



ANNUAL REPORT 2019-21



AMITY
UNIVERSITY
— HARYANA —

CONTENTS

• Directorate of Research & Publication	2
• AUH Research & Development Index	3
• Research Highlights	4-7
• MoUs Signed with Amity University Haryana	8-10
• Resource Mobilization	11-18
• Research Clusters	19-20
• Highlights of Research & Development	21-148
• Awards & Recognitions	149-159
• High Impact Publications	160-173
• Authored Books	174-186
• Award of Ph.D. Degree	187-194
• Patents	195-205
• Infrastructure & Facility	206-211
• Scopus Indexed Publications	212-257
• Glimpse of Events	258-260

DIRECTORATE OF RESEARCH & PUBLICATIONS

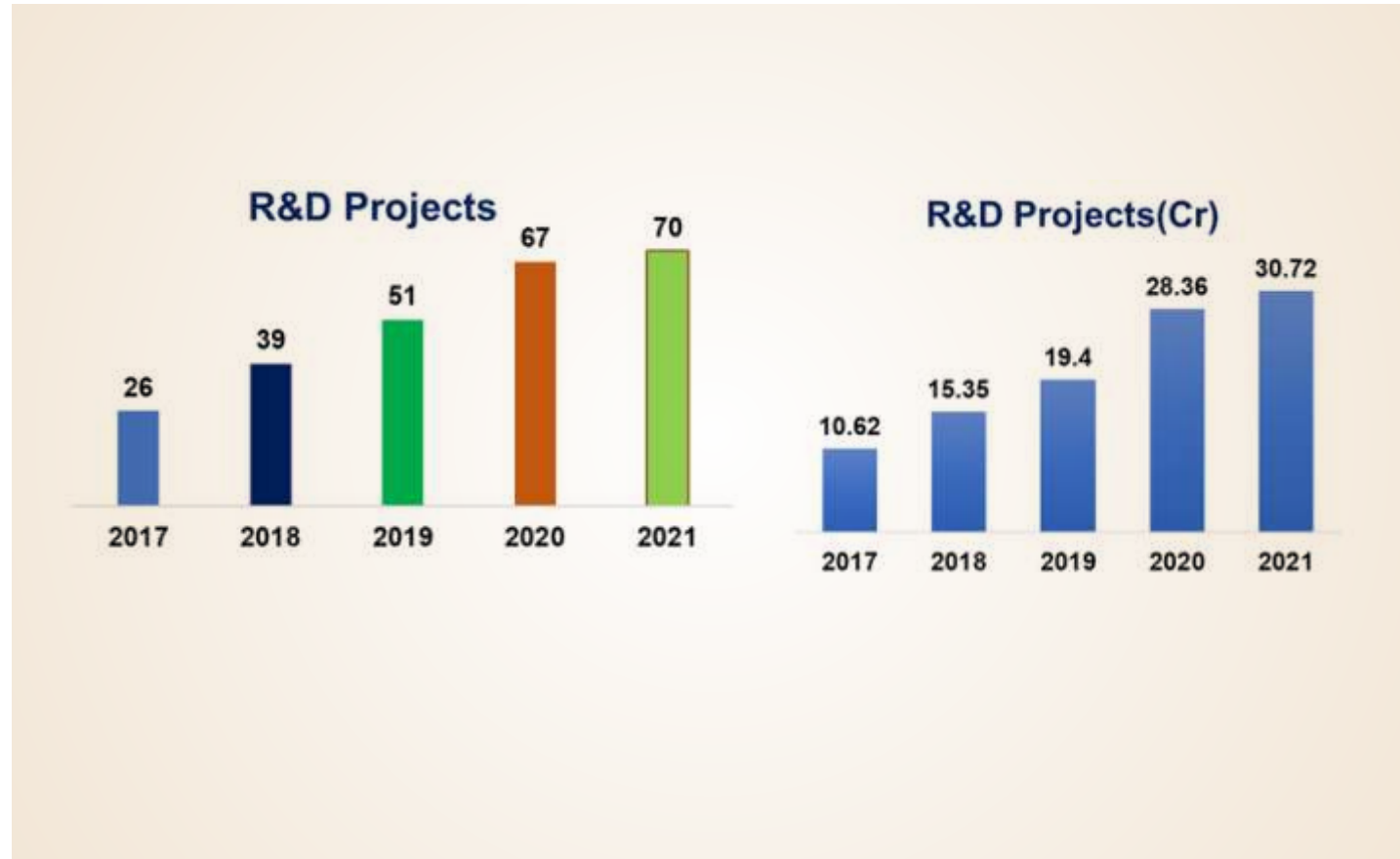
The Directorate of Research & Publication (DRP) since its inception has successfully completed Seven years of guiding and keeping track of the progress made by AUH faculty in terms of research and innovations. Directorate of Research & Publication is responsible for providing research leadership, which normally includes promoting and facilitating leading-edge research, including collaborative and interdisciplinary research; building, and providing sufficient support for, a community of innovative researchers to enhance research capacity at the university and to increase internal and external research opportunities for faculty, post-doctoral fellows, and graduate students; developing networks between the research center and researchers in the field in the public and private sectors, nationally and internationally; transferring knowledge to society through outreach).

