

## **Preface**

Biotechnology has a long history of use in food production and processing. Biotechnological interventions in food production have been in practice since when the humans knew fermentation for producing wine, beer and bread. With advance in time, the use of living systems and organisms has extended its application to vast areas of production, processing and manufacture of food. Today, the realms of genetic engineering, cell engineering, enzyme and protein engineering and molecular evolution engineering along with conventional practices finds its use in yield and quality improvement of both raw materials as well as processed foodstuff, preservation, value addition and fortification, reducing food losses and ensuring food safety, and processing food waste to reduce negative impacts on environment. Equally, industrial biotechnology offers alternative manufacturing strategies for the production of chemicals, new materials and bioenergy while providing viable solutions for our environment. To keep pace with global advances in technology in the 21<sup>st</sup> century it is the need of the hour that biotechnological interventions cater to the developmental urge and environmental responsibilities. This would in turn pave way for providing the advantage of sustainable life to the ever evolving modern society.

This special issue of Indian Journal of Experimental biology (IJEB) includes selected peer reviewed papers presented in the International Conference on Advances in Food and Industrial Biotechnology, the fifth such biennial event under BIOSPECTRUM series, organised at Mar Athanasios College for Advanced Studies Tiruvalla (MACFAST), Kerala during November 24-26, 2019. The conference was organized in association with Biotech Research Society-India, Amity University and CESS, Lucknow. Technical sessions were held under thematic topics on food technology and bioprocessing, microbial and enzyme technology, industrial bioprocessing – waste management and treatment, biomass to fuels and chemicals, algal biorefinery, industrial and environmental bioengineering, and waste bioremediation. BIOSPECTRUM 2019 was attended by over 260 delegates from twenty countries including Austria, Brazil, Canada, China, Denmark, France, Greece, Hong Kong, Italy, Mexico, Netherlands, Portugal, Spain, South Korea, Sweden, Taiwan, UK, USA and India. The conference comprised keynote as well as invited lectures delivered by over sixty speakers in parallel sessions apart from poster presentations from research scholars and graduate students. The conference provided a platform for scientists, research scholars and the academia to present and discuss the most recent innovations, trends, and concerns and challenges in the fields of food and industrial biotechnology.

The special issue comprises eight peer-reviewed papers and is envisaged to impart new understanding and perceptions in the fields including food technology and bioprocessing and waste management.

We acknowledge all the authors and thank our reviewers, Dr Era Vaidya Malhotra, Dr Fr S Ignacimuthu, Dr R Mariselvam, Dr S Sivaramakrishnan, Dr Veda Krishnan, Dr T Sajeesh and Dr Beena Cherian for their invaluable contribution in critical evaluation of the manuscripts. We are thankful to Dr Ranjana Agarwal, Director, CSIR-NISCIAR, New Delhi, Shri Jayasomu, Editor, IJEB and Dr. Arvind Meena, Associate Editor, Indian Journal of Experimental Biology (IJEB), one of the flagship journals of CSIR for publishing selected papers of BIOSPECTRUM 2019 as a special issue of the journal.

### ***Guest Editors***

Biju Dharmapalan  
Ebin Philip Thompson &  
Blessan Santhosh George  
School of Biosciences, MACFAST,  
Pathanamthitta, Kerala