

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## ANTIBIOTIC RESIDUES IN COW MILK FROM NORTHWESTERN OF THE PARANÁ STATE

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The indiscriminate use of antibiotics and occurrence of residues in food has become a concern for producers, industries and consumers. When ingested in excess by humans, the residues can generate allergic reactions, bacterial resistance to antibiotics and some groups of antimicrobials have been shown to increase the frequency of tumors in laboratory animal. The World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO), through the *Codex Alimentarium*, stipulate a Maximum Residue Limit (MRL) for antibiotics in food. According to the Ministério da Agricultura Pecuária e Abastecimento (MAPA) the minimum limit for waste (MRL) for antibiotics in milk vary from 0 to 500  $\mu\text{g L}^{-1}$ . Our goal was to identify and quantify antibiotic residues in milk from dairy cows, collected in the northern region of the State of Paraná. According to a survey carried out in the region, the antibiotics most commonly used in dairy cattle at the time were: gentamicin, ceftiofur, enrofloxacin and cloxacillin. Milk samples were collected on 90 farmers and the analysis were performed in triplicate by liquid chromatography coupled to mass spectrometry (UPLC-MS / MS). The sensitivity of the method indicated by the Maximum Residue Limit (MRL), Limit of Detection (LOD) and Limit of Quantification (LOQ) were: Gentamicin 200, 18.72 and 27  $\mu\text{g L}^{-1}$ ; Ceftiofur 100, 1.4 and 1.5  $\mu\text{g L}^{-1}$ ; Enrofloxacin 100, 6.8 and 8.7  $\mu\text{g L}^{-1}$  and Cloxacillin 30, 4.9 and 5.3  $\mu\text{g L}^{-1}$ , respectively. Only 10% of the analyzed samples showed any residual antibiotic, and only one sample showed concentration within the LOQ, the antibiotic quantified was Ceftiofur present with 5,59  $\mu\text{g L}^{-1}$ . As in only one sample the antibiotic concentration was within the LOQ, no statistical analysis of the results was performed. None of the positive samples for antibiotics showed concentration higher than allowed by the legislation. It is important highlight that the samples were from bulk tank and not from individual cows. Due to the methods precision used and the results, we can state that the milk collected in the region is of high quality regarding the presence of antibiotic residues.

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