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INTERVIEW

Professor Manuel Miró, a researcher with an extensive and prestigious academic career, kindly spoke to BrJAC

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FI-TRACE group

Manuel Miró received his M.Sc. (1998) and Ph.D. (2002) in Chemistry from the University of the Balearic Islands, Spain. He has conducted post-doctoral research in several universities, including the Technical University of Berlin, Technical University of Denmark and University of Natural Resources and Applied Life Sciences. He is currently Full Professor in Analytical Chemistry at the University of the Balearic Islands (since September 2017); Guest Professor at Charles University (Czech Republic) (since 2014); and member of the IUPAC Chemistry and Environment Division (Subcommittee on Chemical and Biophysical Processes in the Environment). He has completed and consolidated four teaching periods (each of 5 years) and three research periods (each of 6 years).

Dr. Miró is the Reviews Editor of the journal *Analytica Chimica Acta* (Elsevier, IF: 6.91, the second highest IF across scientific journals for general analytical chemistry) and Associate Editor of the *Encyclopedia of Analytical Science*, 3rd Edition, Elsevier, positions that he has held since 2007 and 2016, respectively. His publication record shows over 220 refereed publications, including 14 book chapters and a foreword, with an *h*-index of 42 and over 5600 citations. He has published 24 articles in the prestigious journal '*Analytical Chemistry*' from the American Chemical Society and is the corresponding author of 110 articles.

Dr. Miró has delivered 70 oral presentations (60 as plenary, keynote, or invited lecturer) at international conferences on analytical chemistry, sample preparation, nanotechnology, environmental chemistry, and automation based on flow methodology. He has also presented over 180 poster communications in international conferences and symposiums.

He has supervised 10 Ph.D. students in national and international universities (Technical University of Denmark, Mahidol University and Chiang Mai University in Thailand, University of the Balearic Islands in Spain, and Federal University of Bahia in Brazil). He has been actively engaged in 34 national and international research projects (*e.g.*, University of Melbourne in Australia and Charles University in Czech Republic), including 16 as the Principal Investigator.

Dr. Miró's research interests are focused on the development of on-line sample processing strategies for isolation and/or preconcentration of trace levels of environmental pollutants, exploiting 3D printing in the generation of various flow injections, including 3D-printed μFIA and Lab-on-a-Valve mesofluidic platforms, in conjunction with modern analytical instrumentation.

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BrJAC: How was your childhood?
Prof. Miró: It was indeed a memorable time. Yet, I always preferred studying first and then playing!

BrJAC: What early influences encouraged you to study chemistry? Did you have any influencers, such as a teacher?
Prof. Miró: From the beginning of high-school, I was always tempted to get more insight into reactivity. Indeed, I received several "chemistry games" as gifts from my parents.

BrJAC: How was the beginning of your career in chemistry?
Prof. Miró: It was a challenging beginning because of the lack of permanent positions available and the high competition at the National Level.

BrJAC: What has changed in your profile, ambitions, and performance since the time you started your career?
Prof. Miró: I might have worked too hard and been too ambitious at the beginning of my career, yet my role at the moment has been geared toward supervising and providing appropriate support to my students and team members.

BrJAC: Could you comment briefly on the recent evolution of analytical chemistry, considering your contributions?
Prof. Miró: Analytical chemistry has evolved to solve multiple societal challenges and offer high-throughput methodologies on account of the current demands in the environmental, clinical, bioanalytical, and food sectors, focusing on human welfare while minimizing exposure to xenobiotics.

BrJAC: What are your lines of research? You have published many scientific papers. Would you highlight any?
Prof. Miró: My research work is focused on the miniaturization and automation of analytical methodology using fluidic platforms, as applied to environmental analysis. Herein, I would like to highlight recent work towards fabricating analytical devices based on 3D printing.

Prof. Manuel Miró and Prof. Maria das Graças A. Korn at the 6th Brazilian Meeting on Chemical Speciation, 2019.

BrJAC: What is your opinion about the current progress of chemistry research in Brazil? What are the recent advances and challenges in scientific research in Brazil?
Prof. Miró: I do feel impressed by the quality of the research of many Brazilian analytical chemist groups working on cutting-edge technologies, such as point-of-care sensing devices, omics techniques, nanotechnology, and advanced instrumentation.

BrJAC: For you, what have been the most important recent achievements in analytical chemistry research? What are the landmarks? What has changed in this scenario with the COVID-19 pandemic?
Prof. Miró: Analytical chemistry is a discipline that is ready to respond against pandemics and this has been demonstrated by the plethora of novel sensing schemes and reliable platforms that have designed for assays of COVID-19, its variants, and other viruses.

BrJAC: There are, in Brazil and in the world, several conferences on chemistry. To you, how important are these meetings to the chemistry scientific community? How do you see the development of national chemistry meetings in Brazil?
Prof. Miró: Brazil is doing very well in organizing top-level conferences in chemistry, and most specifically in analytical chemistry, which are excellent forums for young researchers to get acquainted with other students and researchers working in similar topics and to exchange expertise and skills.

BrJAC: What is the importance of awards for the development of science and new technologies?
Prof. Miró: They are strong stimuli and motivation for both young and senior researchers.

BrJAC: For you, what is the importance of the national funding agencies for the scientific development of Brazil?
Prof. Miró: Investment in scientific and human resources at the national level is of utmost relevance to enable research groups to do good science while offering research grants and jobs to promising and engaged students/researchers.

BrJAC: At the moment, the situation for scientific research in Brazil is one of decreasing investment. How do you see this situation, and what would you say to young researchers?
Prof. Miró: We are facing a similar situation in Spain, so I would recommend that researchers keep collaborations and networks with institutes and researchers overseas, so as to open many doors in their scientific careers.

BrJAC: What advice would you give to a young scientist who wants to pursue a career in chemistry?
Prof. Miró: Research is challenging but never give up!

BrJAC: For what would you like to be remembered?
Prof. Miró: For being a good father, a good husband, a good son, and a good friend.

Marco Aurélio Z. Arruda, Maria das Graças A. Korn, Fernando Camardelli, Manuel Miró, Lais Araujo Souza at the entrance of the 6th Brazilian Meeting on Chemical Speciation, 2019.