Título: DETECTION BY MULTIPLEX-PCR, MIC AND DISC-DIFFUSION B-LACTAM RESISTANCE IN Staphylococcus spp. ISOLATED FROM SICK ANIMALS

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Abstract

The resistance to β-lactam drugs in *Staphylococcus* spp. is a mainly antibiotic resistance in this bacterial family it is mediated by *BlaZ*, *mecA* and/or *mecC* genes. *Staphylococcus* spp. carrier *mecA* or *mecC* gene is called by Methicillin-resistant *Staphylococcus* spp. (MRS). The objective of this study was to detect β-lactam resistance in *Staphylococcus* spp. isolated from clinic samples of animals with different infections. There were evaluated 20 *Staphylococcus* spp. isolated from sick animals. There were performed multiplex-PCR to detect *mecA*, *mecC* and *BlaZ* genes, minimum inhibitory concentration (MIC) of oxacillin (256 to 0.5 µg/mL) and disc-diffusion of penicillin, oxacillin and cefoxitin. In three samples *mecA* gene were detected by PCR, with MIC ranged 1 to 64 µg/mL (MIC_{50} and MIC_{90} was 64 µg/mL) and resistant in disc-diffusion for the three antibiotics tested. In 8 *Staphylococcus* strains were amplified both *mecA* and *BlaZ* genes, the MIC ranged 8 to ≥256 µg/mL (MIC_{50} was 128 µg/mL and MIC_{90} was 32 µg/mL) and in disc-diffusion all strains were resistant to penicillin, 6 to oxacillin and 5 to cefoxitin. In 9 strains were amplified *BlaZ* gene. In three of these samples, MIC were <0.5 µg/mL (MIC_{50} and MIC_{90} was <0.5 µg/mL), oxacillin and cefoxitin were susceptible and penicillin were resistant in two samples. In 6 others *BlaZ* positive samples, MIC ranged 4 to ≥256 µg/mL (MIC_{50} was 128 µg/mL and MIC_{90} was 32 µg/mL), with resistance to penicillin in all strains, to oxacillin in 4 strains and to cefoxitin in two. These 6 strains show another form of β-lactam resistance not included in the multiplex-PCR used despite the detection of *mecA*, *mecC* and *BlaZ* genes. Although the PCR is the gold standard technique to detect the resistance to β-lactam drugs, variations or mutations in the resistance genes can lead to false negative results. The association of these techniques opens the need for further studies about variations in theses resistant genes.

Key-words: mecA, BlaZ, MRS, oxacillin