

EDITORIAL

Analytical Chemistry: Innovation, Reliability, and Impact

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Analytical chemistry plays a fundamental role in contemporary science by transforming chemical phenomena into reliable information that supports decision-making. Its contribution extends beyond the laboratory, reaching strategic areas such as healthcare, pharmaceutical industry, environmental science, agriculture, and as support for technological development. This edition of the Brazilian Journal of Analytical Chemistry brings studies that reflect the diversity of the field. The interview provides insights into the development of analytical chemistry and the challenges facing by the scientific research, while a point of view paper on the proteome and precision therapies highlights new possibilities at the interface of molecular analysis and personalized medicine. The reliability of analytical data is also a key focus of this issue. A metrological approach to performance assessment and measurement uncertainty in qualitative analysis is presented in the letter section. This concern is also evident in studies addressing the determination of mycotoxins in medicinal plants and the evaluation of extractables from packaging materials, both of which are directly related to safety and quality control. Innovation is demonstrated through the development of electrochemical sensors, the application of LC-MS for the determination of opioids in urine, and the integration of EDXRF and chemometrics for soil analysis. These studies illustrate how the combination of advanced technologies, instrumental strategies, and data analysis can lead to methods that are more efficient, selective, rapid, and potentially more sustainable. We hope that the work presented here will stimulate further research, foster connections across different areas of knowledge, and contribute to the continued advancement of the science of chemical measurement.

We hope you enjoy the contributions in this 53rd edition of BrJAC.



Pedro Vitoriano Oliveira is a Full Professor at the Institute of Chemistry, University of São Paulo (IQ-USP). His research is in Analytical Chemistry, with an emphasis on optical analytical methods (AAS, ICP-OES, ICP-MS), separation methods, sample preparation, and environmental chemistry, focusing on the development and application of methods for the determination of elemental species and chemical speciation in various materials for food, environmental, agrochemical, pharmaceutical, and technological purposes. He coordinates the Group of Analysis and Research in Spectrometry (GAPE) at IQ-USP. He has published more than one hundred articles in specialized journals and book chapters and has contributed to several research projects, coordinating others. He collaborates in various innovation activities and is currently the coordinator of the [EMBRAP II Unit – Synthetic Chemical and Biochemical Inputs – IQSint-USP](#).



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