

Research title

Presence of drugs and novel and emerging contaminants in farm and game animals; characterization of the risk for the consumers

Presenza di residui di farmaci e contaminanti nuovi ed emergenti in animali da allevamento e selvatici; caratterizzazione del rischio per il consumatore

Tutor

Prof Francesco Arioli

Contact details

Department of Health, Animal Science and Food Safety “Carlo Cantoni”

Email: francesco.arioli@unimi.it

ORCID: orcid.org/0000-0002-2165-1852

Website: www.vespa.unimi.it

State of the art and aims of the project

Antimicrobials and drugs distributed in the environment are a risk for living beings. However, a major risk comes by endocrine disruptors, which alter the functionality of the endocrine system of organisms threatening fertility, intelligence and, ultimately, survival of species. Organochlorine pesticides, dioxins, polychlorobiphenyls, brominated flame-retardants (BFRs), perfluoroalkyl substances (PFASs), are likely the most important.

The need for data on the presence of contaminants in food is strong. After an in depth survey of international literature, we will get as much data as possible through gas or liquid chromatography tandem mass spectrometry analysis of different biological matrices from wild and farm animals. The results will be used to characterise the risk from dietary exposure and will be published in relevant scientific journals. Studies are now focused on antimicrobials, BFRs and PFASs, but the continuous updates about toxic effects makes unpredictable the substances that will be studied in the next years.

Recent publications of the tutor in the field

1. L. Chiesa, S. Panseri, F.T. Cannizzo, B. Biolatti, R. Benevelli, F. Arioli (corresponding author) , R. Pavlovic (2017) Evaluation of nandrolone and ractopamine in urine of veal calves: liquid chromatography–tandem mass spectrometry approach, *Drug testing and analysis*, 9, 561–570 DOI 10.1002/dta.2026
2. LM Chiesa, M Nobile, S Panseri, F Arioli, (2017) Antibiotic use in heavy pigs: comparison between urine and muscle samples from food chain animals analysed by HPLC-MS/MS, *Food Chemistry* 235 111–118
3. LM Chiesa; M Nobile; E Pasquale; C Balzaretto; P Cagnardi; D Tedesco, S Panseri, F Arioli (2018) Detection of Perfluoroalkyl Acids and Sulphonates in Italian Eel Samples by HPLC-HRMS Orbitrap, *Chemosphere* 193, 358-364 doi:10.1016/j.chemosphere.2017.10.082
4. LM Chiesa, M Nobile, R Malandra, S Panseri, F Arioli, (2018) Occurrence of antibiotics in mussels and clams from various FAO areas, *Food Chemistry*, 240, 16-23
5. LM Chiesa, F Ceriani, M Caligara, D Di Candia, R Malandra, S Panseri, F Arioli (2018) Mussels and clams from the italian fish market. Is there a human exposition risk to metals and arsenic? *Chemosphere*, 194, 644-649