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Abstract

Screening Antibiotics in Animal manure: A new approach for the early detection of drugs residues in production animals

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Abstract:

Currently, one of the main concerns of regulatory authorities is the presence of chemical contaminants in food and the need to establish appropriate programs to monitor this risk, safeguarding consumers. Among these, antibiotic residues are of great importance in food production and public health, due to the consequences for human health, such as the development of antimicrobial resistance. As for the presence of antibiotic residues in husbandry manure, a large percentage of these drugs have been described to be excreted in animal waste, since they are not completely metabolized. This may vary between 90-30%, with persistence of the microbiological activity. Recently, high concentrations of antibiotics have been reported by our research group in feces of treated poultry, compared to concentrations found in edible tissues or other non-edible tissues. The detection of antimicrobials in manure could be used as a non-invasive sampling method and thus as a promising tool for monitoring the use of antimicrobials in animal production. Also, considering that there are currently no low-cost commercial methods, registered or patented for the rapid detection of different antimicrobials in non-invasive animal matrices such as feces used in animal husbandry, we proposed to implement and validate a new screening methodology for the detection of antibiotic residues in manure. This rapid, economical, and non-invasive tool will allow the early detection of tetracyclines, β-lactams, macrolides, quinolones, sulfonamides and aminoglycosides in feces of production animals during the entire productive stage and prior to slaughter. The methodology will be verified in incurred samples obtained from experimental animals treated with the antibiotics of interest with therapeutic doses (in vivo study), and subsequently checked in field samples, obtained from different species of productive animals.

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Biography:

Dr. Javiera Cornejo Kelly (MV., PhD) is a Professor at the Faculty of Animal and Veterinary Sciences, University of Chile, at the Preventive Medicine Department.

Dr. Cornejo has directed different national and international research projects related to residues and contaminants in food, feed and alternative matrices as feathers, animal waste and others by-products. She is currently the Director of the Food Safety Laboratory, and Co-Director of FARMAVET laboratory, both responsible for Food Safety Programs in Chile. Dr. Cornejo conducts teaching and research in the area of Food Safety. Her research is mainly focused on the presence of veterinary drugs residues in food, intended for human consumption, its consequences for public health and their monitoring in food and animal production. Currently, Dr. Cornejo is focused on the study of the presence of antimicrobial residues in animal waste, animal byproducts and environmental samples, as a pathway for contaminants re-entering into the food chain.

Publication of speakers:

1. Depletion Study of Enrofloxacin and Its Metabolite Ciprofloxacin in Edible Tissues and Feathers of White Leghorn Hens by Liquid Chromatography Coupled with Tandem Mass Spectrometry

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