TITLE: CHALLENGES IN PREDICTING B-LACTAM RESISTANCE IN *Staphylococcus* spp. ISOLATES FROM BROILER CHICKEN PRODUCTION

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ABSTRACT

Animal production is a relevant activity of Brazilian agribusiness. Brazil stands out in poultry production as the second largest producer of chicken meat in the world. In Brazil, the prohibition of the use of beta lactams as additives was established of MAPA Normative Instruction 26/2009 but the use in therapeutic and prophylactic form is released. Methicillin-resistant *Staphylococcus* spp. are important in both human and veterinary medicine due to its resistance to all β-lactam antimicrobial. The *mec*A gene responsible for this characteristic is widely diffused between both *Staphylococcus* coagulase positive and negative species from animal and human origin. Melo et al. (2014) described a new variant of the *mec*A gene in *S. aureus* isolated from bovine samples and suggested that the primer described by Murakami et al. (1991) would not be so accurate in amplifying the *mec*A gene in the livestock samples. The aim of this study was to evaluate the phenogenotypic resistance of β-lactam antimicrobials in strains of *Staphylococcus* spp. isolated from broiler chicken. Two chicken farms located in the mountain region of the State of Rio de Janeiro were evaluated. Sampling comprised 60 cloacal and 60 trachea swabs. Matrix-assisted laser desorption / Time of Flight (MALDI-TOF) and biochemical tests were performed to identify the *Staphylococcus* species. Disk diffusion assayed phenotypic resistance. The conventional *mec*A, *mec*A variant and *bla*Z genes were detected by PCR. Of 88 staphylococcal isolates, 35,2% (31/88) was identified as *Staphylococcus gallinarum*. Phenotypic oxacillin-resistance was detected in 26.1% (23/88) of the isolates. No isolate tested positive for conventional *mec*A gene while the variant *mec*A was detected in 5.7% (5/88) and *bla*Z gene was detected in 1.1% (1/88). The primer described by Murakami et al. (1991) did not allow the detection of *mec*A gene. The universal primer designed by Melo et al. (2014) allowed the detection of the variant *mec*A in five isolates. I can be conclused the β-lactam resistance in samples from animals is necessary more specific analyses, including the detection of *mec*A variant, impossible to detect with the conventional *mec*A primer described. This was the first relate of *mec*A variant presence in samples from broiler chicken.

Keywords: resistance, *Staphylococcus* spp., beta-lactam

Development Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior