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Mass spectrometry - an important tool in food safety for veterinary drug residue analysis

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In the last decades, food safety became one of the most important subjects worldwide for many important international organizations including, European Commission. To protect consumers from the health risks associated with the presence of residues of veterinary drugs in food products of animal origin, the European regulatory agencies settled official documents to keep these substances and their administration under control. To perform such control, sensitive and specific analytical methodologies are requested for the determination of veterinary drug residues in food, of animal origin, destined to human consumption. The most efficient analytical technology used in this field is liquid or gas chromatography coupled with mass spectrometer detector. The mandatory European Commission criteria for quantitative and confirmatory determinations in veterinary drug analysis are the main reason why the triple quadrupole mass spectrometer detector is still the principal analytical tool of choice. That equipment guarantee an unequivocal identification of trace concentrations in complex matrixes such as biological samples (foodstuff as muscle, eggs, milk, liver, fat and kidney). Such mass spectrometry detectors coupled with liquid chromatography (LC-MS/MS) is a powerful tool allowing multi-compound detection by recording full mass spectra (scan mode), selected ion monitoring (SIM) and multiple reaction monitoring (MRM). More recently, it started to grow the application of high resolution mass spectrometry (HR-MS), as time-of-flight (ToF) or orbitrap-MS, in residues analysis but the high cost associated with those equipment along with the fact that it is not completely clear how to apply the performance and validation criteria in those methods, according to legislation, are the main drawback for their use.

Biography

Fernando Ramos is Associate Professor of the Pharmacy Faculty of Coimbra University and Senior Research of the CNC – Center for Neuroscience and Cell Biology. He has published more than 75 scientific publications, among books, book chapters and national and international papers, most of them in the field of drug residue analyze using Mass Spectrometry

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