

Title: ANTIMICROBIAL SUSCEPTIBILITY PROFILES AND DETECTION OF RESISTANCE GENES IN *Staphylococcus* ISOLATES FROM VETERINARY CLINICAL SAMPLES

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Abstract:

Multidrug-resistant *Staphylococcus* spp. pose a challenge not only in human medicine but also in veterinary medicine. Animals play an important role as a reservoir of multidrug-resistant bacteria. Studies of the antimicrobial resistance profiles of *Staphylococcus* spp. that investigate the associations between results obtained using phenotypic and genotypic methods are very useful. Thus, the aim of this study was to analyze the antimicrobial susceptibility of veterinary clinical isolates of *Staphylococcus* and the presence of resistance genes in these isolates. A total of 100 *Staphylococcus* spp. clinical isolates from animals were subjected to antimicrobial susceptibility testing using the disk diffusion technique on Mueller - Hinton agar. The following antibiotic disks were tested: gentamicin (GEN), cephalexin (LEX), erythromycin (ERY), ciprofloxacin (CIP), amoxicillin (AMX) and trimethoprim-sulfamethoxazole (SXT). Partial sequences of the 16S rRNA gene were analyzed, and these isolates were tested by PCR for several antimicrobial resistance genes: *mecA*, *ermB*, *ermC*, *tetK*, *tetM*, *femA*, *msrA*, *blaZ*, *aac(6')-aph (2'')*, *aph3'-IIIa* and *ant (4')-Ia*. The most common species were *Staphylococcus pseudintermedius* (61%), *S. schleiferi* (15%) and *S. aureus* (5%). Among the antibiotics tested, resistance to ERY (57%), SXT (50%) and AMX (46%) was detected most frequently. In total, 40% of *Staphylococcus* spp. exhibited a multidrug-resistant (MDR) phenotype. A significant association was observed between ERY resistance phenotype and the *ermB* and *ermC* resistance genes. The results of this study emphasize that animals are reservoir of MDR *Staphylococcus* spp. and may become an important source of contamination of these microorganisms to both humans and other animals and contaminate food. Thus, monitoring and surveillance programs related to dispersion and studies of the behavior of these microorganisms are needed.

Keywords: resistance genes, *Staphylococcus* spp., antimicrobial resistance, multidrug resistance.