DRP has been able to fulfil its mission in promoting research and innovation apart from ensuring proper implementation of research projects and mobilization of extra-mural research funds to AUH. Most heartening development was that our faculty competed and procured major grants funded by the Government Funding Bodies such as DBT, DST, SERB, DAE, IUAC, MNRE, Ministry of Aayush, ICMR etc. and as a consequence during preceding year more than 30 Cr. worth projects were awarded to AUH and 175 patents were filed. AIB/AIISH and ASAS have compete with a mega infrastructural grant from the DST to help set up a ‘Lipidomics Center’ and Material Research laboratory in AUH. DRP has also been able to motivate graduate and post graduate students to opt research as their carriers. As a result, our students not only have been able to compete for internship in various national educational institutes but could also get better placements in leading organizations. AIB/AIISH is in the process of world class modular laboratories which will provide even more impetus in our research and innovation drive. The impetus provided by DRP has yielded quality publications in high impact factor journals and books. Few of our publications have also made to cover pages of these journals. To show case the excellence in global science, the past year also saw regular visits of galaxies of distinguished guest speakers and in organizing various national and international meetings in AUH. Our students and faculty were also invited to several national and international meetings where they presented their research, chaired sessions and fetched awards. DRP has been able to promote and manage research and innovation drive of AUH, however, there is more to be done. We hope that our efforts will bring in more extra-mural grants and laurels in terms of quality publication and patents.

