



Editorial

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The Indian National Young Academy of Sciences often called “INYAS” functioning under the tutelage of the Indian National Science Academy (INSA), New Delhi is a vibrant and talented academy of young scientists. INYAS was established in December 2014 and is the first and only such young academy in India. At present, INYAS has over 100 members out of which 30% members are females. The Vision of INYAS is to attract the youth towards science, disseminate the excitement of science at pre-college, college and university levels, and establish a network of young scientists in India. Considering the importance of science communication, dissemination and outreach, INYAS do serve as a crusader and embraces different stakeholders such as faculties, researchers from academia, research institutes, polytechnic, schools, industries, incubation centers, policy-makers and decision-makers.

In line with the above objectives and considering the overwhelming response to the 1st, 2nd and 3rd special

issues, INYAS again joined hands with the Proceedings of the Indian National Science Academy (PINSAs), a multi-disciplinary journal of INSA (published by Springer Nature) in bringing out the 4th special issue of PINSAs. Like the previous issues, this 4th special issue is also dedicated to showcasing research and findings of young academicians and researchers as lead authors. Moreover, this special issue is exclusively handled by INYAS members. This special issue is a collection of 19 articles (original research and reviews) on contemporary topics in all areas of science (*Chemical Science, Biological Sciences, Earth/Geo-Sciences and Environmental Science*). With this special issue, INYAS shows its commitment for the fourth consecutive time towards providing a platform to young researchers for disseminating their research and findings to the researchers and students at large.

Articles published in this special issue chemical sciences category have covered important topics such as *anode materials for sodium-ion batteries; molecularly imprinted polymer modified nanomaterials for sensing applications; spectroscopic analysis and DFT studies of an important organic compound for application in docking studies; an alternate approach for quantitatively analyzing the BELOUSOV-ZHABOTINSKY reaction using the Python platform; synergistic effects of basicity and oxygen vacancy for the reduction of nitroarenes; comparative study on lime softening, soda ash process and electrocoagulation for the removal of hardness from the groundwater.*

The biological sciences section in this special issue consists of an original research work about *the differentiation of adipose-derived mesenchymal stem cells directed by topographical cues*. The review articles published in the biological sciences section include interesting topics such as *the usefulness of genome editing to improve the disease resistance in host plants; antiviral perspectives of economically important Indian medicinal plants and species; influence of dehydration stress on the expression of brevis radix gene family members in sorghum bicolor; the influence of nutrition on the development of nervous system upon regulating neural stem cell homeostasis; RNA nucleoprotein complexes*

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in biological systems; impact of health and disease based on the communication between immune system and mycobiota; application of MALDI-TOF Mass Spectroscopy in medical diagnosis, dereplication, biomolecule profiling and microbial ecology.

Earth/Geo Sciences section in the special issue features interesting articles such as the *first report of charophyte gyrogonites from the late Miocene Tapar locality of Kachchh, Gujarat State, western India; analysing of the topographical transformation of Bombay Islands and Bombay Fort using geospatial analysis and historical records.* Other than these, there is a review on the benefits and risks of nano-bio fertilizers on soil health and microbes. The

environmental sciences section in this special issue features a research articles that describes the *Molecular genetic diversity of a cultivable freshwater prawn Macrobrachium dayanum (Henderson, 1893) from Outer Himalayas, India.*

This special issue also presents a very special article about Open Science and this article discusses the way forward, challenges and possible solutions. This general science topic is indeed very essential and timely pertained.

The Editorial Team appreciate INYAS Core-committee, anonymous reviewers and PINSA editorial staff for their timely support for the successful completion of the 4th Special issue by INYAS.