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Amelioration of Environment and Biological Sciences with Technology

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This book is dedicated to the memory of

Beloved Father of Dr. Vinars Dawane

Mr. Kishor Dawane,

an Art & Animal lover, Health Motivator, Social Activist, Influential Speaker and Remarkable Human Being, who died very recently this year because of Pancreatic Cancer liver Metastasis on 28th Feb. 2021.

"Accumulated Knowledge ingeniously blended with Art, Science and Magic that can create a Profound Mediation in the form of Sustainable Sense is the greatest Treasure of Humanity."

– Late Kishor Dawane.

FOREWORD

Dr Man Mohan Prakash

Chief Editor: International Journal of Scientific Research in Biological Sciences

Executive Editor: Indian Research Communication

Research finding based reference books have great contribution in modern research world. Such books mainly highlight the problem, provide ways of solution and guide the researchers that how can they select and use available techniques and technology for better results and interpretation. This way the present book entitled "Amelioration of Environment and Biological Sciences with Technology".

In my opinion technology is the combination of Knowledge, Skills, Experience and Techniques (i.e. Material, Method, Process and designing of experiments etc.). I hope nobody have doubt that advancement in technology, changed the way of thinking, way of working and way of living of human being. It also helps in improving and developing the human society, the economy and the environment. But current worst environmental conditions created urgent need of cost effective good technology to save the environment.

I analysis this book and found that it is a good collection of research work and included seventeen chapters. Each chapter is important, technological sound and gathered updated information. Chapters of this book mainly focused on Techniques and Technology (Nanoparticles, Nanomaterial, Nanotubes, Nanotechnology and Nanoengineering, Photo catalysis, Extraction of metals etc.), Environment (Hazardous element, Wastewater treatment, Ecosystem, Bioremediation etc.) and Biological sciences (Medicinal plants, Mushroom culture, Herbal drugs, viral therapy etc.).

On the basis of merit of book I am confident this book will be able to find out good place in the library and in the research society. I wish this edited book will succeed in providing the rich research text material, deepen concept and help in understanding the subjects themes on which it is focused. Both the editor of this book –Dr Vinars Dawane and Dr Aruna Kumar Nakkella impressed me as good editors.

Good luck to both editors with the note that very soon we will see another publication.

(Dr Man Mohan Prakash)

PREFACE

Over the times, a bunch of books and collections of manuscripts have been published about the technological advancement towards the biological sciences and environmental sciences as well as their interlinked topics and subjects. The best of them are still on the library shelves or on the top of the desktop screens if one cares to love and read them.

So why should you bother to take and read this book? Just turn the insides and your will surely recognize the difference and notice that this book is not just a topic to topic explanations of subject but rather than it is an up-to-date piece of collective manuscripts that are having a modern understanding of the topics and associated subjects.

In the preface of our book we set ourselves the task to producing a collection of manuscripts to form a text book that can cover the various aspects of fundamental, applied and allied as well as theoretical- experimental details that are basic to an understanding of, and that supports advances in, technology towards the biological sciences and environment. In the last two decades, there have been dramatic advances in our understanding of the processes of sciences and technology under the lens of their appliances in different domains of interdisciplinary subjects.

Just take a moment and think back to how you felt when you struggled with Google searches and tight research articles keywords findings to understand a subject or a topic in your course syllabus, while trying to get some fundamental or advanced understanding on that topic. You will surely say it is really not easy to get a book/manuscript that can provide a very diverse range to the searched topics in a very comprehensive understating alongwith an approach of instant notes or short manuscript style. We tried to give a book that can enchant this solution.

In the age of pandemics and a very contagious virus COVID, we all are facing so many constraints as well as problems at various levels for a common daily and regular professional – academic life. We had a decent mind set to utilize time of this world wide lockdowns in a very constructive manner and produce a fruitful book.

We tried to develop a book that can entertain various young researchers, well stabilized academicians, teachers and authors to share their views and visions as well as brush their writing skills in a rapid publication platform.

From the initiative to development and the end of this book, we were looking for very selective and diverse manuscripts that can able to cover very broad aspects of amelioration of environment and biological sciences in the freedom of rapidly expanding technology and I hope this book will able to provide you the understandings of these issues.

Thus this book is about the excitement of a true understanding of modern topics related to the nexus of environment, biology and technology.

An intensive journey is about to begin. Are you ready?

Vinars Dawane
Aruna Kumari Nakkella
Dr Vishnu Kiran Manam
Editors

ACKNOWLEDGMENTS

(Our deepest dedications to Lord Siddi Vinayaka SIDVI)

Our honorable thanks to Immortal Publications who had given us a great platform to develop this great piece of collaborative scientific writing alongwith a resource for making our book more responsive to the immediate concerns of Researchers and Teaching Fraternity.

Our utmost thanks to Mr T Kranti Kumar, CEO, Immortal Publications for his un tired efforts to make possible this collective writing afford to be physical with this Publication.

