EuroSciCon

10th Edition of International Conference on

Food Safety And Regulatory Measures

May 23-24, 2019
Zurich, Switzerland

J Food Nutr Disor 2019, Volume 8
DOI: 10.4172/2324-9323-C3-030

Determination of doxycycline in claws of chickens by simple and fast UHPLC-MS/MS method

Szymanek-Bany, A Gajda, E Nowacka-Kozak, M Gbylik-Sikorska and **A Posyniak**

National Veterinary Research Institute, Poland

Doxycycline is one of the tetracycline antibiotics that are most widely used in chicken treatment. The chicken's claws, which are a by-product of the poultry industry, can directly or indirectly enter the food chain as meals destined to feed other productive animals. Moreover, claws may be desired to human consumption. The functional characteristics of chicken claws collagen indicated its potential application area in food, pharmaceutical and cosmetic industries. Additionally, chicken claws are treated as redundant poultry production waste, often discarded without any treatment. Due to antibiotics occurrence in chicken claws, they may pose an environmental hazards. Thus, it becomes necessary to determine and quantify doxycycline residues presence in this matrix. For this purpose a simple, fast and sensitive Ultra-High Performance Liquid Chromatography-tandem Mass Spectrometry (UHPLC-MS/MS) method was developed. The extraction was carried out with 5% trichloracetic acid and samples were cleaned up by filtration using PVDF filters. The chromatographic separation was achieved on a Zorbax SB-C18 analytical column using mobile phase consisting of 0.025% heptafluorobutyric acid and acetonitrile. Analysis was carried out in Multiple Reactions Monitoring (MRM) mode via electrospray interface operated in positive ionization mode. The method was validated according to the requirements of European Commission Decision 2002/657/EC. During the validation a good linearity was observed (r>0.99) and 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 satisfactory sensitive was obtained in the procedure with Detection Limit (LOD) was 2 µg/kg and Limit Of Quantification (LOQ) was 5 µg/kg. The presented method was used in depletion study of doxycycline in claws after administration of veterinary medicinal product containing tested antibiotic to broiler chickens.

iwona.szymanek@piwet.pulawy.pl