

## Preface

The University of Madras, Chennai is an age-old institution catering to Higher Education in down south of India since 1857. The Department of Physical chemistry, School of Chemical Science, University of Madras, Guindy Campus, Chennai, Tamil Nadu, India, started in 1952, is one of the pioneers in the subject. As a part of the commitment to the society in general and to the research community in particular, on behalf of our Department we organized a two-day 'International Conference on Advances in Chemistry with Specific Reference to Catalysis, Sensors, Drug Delivery and Energy Materials (ICACSEM-2020)' on 9<sup>th</sup> and 10<sup>th</sup> January 2020 in association with RUSA2.0, Govt. of Tamil Nadu and Society for Polymer Science (SPS), Chennai Chapter. It was one of the successful grand research events with 400 National and International participants which included renowned Researchers, Scientists, Academicians, and Scholars and from prominent Institutions and Research Centers and Industrialists who presented their research results through Plenary, Invites, Keynote Lectures, and also via oral and poster presentations. The ICACSEM-2020 was an impressive forum that brought eminent scientists, reputed researchers and young scholarly minds under a single umbrella covering various aspects of Physical Chemistry with specific attention to Catalysis, Nanomaterials, Quantum Dots, Sensors, Energy Conversion and Molecular Modeling. This event was very concrete and provided a vibrant platform for effective interaction amongst researchers from both academic and industrial fields at both National and International level under one roof. During the two-day conference, deliberations were organized on various state-of-art topics in Physical Chemistry as detailed above.

To make such an international event, conglomeration of thoughts and ideas of reputed researchers in the field of physical chemistry more meaningful, we planned this special issue with the Indian Journal of Chemistry Section A, a premier peer-reviewed SCI indexed monthly periodical from CSIR-National Institute of Science Communication and Information Resources (NISCAIR), New Delhi, India on the theme of ICACSEM-2020. This special issue is indeed one of the logical outcomes of this International event useful to the participants, particularly research scholars for their career. We thank all authors for contributing papers, and the subject experts for reviewing them critically in accordance with the academic standing of the journal IJC-A.

This special issue includes 18 articles covering various aspects of the Physical Chemistry viz. double-layer Core-Shell nanoparticles as an efficient photocatalyst, Green synthesis of *Solanum melongena* leaf extract based Zinc Oxide Nanoparticles, Photoinduced charge transfer catalyst, Trigona Carbon Nanopetals/Ferrocene/Gold Nanoparticles for sensing of neurotransmitters, Fabrication of PCL/ $\beta$ -Tricalcium phosphate based nanoscaffolds using electrospinning technique, opto-electronic properties of Pb free perovskites for solar cell applications, energy harvesting materials, Tetrandrine derivatives for inhibition of HL60 and A549 cells, efficient poly-4-vinyl pyridine metal (V) chloride catalyst for esterification of alcohols, Nanosensor for soil nutrient testing, Clinical perspective of Breast cancer nutritional chemistry cachexia oncology, selective adsorption of bovine hemoglobin using Ni<sup>2+</sup> functionalized silica nanoparticles, synthesis of disulphide appended sugar bistriazoles and SnTe-graphene oxide based nitrite sensor.

As a special note, we place our sincere thanks and gratitude to Mr. Mangath Ram Sharma, IAS, Secretary, Department of Higher Education and Mr. K. Vivekanandhan, IAS, Commissioner, Directorate of Technical Education and the Secretary (FAC), TANSCH, Govt. of Tamil Nadu for providing funds from RUSA2.0 and TANSCH, respectively. We also thank the Society of Polymer science (SPSI), Chennai Chapter, DST & CSIR Govt. of India for financial support. We acknowledge the University of Madras for overall support rendered for smooth conduct of this grand academic event.

We, hope that this special issue will inspire researchers, particularly young scholars, to work on novel materials in catalysis, sensors, drug delivery and energy conversion applications. We record our sincere thanks to Dr Ranjana Agarwal, Director, CSIR-National Institute of Science Communication and Information Resources (NISCAIR), New Delhi, India for agreeing to bring out this special issue. It would not have been possible to bring out this special issue on time without the dedication of Mr RS Jayasomu, Chief Scientist &

Editor, Indian Journal of Experimental Biology (IJEB) & Head, Research Journals (Life Sciences), CSIR-NISCAIR, New Delhi, and the essential subject expertise of Dr Puspanjali Tripathy, Senior Scientist & Editor, Indian Journal of Chemistry, Section A (IJCA) in finalizing the issue. We appreciate the support and cooperation extended by the CSIR-NISCAIR Print Production team for smooth timely execution of this publication.

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