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POSTER 156

Strategies to mitigate antimicrobial resistance in livestock production

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Resumo

Introduction: Antibiotics are used in livestock farms for prevention and treatment of animal infections for decades [1]. However, their massive and inappropriate use for a long time has greatly contributed to the global spread of antimicrobial resistance through the direct contact with animals, the food chain or contaminated environments. With this increased concern about the impact of livestock on the burden of antimicrobial resistance worldwide, several measures have been implemented under a One Health approach [1-3]. **Objectives:** The aim of this work was to highlight the impact of antibiotic resistance in livestock production and its mitigation strategies. **Methods:** The search of relevant articles was performed on Pubmed database between February and March 2022, using the following keywords "mitigating", "antibiotic resistance" and "livestock". **Results:** As promising measures to reduce antibiotic use in animal production the following were identified: education and sensitization of farmers about antimicrobial use, enforcing existing veterinary legislation and establishing antimicrobials surveillance system. It also included amelioration of climate and housing conditions, biosecurity and well-being measures, and infectious diseases control [3,4]. Other strategies like farm management, antibiotic stewardship by using vaccines, wildlife control to reduce the intrusion of new pathogens agents, new therapies, risk analysis and animal microbiome analysis showed advantageous. The manure and wastewater treatment showed beneficials in the reducing of environmental contamination. Additionally, these measures have been more recently complemented with new legislation, for example prohibiting all forms of routine and prophylactic farm antibiotic use and banning the importation of all animal food produced with antimicrobial growth promoters as implemented by the European Union. In European animals, antibiotic use has declined 34% between 2011 and 2018, although 99% of the total sales for veterinary antimicrobial agents were used for livestock production [1, 2]. **Conclusions:** To mitigate antimicrobial resistance and conserve the effectiveness of antibiotics, is necessary monitoring antimicrobial use and expand these measures to all countries with animal production, in order to safeguard food safety and animal, environmental and human health.

Keywords: antibiotic resistance; livestock; mitigating; animals

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POSTER 157

The role of *postmortem* microbiome knowledge in veterinary medicine

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Resumo

Introduction: The field of veterinary forensic medicine has been increased in past years, permitting the identification of the cause or pathogen responsible for mortality in a specific animal group, in crimes involving pets or protected species [1,2]. Moreover, forensic microbiology involves the microbiological analysis techniques to identify the circumstances of a death and the post-mortem examination of microbial communities of a carcass has been useful to estimate of the time of death in animals. In the putrefaction process, microorganisms change into each stage of decomposition, through the colonization in a variety of tissues [2,3]. **Objectives:** In this study, the aim was to highlight the importance of the microbiology within veterinary forensic medicine. **Methods:** The search of relevant articles was performed on Pubmed and Googlescholar databases between February and March 2022, using the following keywords "microbial forensics", "animals" and "veterinary forensics". **Results:** The study of post-mortem microbial communities in animals, demonstrated that in case of a bite, microorganisms that can be found in internal tissues allow the identification of the aggressor in the first 24h. Disseminated lesions caused by Neisseria animaloris (commensal bacteria of oral cavity) were identified in porpoises due to traumatic injury from grey seals [4]. To estimate the post-mortem interval, analyzed the microbiome of rabbit carcasses comprised of 4 Phyla: Proteobacteria, Firmicutes, Bacteroidetes, and Actinobacteria. In 3 days, the microbial activity of oral cavity showed an increase (66%) with the predominance of Proteobacteria and the skin was 20% higher for fur-free animals, showing an increase of Firmicutes in animals without fur and Bacteroidetes in animals with fur [5]. Additionally, Bacillus cereus permitted the estimation of the death time using the gastrocnemius muscle of dogs. After seven days of the death, the Bacillus cereus group was the first bacterial colonies, demonstrating growth persisted until the 21st day [3]. **Conclusions:** This review demonstrated that the microbiological flora of carcasses is the key element of forensic microbiology and provides a useful tool in veterinary medicine, for determining the cause of crime and the time of death. This last is a crucial factor for investigations carried out by law process.

Keywords: microbial forensics; animals; veterinary forensics

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