

PERSONAL INFORMATION

CV date	26/11/2021
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name	Antoni F. Roig I Navarro		
ID number	29017437-Q	Age	56
Researcher numbers	Researcher ID	L-4464-2014	
	Orcid code	0000-0001-6273-4956	

Current position

Institution	Universitat Jaume I		
Department	Research Institute for Pesticides and Water		
Address	Avda. Vicent Sos Baynat s/n, Castelló 12071. Spain		
Phone #	964387359	E-mail	roig@uji.es
Current position	Associate Profesor	From	09/07/2002
UNESCO codes	2301, 3101		
Keywords	Chromatography, mass spectrometry, isotope pattern deconvolution		

Education

PhD	University	Year
B Sc. Chemistry	Universitat de València	1988
Ph D Chemistry	Universitat de València	1994

JCR articles, h Index, thesis supervised...

Sexenios: 3

Date of the last granted: 19/06/2017

Thesis supervised: 4

Total cited: 1103

Average citations/year (last 5 years): 48

Publications (Q1): 54 (25)

Index h: 19

CV SUMMARY

Main current research is focused on the applications of hyphenated chromatography/mass spectrometry using LC-MS in the fields of environment and clinical analysis. Investigation is directed towards different organic contaminants and residues, such as illicit drugs, endocrine disrupting compounds and steroids among others. Other research developments are related to metal speciation in environmental and biological sample. ID-MS along with Isotope Pattern Deconvolution quantification methodology is the most relevant developments in both research lines.

Research activities of this line started with the determination of metallic species in biological and environmental samples. During this stage, we develop and validate sensitive and selective methods for determining species of As, Se, Cr and Hg primarily on samples of water, fish and urine. The methodology relied on the LC-ICPMS coupling, with columns of different diameter, and GCMS. An important stage in LC-ICPMS involved the optimization of the nebulization step. During method development for Cr and Hg species problems of species interconversion were addressed, which led us to a detailed study of sample treatment and quantification. This study headed the research to the implementation of quantification strategies based on IDMS and IPD. This methodology allows, on the one hand, the determination of interconversion factors and the concentration corrected for these interconversion and, on the other hand, compensation of matrix effects that may appear. Compensation of matrix effect is achieved by the measurement of isotopic abundances and/or isotopic ratios in a sample spiked with the isotopically labeled standards. The accumulated experience allowed redirecting the research towards the development of fast and reliable methods for the determination of organic compounds in the environmental, food safety and clinical analysis fields using LC(ESI)-MS/MS. Eliminating or compensating matrix effect is essential in the development of reliable

methods for quantification when ESI ion source is used. In this line, we developed and validated methods for the determination of drugs (diclofenac), compounds with documented endocrine disruptive activity (alkylphenols and bisphenol A) and mycotoxins. These methods, based on the aforementioned technique IDMS and IPD, do not need methodological calibration graph and accounts for the effect matrix. We have also studied the elimination of possible isotopic effects using compounds labeled with ^{13}C . This quantitative methodology has been successfully applied to the development of fast and reliable method for the determination of mycotoxins in food and feed, estrogens in urine and androgens in plasma. Recently the method has validated and applied in the determinations of drugs in water samples, where sources of uncertainty are assessed. IPD clearly shows an improve in measurement uncertainty.

In addition, a collaborative research is conducted with the group of Electrode Processes from University of València to support electrochemical thin films investigations. The concentration of different metals in the thin films and solutions in contact with, provides valuable information to verify the mechanisms of electrode processes involved

SELECTED MERITS

Publications

Isotope Pattern Deconvolution as a successful alternative to calibration curve for application in wastewater based epidemiology

J. Pitarch-Motellón, L. Bijlsma, J.V. Sancho-Llopis, A. F. Roig-Navarro.

Analytical and Bioanalytical Chemistry 413 (2021) 3433-42

Re-certification of hydroxyvitamin D standards by isotope pattern deconvolution

J. Pitarch-Motellón, A. F. Roig-Navarro, C. Le Goff, E. Cavalier, N. Fabregat-Cabello.

Journal of Chromatography B 1120 (2019) 89-94

Comparison of isotope pattern deconvolution and calibration curve quantification methods for the determination of estrone and 17β -estradiol in human serum

J. Pitarch-Motellón, N. Fabregat-Cabello, C. Le Goff, A. F. Roig-Navarro, J.V. Sancho-Llopis, E. Cavalier.

Journal of Pharmaceutical and Biomedical Analysis, 171 (2019) 164–170

Determination of selected endogenous anabolic androgenic steroids and ratios in urine by ultra high performance liquid chromatography tandem mass spectrometry and isotope pattern deconvolution

Jorge Pitarch-Motellón; Antoni F. Roig-Navarro; Juan V. Sancho Llopis; Maria Ibáñez; Óscar Pozo

Journal of Chromatography A 1515 (2017) 172-178

Evaluation of uncertainty sources in the determination of testosterone in urine by calibration-based and isotope dilution quantification using ultra high performance liquid chromatography tandem mass spectrometry

Jorge Pitarch-Motellón; Antoni F. Roig-Navarro; Juan V. Sancho Llopis; Maria Ibáñez; Neus Fabregat-Cabello; Óscar Pozo; Rosa Ventura; J. Ignacio Garcia Alonso; Pablo Rodríguez-González; Adriana González-Gago; Amaia Ereño Artabe; Peter Van Eenoo; Koen Deventer; Yvette Dehnes; Sebastian Rzeppa

