BOOK OF ABSTRACTS

# FLOW ANALYSIS XV

## KRAKOW, POLAND 2022

JUNE 26 – JULY 1

PATRONAGE

CO-FINANCING

Ministry of Education and Science

HONORARY

JAGIELLONIAN UNIVERSITY IN KRAKÓW

SCIENTIFIC

EuChemS European Chemical Society — Division of Analytical Chemistry —

KOMITET CHEMII ANALITYCZNEJ PAN

MEDIA

ANALITYKA NAUKA I PRAKTYKA

## António O. S. S. Rangel

Universidade Católica Portuguesa,
Escola Superior de Biotecnologia, CBQF – Centro de Biotecnologia e Química Fina – Laboratório Associado,
Porto, Portugal

António O. S. S. Rangel (https://orcid.org/0000-0002-6486-8947) is Full Professor at the Universidade Católica Portuguesa, Escola Superior de Biotecnologia (ESB-UCP), Porto, Portugal. He has a degree in Chemistry and got his PhD degree in Biotechnology (Chemistry specialisation), in 1991. Presently, he is President of the Scientific Board of ESB-UCP, member of the Direction Board of the CBQF Research Center, coordinator of the PhD programme in Biotechnology, and member of the Editorial Advisory Board of Talanta. His research interests are mainly focused on the development of flow-based methods for the automation and miniaturization of (bio)chemical assays, with applications in the environmental, food, and biomedical sectors. He supervised 20 PhD thesis and is co-author of more than 190 peer-reviewed papers. His teaching activity involves general chemistry and analytical chemistry courses.

# Targeting the determination of iron using various flow-based approaches

António O. S. S. Rangel, Raquel Mesquita

Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Rua Diogo Botelho 1327, 4169-005 Porto, Portugal

Iron species are vital for most living organisms, participating in a plethora of biological processes. However, if present in excess, they can also display disruptive effects. Therefore, monitoring different forms of iron in water, soil, and biological fluids has become of particular interest in environmental and food analytical chemistry and also in toxicology, aiming for new methods to improve the limit of detection, use of low toxicity reagents, and reduce reagents consumption and effluents production. As flow analysis techniques can be quite useful for this purpose, our group has been involved in some studies to propose different approaches to target this determination in different samples. Some of these methods were focused on a new chromogenic reagent, others on tackling challenges posed by a particular sample, while other aimed for iron speciation.

In this scenario, a discussion of some of the flow-based methods will be discussed in this lecture, involving the determination of iron (III) or iron (II), iron complexes, and also the challenges associated with the particular type of sample, either water, soil, or biological matrices.

**Acknowledgments**

This work was funded by FEDER through project reference POCI-01-0145-FEDER-031522 – Programa Operacional Competitividade e Internacionalização, and by National Funds from FCT - Fundação para a Ciência e Tecnologia; scientific collaboration from FCT project UIDB/50016/2020 is also acknowledged.