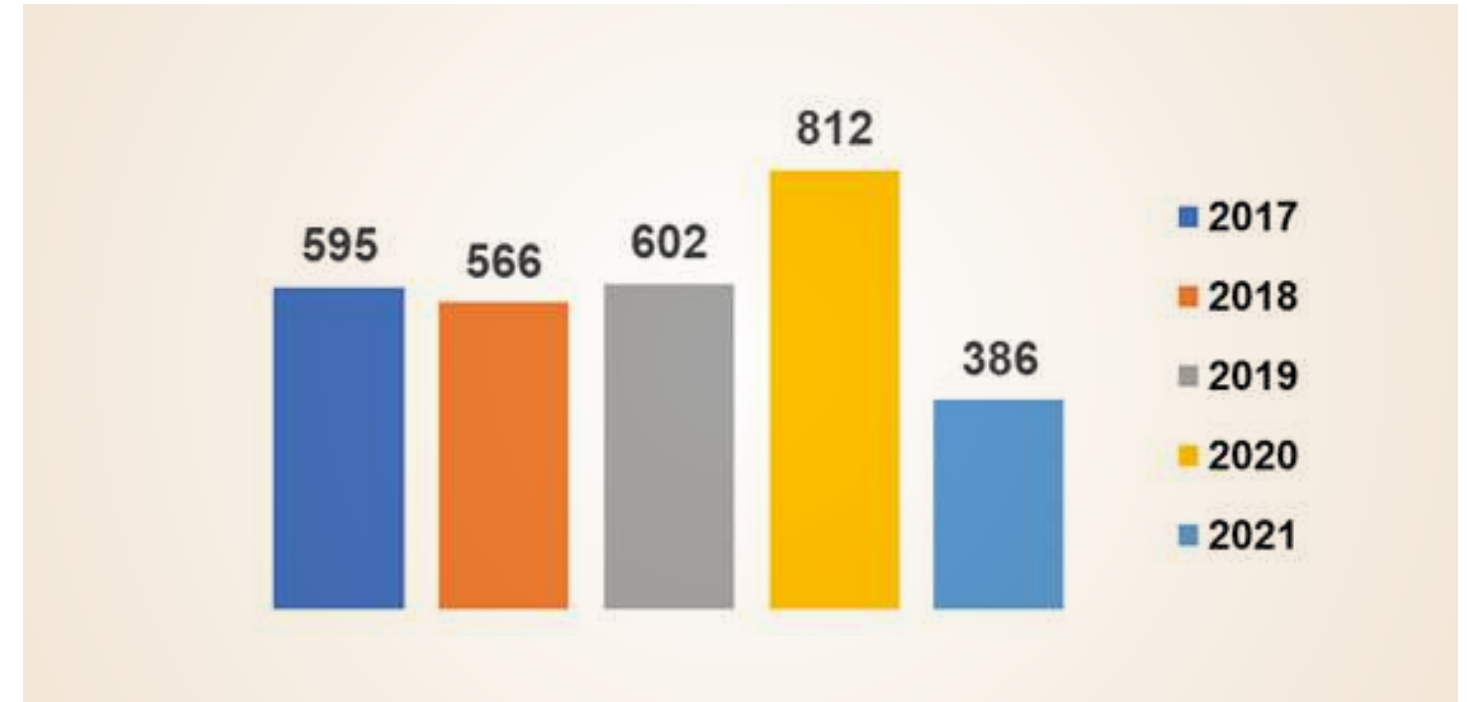
AUH RESEARCH & DEVELOPMENT INDEX

S.N.	Particulars	No.
1.	Research Students	564
2.	Ph.D. Awarded	105
3	R&D Projects	70
4	Consultancy Projects	45
5	Patents Filed	175
6	Publications	4993
7	AUH h Index (Scopus)	34

