

## PREFACE

An International Conference on Recent Advances in Biotechnology and Biochemistry conference was held during January 8-9, 2020 in the Department of Biotechnology, National Institute of Technology Raipur, Chhattisgarh, India. It provides an excellent opportunity to focus on recent developments in the frontier areas of Biotechnology and establish new collaborations in these areas. The Conference highlighted multidisciplinary perspectives to interesting biotechnologists, microbiologists, pharmaceutical experts, bioprocess engineers, agronomists, medical professionals, sustainability researchers, and academicians. This technical get together also provided a platform for potential knowledge exchange on recent trends, theories, and practices in the field of Biotechnology. Numerous manuscripts were received in the conference out of which only nine manuscripts were selected after a thorough two rounds of peer review.

The work of Samriddhi *et al.* was an original intellectual contribution. Most of the experimental work has been conducted in Amity Institute of Nanotechnology, Amity University Uttar Pradesh. The major goal of the work was to educate the readers about the enhanced performance of nanostructured gold as a highly sensitive biosensing platform. Here, as an application, the sensing platform has been demonstrated for detection of protein markers of breast cancer that can be extended for detection of several other diseases.

HMG-CoA reductase catalyzes cholesterol biosynthesis which may result in hypercholesterolemia, a leading condition for coronary heart disease, heart attack and stroke. This enzyme is inhibited by statins which can be fermentation-derived, semisynthetic or synthetic statins. In the work conducted by Aditya *et al.*, efficacy of three synthetic statins (fluvastatin, cerivastatin, rosuvastatin) to bind to HMG-CoA reductase was studied *in silico*. Fluvastatin was found to be most effective drug among the three synthetic statins to treat hypercholesterolemia.

A method for efficient enzyme immobilization on glass bead surface by utilizing cysteine as a linker has been demonstrated by Shraddha and Upadhyay. The glass beads were first salinized to activate their surface for nanoparticle immobilization. Afterwards the enzyme was attached to the nanoparticle coated glass beads by glutaraldehyde activation. The immobilization of enzyme increases its stability in varying pH and temperature conditions along with its shelf life. As per the authors knowledge papain has never been used before for making the bioconjugate with cysteine functionalized iron oxide nanoparticles.

Jagdeesh and Srinivasu reviewed engineering and design of next generation implants. The alloy design of Magnesium was explored significantly in recent times. Almost, every other element available in nature was added to Mg. Similarly, many processing methods were deployed for enhancing the desirable properties. However, there are no studies related to the combination of processing methods. Processing of Mg alloys with a combination of bulk processing and surface modification might help to achieve desirable properties as one process compliments the other.

I hope that this special issue focusing on the recent advancements in the field of biotechnology and biochemistry will provide enormous information to the readers on the latest trends going on in these areas. Various distinguished scientists and academicians have rendered a lot of support and motivation to bring out this special issue. I am grateful to all the authors and reviewers for their support. Further I extend my gratitude to the Director, Dr Ranjana Aggarwal, CSIR-NISCAIR, New Delhi and Shri RS Jayasomu, Editor, IJEB for encouraging this publication. Last but not least, I appreciate the support and extensive work done by the Editor Dr NK Prasanna Kumari and Interns

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