one of the most important swine pathogens, by management, biosecurity measures, proper diagnostics and (autogenous) vaccination, disease outbreaks occur often on many farms. During acute outbreaks it can be necessary to start antimicrobial group treatment via drinking water to minimize impacts on animal health and welfare. In general, penicillins are considered as 'first choice' treatment option for the disease, and broad-spectrum amoxicillin has been widely used via drinking water. With the recent availability of the narrow-spectrum phenoxymethylpenicillin (penicillin V) for treatment of *S. suis* disease via drinking water administration (Phenoxypen®), it is of interest to have an overview of susceptibility of *S. suis* strains against narrow-spectrum penicillin in Europe.

Materials and methods

Published literature was searched for recent articles (2022 – 2025) in which susceptibility of *S. suis* isolates from diseased animals in Europe was measured against narrow-spectrum penicillin. Articles were selected which reported MIC-values in a range of ≤ 0.0313 µg/ml to ≥ 32 µg/ml. Data from the articles was used to make a MIC-distribution visualized in a graph.

Results

Four articles were found which met the inclusion criteria. In all articles, penicillin G was used to measure susceptibility against narrow-spectrum penicillin. Figure 1 shows the frequency distribution of the MICs of 1167 *S. suis* strains isolated between 2015 and 2024 in different European countries.

92.6% of the S. suis strains showed full susceptibility against narrow-spectrum penicillin (MIC < 0.5 µg/ml1), 3.9% of the strains showed resistance (MIC ≥ 1 µg/ml1) and 3.5% of the strains showed intermediate susceptibility (MIC = 0.5 µg/ml1). MIC50 and MIC90 were calculated as 0.0313 µg/ml and 0.25 µg/ml respectively.

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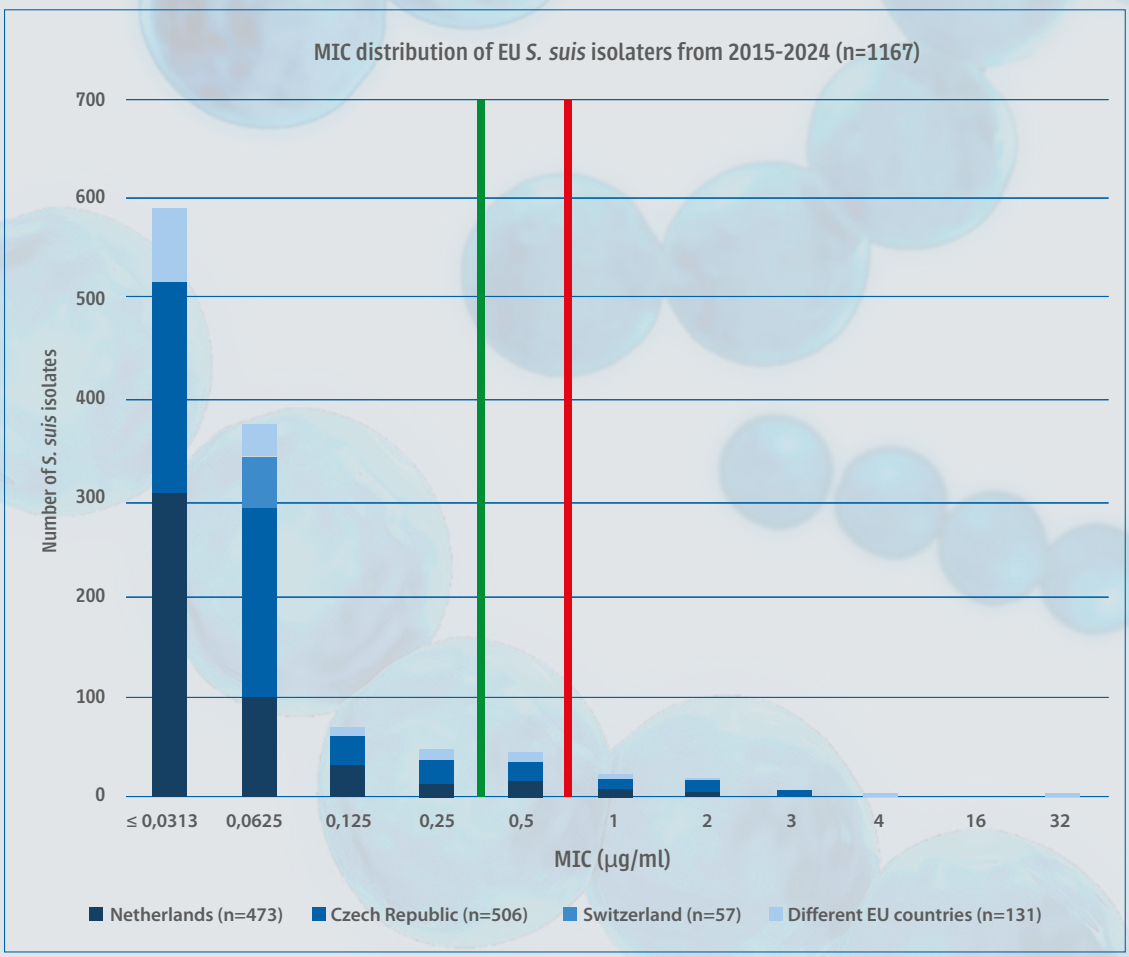

Fig 1: frequency distribution of 1167 *S. suis* isolates from the different EU countries[2,3,4,5]. Bars left from the green line represent the wild type population and are considered fully susceptible, bars right from the red line represent resistant strains which have acquired genetic alterations. The bar in between the green and red line represents intermediate susceptible strains which may still be treatable with narrow-spectrum penicillin.

Discussion and conclusion

In all reports penicillin G was used as narrow-spectrum penicillin to measure the MIC. Penicillin V is a closely related analogue of Penicillin G, with a virtually identical antibacterial spectrum and activity against *S. suis*. Due to chemical manipulation of a part of the structure, Penicillin V is acid stable and appropriate for oral administration, in contrast to Penicillin G.

Although (broad-spectrum) penicillin has been widely used for treatment of S. suis infections in swine, the results show high susceptibility of recently isolated S. suis strains from diseased animals against narrow-spectrum penicillin.

References

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