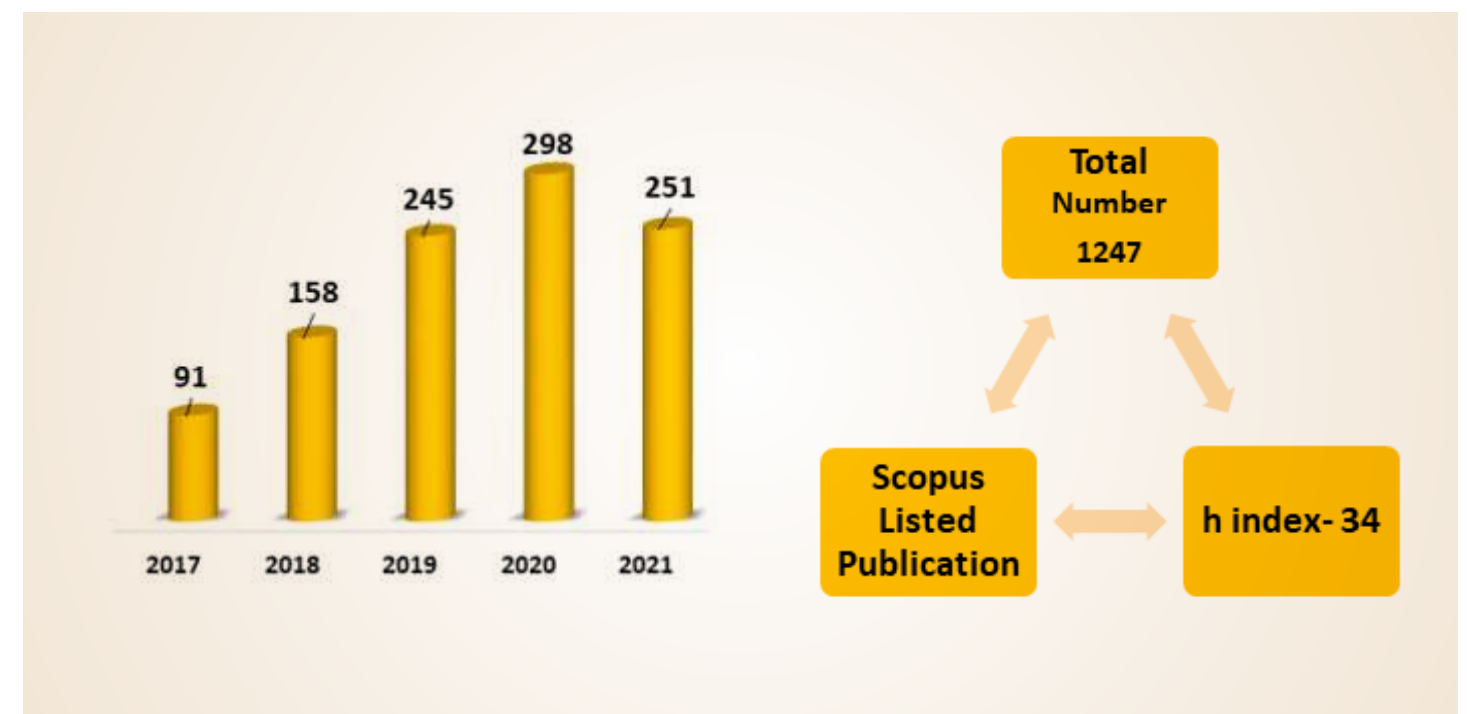
RESEARCH HIGHLIGHTS



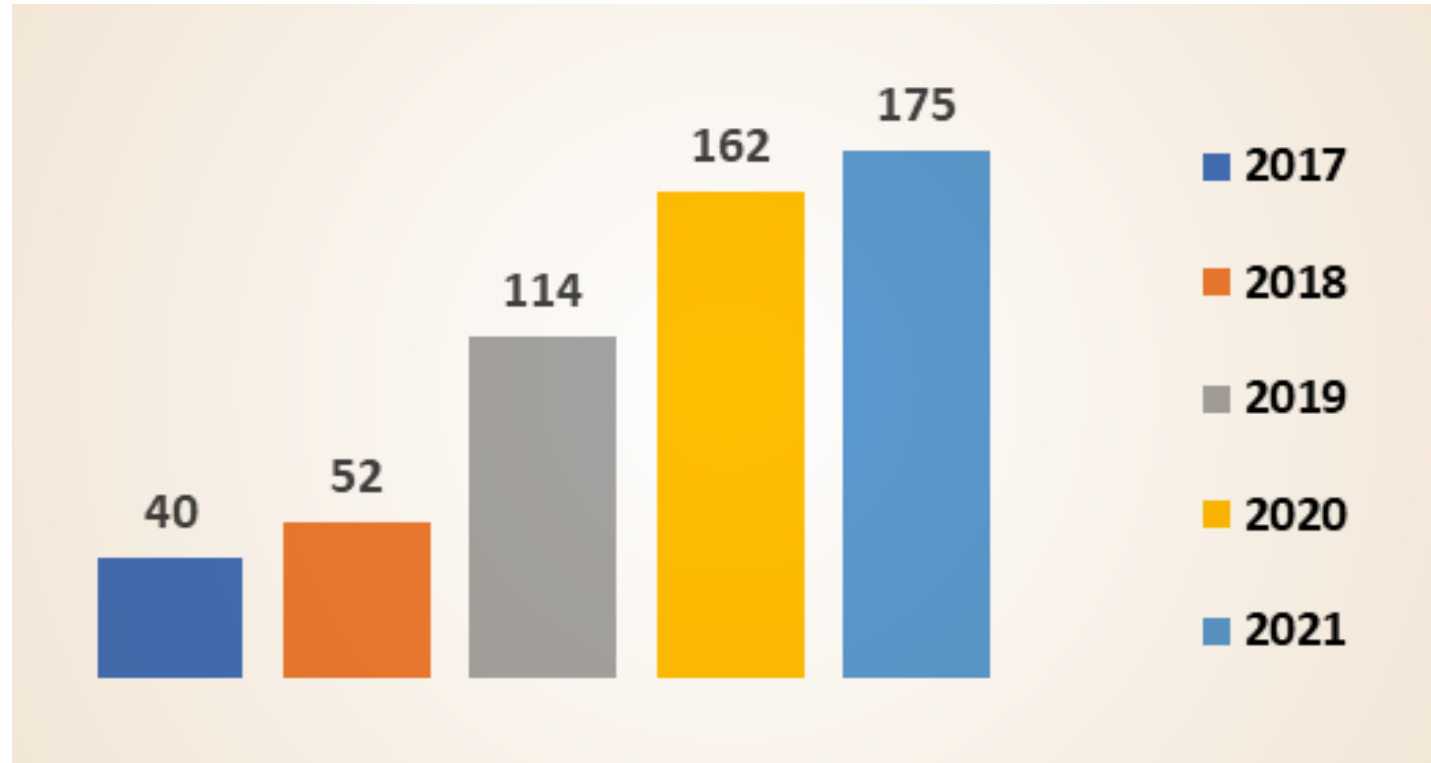