Journal of Chromatography A, 1508 (2017) 73–80

Method development and validation for the determination of selected endocrine disrupting compounds by liquid chromatography mass spectrometry and isotope pattern deconvolution in water samples. Comparison of two extraction techniques

Neus Fabregat-Cabello, Jorge Pitarch-Motellón, Juan V. Sancho, María Ibáñez, A.F. Roig-Navarro

Analytical Methods 8(14), 2895-2903 (2016)

Comparison of approaches to deal with matrix effects in LCMS/MS based determinations of mycotoxins in food and feed

N. Fabregat-Cabello, P Zomer, JV Sancho, AF Roig-Navarro, H Mol.

World Mycotoxin Journal, 9(2), 149–161 (2016)

Interfacial Role of Cesium in Prussian Blue Films

R. Catalán, J. Agrisuelas, A. Cuenca, J. J. García-Jareño, A.F. Roig, and F. Vicente

Journal of The Electrochemical Society, 162(9) H727-H733 (2015)

Development and validation of a LC-IDMS method for the reliable quantification of alkylphenols in environmental water samples by Isotope Pattern Deconvolution

Neus fabregat-Cabello, JV Sancho, Andreu Vidal, Florenci V. González, AF Roig-Navarro.

Journal of Chromatography A 1328, 43– 51 (2014)

Fast methodology for the reliable determination of nonylphenol in water samples by minimal labeling isotope dilution mass spectrometry

Neus fabregat-Cabello, Ángel Castillo, JV Sancho, Florenci V. González, AF Roig-Navarro.

Journal of Chromatography A 1301, 19-26 (2013)

Isotope pattern deconvolution-tandem mass spectrometry for the determination and confirmation of diclofenac in wastewaters

Ángel Castillo, Emma Gracia-Lor, AF Roig-Navarro, JV Sancho, P Rodríguez-González, JIG Alonso.

Anal. Chim. Acta 765, 77-85 (2013)

Identification of electroactive sites in Prussian Yellow films

J. Agrisuelas, J.J. García-Jareño, C. Moreno-Guerrero, A. Roig, F. Vicente

Electrochimica Acta 113 (2013) 825– 833

Research projects and grants

-Estrategias analíticas para el control de contaminantes emergentes y evaluación de la eficacia de eliminación en procesos avanzados de oxidación en aguas residuales (ANAL_WATER_EC)

Financing entity: Ministerio de Ciencia, Innovación y Universidades

Reference: RTI2018-097417-B-I00

Period: 01/01/2019 - 31/12/2021

Financed amount: 71.390 €

Investigador principal: Fçeñlix Hernández Hernández; Francisco López Benet

-Beneficios de la movilidad iónica acoplada a la espectrometría de masas híbrida cuadrupolo-tiempo de vuelo en el descubrimiento e identificación de compuestos orgánicos. aplicación a aguas ambientales y fluidos biológicos

Financing entity: Universitat Jaume I

Reference: UJI-B2020-19

Period: 01/01/2021 – 31/12/2022

Financed amount: 31.200 €

Investigador principal: Juan Vicente Sancho Llopis; Antoni Francesc Roig Navarro

-Investigación sobre el consumo de nuevas sustancias psicoactivas a través del análisis de los productos consumidos. estudios in vivo e in vitro de NPS de especial interés

Financing entity: Universitat Jaume I

Reference: UJI-B2018-19

Period: 01/01/2019 – 31/12/2020

Financed amount: 16.104 €

Investigador principal: Maria Ibáñez Martínez

-Investigación sobre el uso de nuevas sustancias psicoactivas a través del análisis de los productos consumidos, de la orina de potenciales consumidores y de aguas residuales urbanas

Financing entity: Ministerio Economía y Competitividad

Reference: CTQ2015-65603-P

Period: 01/01/2016 - 31/12/2018

Financed amount: 55.600 €

Investigador principal: Félix Hernández Hernández

-Desarrollo y aplicación de metodologías analíticas avanzadas, basadas en el uso de espectrometría de masas de alta y baja resolución, en el ámbito de la salud pública (medio ambiente y seguridad alimentaria)

Financing entity: GV

Reference: PROMETEO II/2014/023

Period: 01/01/20014- 31/12/2017

Financed amount: 125.550 €

Investigador principal: Juan V. Sancho Llopis y Félix Hernández Hernández

-Desarrollo de metodología analítica rápida y fiable para la determinación de compuestos regulados en el campo ambiental por dilución isotópica y deconvolución de perfiles isotópicos mediante LC-MS/MS

Financing entity: UJI. (Evaluado por ANEP)

Reference: PB-1B2013-55

Period: 01/01/2014 - 31/12/2016

Financed amount: 33.460 €

Investigador principal: Antoni F. Roig i Navarro

-Aplicación de la técnica de deconvolución de perfiles isotópicos a la cuantificación de especies de cromo en muestras sólidas medioambientales

Financing entity: UJI. Fundació Bancaixa (Evaluado por ANEP)

Reference: P1-1B2009-29

Period: 01/01/2010 - 31/12/2011

Financed amount: 19.000 €

Investigador principal: Antoni F Roig i Navarro