

**TITLE:** BACTERIAL RESISTANCE AND BIOFILME PRODUCTION BY *Staphylococcus* spp. ISOLATED FROM GROUND BEEF

**AUTHORS:** PAVAN, A. C. L.; NAKADOMARI, G. H.; VIGNOTO, V. K. C.; WOSIACKI, S. R.

**INSTITUTION:** UNIVERSIDADE ESTADUAL DE MARINGÁ, UMUARAMA, PR (ESTRADA DA PACA, S/N, BAIRRO SÃO CRISTÓVÃO, CEP 87507-190, UMUARAMA – PR, BRASIL)

**ABSTRACT:**

*Staphylococcus* spp. are targets of constant concern by public health and food industries authorities because the emergence of antimicrobial resistance by the indiscriminate use of antimicrobial drugs both in animals and humans. Associated with this, there are biofilm-producing strains that become more resistant to both antibiotics and sanitization processes. The objective of this study was to evaluate the presence of these virulence factors in isolated ground beef staphylococci. For the phenotypic detection of resistance, all samples were submitted to the disc-diffusion test with penicillin, oxacillin and cefoxitin antibiotics. The zone of inhibition were measured and the results interpreted according to the Clinical Laboratory Standards Institute (CLSI). All samples that showed resistance were subjected to genotype detection of *blaZ* and *mecA* genes by Multiplex-PCR. The phenotypic identification of slime production was performed by inoculation in Congo Red Agar. Of the 91 bacterial strains evaluated, 14 (15.38%) were resistant to Penicillin, of which 8 (8.79%) were resistant only to penicillin; 4 (4.39%) were resistant to the three antibiotics tested and 2 (2.20%) were resistant to penicillin and cefoxitin. Other 5 (5.49%) strains were resistant to cefoxitin, two (2.20%) were resistant to oxacillin and cefoxitin and one (1.09%) only to oxacillin. As for the genotype detection of resistance, *blaZ* gene was detected in 6 samples, one of them resistant to the 3 antibiotics tested and the other 5 resistant only to Penicillin; Another sample resistant to the three antibiotics showed *mecA* and *blaZ* genes. Of the 91 strains evaluated, 57 (62.64%) were positive for slime production in Congo Red Agar and 34 (36.36%) were negative. The detection of resistant strains in animal products demonstrates the importance of the rational use of antimicrobials. In addition, the presence of 62.64% of staphylococcal biofilm producing strains arouses attention to the food industries, since they may represent an original source of food contamination, food poisoning and consequent economic losses.

**Keywords:** Antibiotic, Food, Congo Red