PUBLICATIONS



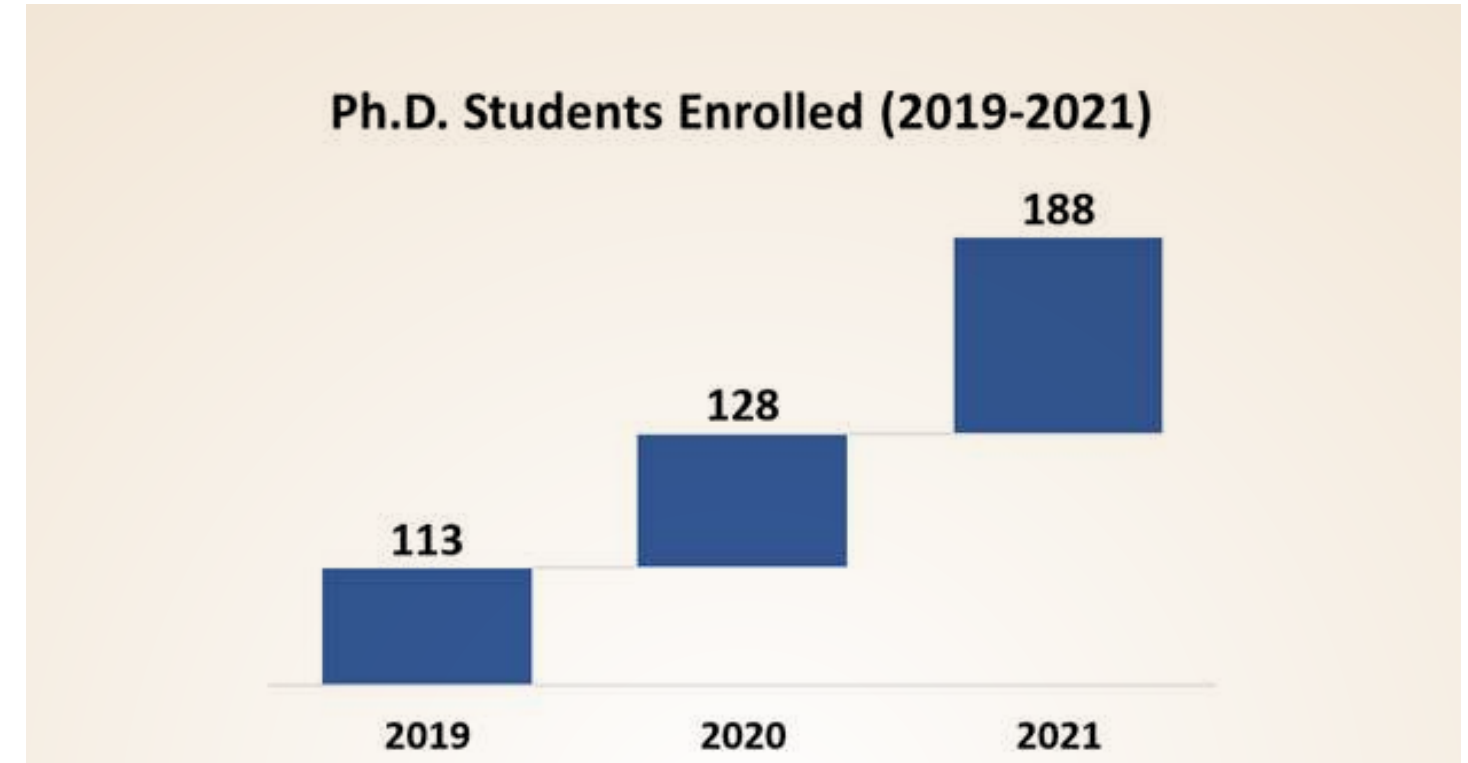
SCOPUS LISTED PUBLICATIONS



