

## Etiologic agents isolated from companion animals with otitis

Manuel Rodrigues<sup>1</sup>, Tiago Lima<sup>2,3</sup>, Sara Isidoro<sup>1</sup>, André Meneses<sup>2,4</sup>,  
Adriana Belas<sup>2,4,5</sup>

<sup>1</sup>Faculty of Veterinary Medicine, Lusófona University, Lisbon University Center, Lisbon, Portugal.

<sup>2</sup>Research in Veterinary Medicine (I-MVET), Faculty of Veterinary Medicine, Lusófona University, Lisbon University Centre, Portugal.

<sup>3</sup>Department of Immuno-Physiology and Pharmacology - Abel Salazar Institute of Biomedical Sciences, Porto, Portugal.

<sup>4</sup>Veterinary and Animal Research Centre (CECAV), Faculty of Veterinary Medicine, Lusófona University, Lisbon University Centre, Portugal.

<sup>5</sup>Higher School of Animal Health, Protection and Welfare (ESPA) – Polytechnic Institute of Lusofonia (IPLUSO), Lisbon, Portugal.

**Objectives:** Otitis externa is one of the most common types of infections seen in companion animals, particularly in dogs. This study aimed to determine the prevalence of etiologic agents in companion animals (dogs and cats) with otitis in Lisbon area between September 2023 and June 2024.

**Material and methods:** A total of 71 companion animals with otitis were included in this study. Bacterial species identification was conducted by MALDI-TOF (VITEK® MS) and by PCR. For *Staphylococcus* spp. isolates, antimicrobial susceptibility testing was performed using the disc diffusion method following the CLSI guidelines.

**Results:** Eighty-two bacterial isolates were obtained from the 71 animals included in this study. Among the bacteria isolates, most were Gram-positive bacteria (85.4%, n=70/82), while Gram-negative bacteria were 14.6% (n=12/82). Regarding Gram-positive bacteria *Staphylococcus* spp. was the most frequent bacteria isolated (91.4%, n=64/70), namely *S. pseudintermedius*, (64.1%, n=41/64), *S. schleiferi* (12.5%, n=8/64), *S. felis* (9.4%, n=6/64), *S. aureus* (3.1%, n=2/64), *S. epidermidis* (3.1%, n=4/64), *S. haemolyticus*, *S.lugdunensis* and *S pettenkoferi* (1.6%, n=1/64). About 8.6% (n=6/70) of the isolates were *Enterococcus* spp., consisting of 4 isolates of *Enterococcus faecalis*, one isolate of *Enterococcus faecium*, and one isolate of *Enterococcus canintestini*.

Regarding *Staphylococcus* spp., 28.1% (n=18/64) were methicillin-resistant (MRSA). Among these isolates, 14 were *S. pseudintermedius* (MRSP), 2 were *S. epidermidis* (MRSE), and 2 were coagulase-negative staphylococci (CoNS), specifically *S. haemolyticus*. About Gram-negative bacteria the most common were *Escherichia coli* (41.7%, n=5/12), followed by *Proteus mirabilis* (33.3%, n=4/12), *Pseudomonas aeruginosa* (16.2%, n=2/12) and *Klebsiella pneumoniae* (8.3%, n=1/12).

**Conclusion:** This study emphasizes the importance of identifying and characterizing pathogens with potential zoonotic risks for infection management and prevention. Healthcare providers must prioritize preventing the transmission and spread of MDR bacteria through active surveillance.

**Keywords:** Companion animals, Otitis, Bacteria, Methicillin-resistant *Staphylococcus* spp..