

TITLE: SEARCH FOR ESBL-PRODUCING AND METHICILLIN-RESISTANT STRAINS AT THE VETERINARY NECROPSY ENVIRONMENT

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ABSTRACT:

Necropsy is an important tool for veterinary diagnosis, especially concerning outbreaks caused by the most diverse pathogens. During a necropsy, veterinarians can be exposed to pathogenic and commensal bacteria, harboring antimicrobial resistance genes. Besides the occupational risk for the professionals involved, it also favors the spread of resistant microorganisms to humans and the environment. The disposal of the carcasses is another critical point to the environmental contamination. Despite common sensing about the multifactorial origin of antimicrobials resistance, little is known about the contribution of the necropsy environment for the maintenance of genes and the consequent spread of resistance. The present study searched bacteria listed by the World Health Organization as priority agents as ESBL-producing Gram-negative rods and methicillin-resistant and vancomycin-intermediate and resistant *Staphylococcus* spp. in samples from necropsied animals in the Animal Pathology Sector of UFRRJ. Of 89 samples collected from 22 animals, a total of 82 Enterobacterales and 45 *Staphylococcus* spp. strains were isolated. They were characterized by phenotypical assays and by the MALDI-TOF technique. The resistance pattern research was carried out using screening and confirmatory antibiograms recommended by CLSI. Eighteen isolates (22%) presented resistance to beta-lactams and five (6%) presented the ESBL profile. The *bla*SHV and *bla*CTX-M genes were detected in 60% (3/5) of the strains. It is noticeable that two strains had both genes. It was observed 15,5% (7/45) methicillin-resistant and 2,2% (1/45) vancomycin-resistant, respectively. All phenotypically methicillin-resistant isolates presented the *mecA* gene. No *vanA* and *vanB* genes were detected. The monitoring of resistance genes circulating in the veterinary environment is essential to implement safety protocols for handling and disposing of carcasses in the necropsy environment.

KEYWORDS: ESBL production; Methicillin resistance; Necropsy Environment; One Health and Superbugs.

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