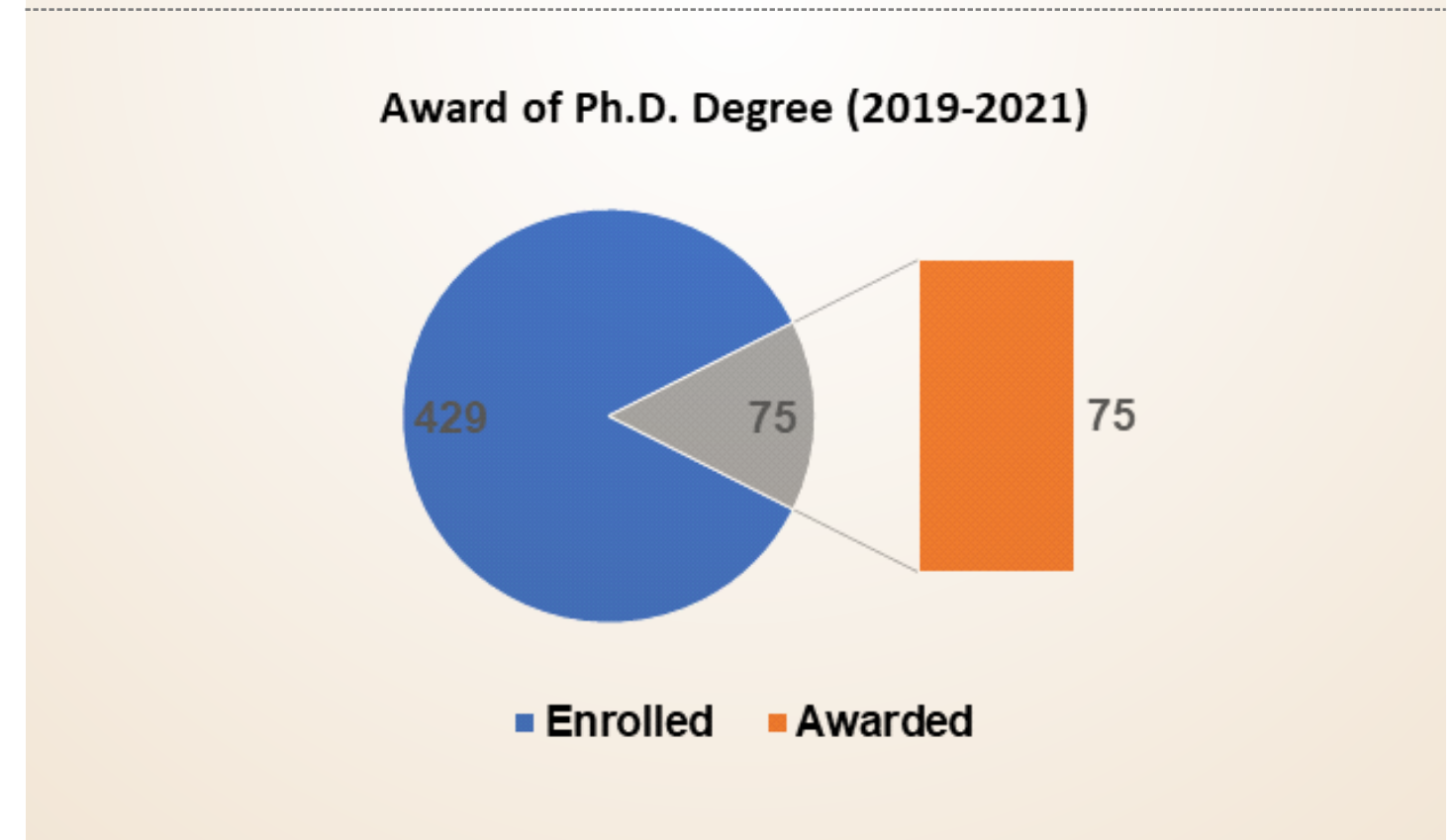
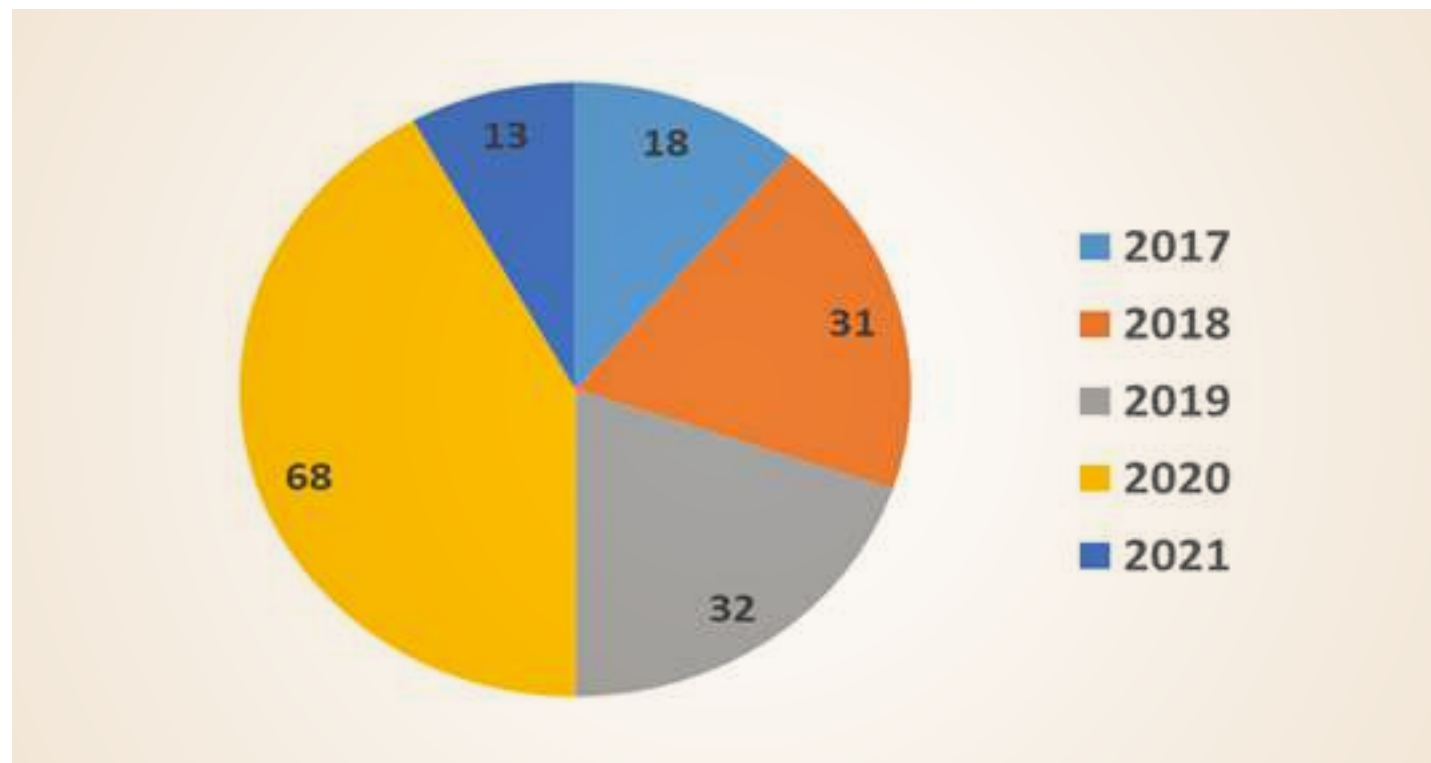
PATENTS FILED