Our heartfelt Thanks to Dr Virendra Yadav for providing his necessary technical help during the revision and review process.

Our enumerable thanks to the readers and authors who have chosen our book. And we want to thank their patience during the whole process of book formation from the initiation to other technical issues.

Our sincere request is to feel free to converse about the mistakes if any.

We extend our heartfelt thanks to all our well-wishers, who directly or indirectly lent their helping hand in successful completion of this endeavor.

Editors

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About the Editors

Dr Vinars Dawane

Vinars Dawane (DOB 27.10.1988) is a young academician in the field of Environment and sustainable development, Herbal Technology and Nanobiotechnology. He completed his B.Sc. in Biotechnology and M.Sc. in Biotechnology from Govt. P.G. College Dhar, M. P., India and Govt. Holkar Science College, Indore, M. P. India, respectively. He completed his M.Phil. and Ph.D. from School of Environment and Sustainable Development, Central University of Gujarat, Gandhinagar, India. He is having several international research papers published in reputed journals including BAB, Elsevier and BBRC etc. He is having many book chapters in his credit published in reputed publishers including Springer's Nature, Apple Academic Press - CRC, Tyler and Francis etc.

He won several prizes in the oral and posters prizes category in the national and international conferences and also qualified GATE and NET exams in his discipline of subjects as well as several other national level exams like TIFR-NCBS, MKU-Genomics Exams, CUCET etc. He got JRF-SRF for his M.Phil.-Ph.D. by UGC, New Delhi, India.

His area of interests are - coastal mangrove plants, environment and ecology of mangroves, natural hybrid plants as well as he is having a vast understating in the field of herbal technology, natural product chemistry, bioactive compounds isolation – identification methods development, separation science, various analytical instrumentations and nanobiotechnology.

Currently he a prestigious research project fellow at ANCHROM HPTLC Laboratory, Mumbai, India.

Dr Aruna Kumari Nakkella

Dr Aruna Kumari Nakkella has been involved in search for innovative measures to study the anology of Engineering Chemistry for more than a decade. She has a vast experience in teaching field over 15 years in various streams of Engineering. Presently she is working as Assistant Professor in Engineering Chemistry and Acting as Assistant Principal, College of Engineering, Dr B R Ambedkar University, Etcherla, Srikakulam.

Accomplishing the strategies of Engineering Chemistry, she has been awarded her Doctorate in Chemistry from Andhra University, Visakhapatnam. She not only accumulating with the present sources, but also challenging to generate new sources for teaching chemistry. For that, she also achieved Post Graduate Diploma in Environmental Science from Andhra University.

About 45 International Journal Publications were bagged by her. Mostly she has presented her research and review papers in 60 National and International Conferences and also attended more Workshops all around India. As a part of her research perspectives, she is acting as an Editorial Board Member for Immortal Publications. She has been awarded with the Title of IARDO Young Scientist Award- 2018 for her outstanding enthusiasm and workability in the field of Multidisciplinary Innovative Ideology and recently she bagged Life Time Achievement Award by Elsevier SSRN research awards.

She is also a keen model book designer, builder and creator. As a part of this, she had published various books on Engineering Chemistry, Applied Chemistry and Environmental Science for engineering students. Furthermore on continuation with her research abilities, she got 5 patents with IP India in multi-disciplinary research modes.

Dr Vishnu Kiran Manam

A doctorate in Applied Microbiology - Botany with specialization in Nanotechnology from the University of Madras, his field of study and expertise include Nano-biotechnology, Algal Research, Aquaculture, Vaccine Research, Bio-Remediation and Drug Discovery Services. He has rich experience in Research & Development and Academics for more than a decade, He has also practical experience in Marketing & Corporate Communications, Human resources, and Project Management for more than 5 yrs. He has been certified with Six Sigma [Yellow Belt, Green Belt & Black Belt]. He has bagged the YOUNG SCIENTIST AWARD – ELSEVIER SSRN and BEST RESEARCHER AWARD - ISCAW – ESM for the year 2021. He has various research publications both internationally and nationally to his credit. He has actively taken part in various research programs conducted nationally and internationally. He has been a part of the editorial board member in various international journals and a member of various research forums.

He has successfully steered the responsibilities including resources alignment, technology strategies, and evolution of the innovation management focus areas to achieve the strategic goals during the stint in the senior management role. His skills in enhancing the process operations, optimizing resources & capacity utilization, and augmenting productivity & operational efficiencies while curtailing costs & expenses are highly commendable. High integrity & energetic leader is known for the capability to envision and create SLA, SOP & manuals as well as recruit and train successful multi-cultural teams with the latest knowledge & modern skills in R&D and product development fields to develop quality services. An enterprising leader with proven skills in directing personnel towards the accomplishment of a common goal. Last but not least he is a Philanthropist and a simple human being.

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