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Oral fluid LC-MS/MS analysis as ante-mortem detection of Oxytetracycline in swine

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The misuse and unreasonable administration of antibiotics in swine may lead to residues occurrence in products of animal origin. The main material for antibacterials determination is tissue of animals. Alternative for the post-mortem residues control is oral fluid analysis, as a non-invasive, ante-mortem method for the antibiotics detection. Oxytetracycline is one of the most widely used tetracycline in swine treatment. To prove and demonstrate the utility of oral fluid for the detection of this compound, oxytetracycline was administered by intramuscular injection, swine and oral fluid samples were analysed. For the measurement of oxytetracycline in oral fluid, a liquid chromatography-tandem mass spectrometry (LC-MS/MS) method was developed. The extraction was carried out with 10% trichloroacetic acid. Samples were cleaned up by filtration using PVDF filters. Chromatographic separation was achieved on a Luna C18 analytical column using mobile phase consisting of acetonitrile and 0.1% formic acid in gradient mode. During validation, a good linearity was observed ($r > 0.99$). The recoveries were in the range of 90-105%. The validation results showed good accuracy with a good RSD, less than 10.0% for repeatability and less than 15% under within-laboratory reproducibility. The procedure was satisfactory sensitive with detection limit $LOD = 2 \mu\text{g}/\text{kg}$ and limit of quantification $LOQ = 5 \mu\text{g}/\text{kg}$. The presence of oxytetracycline in oral fluid up to 21 days after IM injection indicated that this medium had the potential to be an effective way to test the antibiotic residues in live animals.

Biography

Anna Gajda has completed her PhD in 2014 at Department of Pharmacology and Toxicology, NVRI, Poland. She is responsible for antimicrobial residues determination in food of animal origin by chromatographic techniques (LC-MS/MS, HPLC-FLD/UV). She participates in realization of National Residues Control Plan in Poland. She is engaged in development a new analytical methods for the detection of veterinary drugs in food products. She has published more than 23 papers in reputed international journals.

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