RESEARCH STUDENTS & AWARD OF PH.D. DEGREE



AWARDS & RECOGNITION



MoUs SIGNED WITH AMITY UNIVERSITY HARYANA (2019-2021)



S.N.	MoUs Signed with AUH	Date
NATIONAL		
1	NEC Technologies India Pvt Ltd	21-Jan-2019
2	We, The People Abhiyan	4-Apr-2019
3	Noohra Integrated Services Pvt. Ltd. (NIS)	23-Apr-2019
4	MOU for Shodhganga	6-May-2019
5	Diagno Labs Pvt Ltd	15-May-2019
6	Dev Sanskriti Vishvidhyalya	22-May-2019
7	National Institute of Pathology of Indian Council of Medical Research	25-Jul-2019
8	International Skill Development Corporation	6-Aug-2019
9	Kailash Satyarthi Children's Foundation	19-Aug-2019
10	Medeor Hospital Ltd.	15-Sep-2019
11	Lal Path Labs Foundation	29-Sep-2019
12	Gennova Biophar-macenticals Ltd.	13-Nov-2019
13	Skoda Auto Volkswagen India Pvt. Ltd.	7-Jan-2020
14	Advisor Department of Biotechnology	22-Jan-2021
15	UAS International	7-Jun-2021
16	BSK Legal	10-Jun-2021
17	VFN Group	11-Jun-2021
INTERNATIONAL		
18	Shabri LLC / Nebarska	15-Oct-2019
19	Universidad Autonoma de Guadalajara	16-Jan-2020
20	University Bengkulu Indonesia	24-Jan-2020
21	National Sunyat Sen University	2-Mar-2020
22	University Of Highlands & Islands	1-Aug-2020
23	Taiwan Education & Cultural Centre in India	26-Feb-2021
24	Management of Science University Malaysia	17-Jun-2021

Research Grants

भारत सरकार
GOVERNMENT OF INDIA

विज्ञान और प्रौद्योगिकी मंत्रालय
MINISTRY OF SCIENCE AND TECHNOLOGY

जैवप्रौद्योगिकी विभाग
DEPARTMENT OF BIOTECHNOLOGY

राष्ट्र की सेवा में परमाणु
BRNS
ATOMS IN THE SERVICE OF THE NATION

सत्यमेव जयते
Department of Science and Technology (DST)
DST

Science and Engineering Research Board (SERB)
Department of Science and Technology (DST)
Govt. of India

आयुष मंत्रालय
MINISTRY OF AYUSH

INDIAN COUNCIL OF MEDICAL RESEARCH



RESOURCE MOBILIZATION

- 1** Project Title- “Combating topical & medical device related fungal infections using engineered Anti-fungal hydrogels”

PI: Prof. Rajendra Prasad & Dr. Ujjaini Dasgupta

Funding Agency: DBT


Sanctioned Amount: 83.26 Lakhs



- 2** Project Title- “Identify Disease gene association using Google's Tensor Flow”

PI- Dr Alok Srivastava

Funding Agency: ICMR


Sanctioned Amount: 33.057 Lakhs


- 3** Project Title- “Identifying the role of P53 regulated long non-coding RNAs (LncRNAs) by Crispr/Cas9 in ovarian cancer”

PI: Dr Amit Kumar Pandey

Funding Agency: ICMR


Sanctioned Amount: 59.97 Lakhs


- 4** Project Title- “Understanding Wnt Pathway and LncRNAs interaction for the identification of novel therapeutic targets in triple-negative breast cancers”

PI: Dr Amit Kumar Pandey


Funding Agency: DST

Sanctioned Amount: 37.78 Lakhs




Project Title- “Mitigating the impact of antifungal resistance in the emerging pathogen candida auris by piggybacking its peptide permease as an antifungal delivery system”

5 PI: Dr Atanu Banerjee
Funding Agency: SERB
Sanctioned Amount: 32.32 Lakhs




Project Title- “DNA biosensor for the diagnosis of Leptospirosis”

9 PI- Dr Ankur Kaushal
Funding Agency: ICMR
Sanctioned Amount: 12.39 Lakhs




Project Title- “Fabrication of the portable low cost point-of-care optical device for the screening of thalassemic carrier”

6 PI: Dr Ranjita Ghosh Moulick
Funding Agency: DST
Sanctioned Amount: 14.60 Lakhs




Project Title- “मैथली भाषाक इतिहास”

10 PI: Prof. Udaya Narayana Singh
Funding Agency: मैथली - भोजपुरी अकादमी
Sanctioned Amount: 0.75 Lakhs




Project Title- “Unravelling the molecular mechanism of lncRNAs involvement in Glioblastoma”

7 PI: Dr Amit Kumar Pandey
Funding Agency: DST-RSF
Sanctioned Amount: 71.74 Lakhs





Project Title- “Experimental validation of pre-identified candidate genes regulating protein storage in chickpea seeds”

11 PI: Dr Kaustav Bandyopadhyay
Funding Agency: SERB
Sanctioned Amount: 31.99 Lakh




Project Title- “A nanobionic approach for enhancement of plant photosynthesis and growth by augmenting chloroplast mediated photon absorption”

8 PI: Dr Sumistha Das & Dr Nitai Debnath
Funding Agency: DST-Nano mission
Sanctioned Amount: 45.50 Lakhs

Project Title- “Developing small molecule inhibitors to target non-genomic androgen signaling and elucidating the role of GPR56 in Prostate Cancer”

12 PI: Dr Gargi Bagchi
Funding Agency: DST-SERB
Sanctioned Amount: 46.37 Lakhs



Project Title- “Electrochemical DNA sensor for the diagnosis of Scrub Typhus”

PI: Dr Ankur Kaushal

13 Funding Agency: DST, SYST.

Sanctioned Amount: 18.69 Lakhs



Project Title- “DHR-Identification of Sphingolipid-based Biomarkers for Triple Negative Breast Cancer (TNBC) and Luminal A Patients and their 72 Clinicopathological Correlation”

17 PI: Dr Ujjaini Dasgupta

Funding Agency: ICMR

Sanctioned Amount: 47.00 Lakhs



Project Title- “Development of rare earth ions doped borate nanophosphors for solid state lighting and radiation dosimetry devices”

PI: Dr Ankush Vij

14

Funding Agency: RI Nanotech India

Sanctioned Amount: 2.30 Lakhs



Project Title- “A low cost portable microfluidics embedded on chip RT-PCR and microelectrode array coupled point-of care optoelectronic device for large scale screening of emerging viral disease like SARS COV2”

18 PI: Dr. Ranjita Ghosh Moulick

Funding Agency: BIRAC, DBT

Sanctioned Amount: 90.00 Lakhs



Project Title- “Investigating of the role of LncRNA PANDAR in the progression and metastasis of ovarian cancer”

PI: Dr Amit Kumar Pandey

15

Funding Agency: ICMR

Sanctioned Amount: 30.00 Lakhs



Project Title- “PG Teaching in Biotechnology (M.Sc. in Biotechnology) approved by DBT for GAT-B national based admissions”

19 PI: Prof. Rajendra Prasad

Funding Agency: DBT

Sanctioned Amount: 130 Lakhs



Project Title- “System level meta-analysis of Type 2 Diabetes to identify key regulator”

PI: Dr Alok Srivastava

16

Funding Agency: ICMR

Sanctioned Amount: 70.00 Lakhs



Project Title- “Fabrication of Realtime in planta biosensors for presymptomatic detection of heavy metal toxicity”

20 PI: Dr Ranjita Ghosh & Dr Kaustav Bandyopadhyay

Funding Agency: DBT,

Sanctioned Amount: 65 Lakhs (Proposed)



Project Title- "To study the dynamics of sickling inside blood capillary mimicking microfluidic system to fabricate a portable point-of-care electronic device for the detection of sickle cell disease"



21 PI: Dr Ranjita Ghosh Moulick
Funding Agency: ICMR

Project Title- "Development of on spot diagnostic kit for COVID19 based on RT-LAMP Integrated CRISPR-Cas technique"



25 PI- Dr Saif Hameed & Dr Zeeshan Fatima
Funding Agency: BRNS
Sanctioned Amount: 16.56 Lakhs

Project Title- "Human lacrimal gland regeneration: a study of the existing technological advancements and development of next generation solutions by tissue engineering and regenerative medicine"



22 PI: Dr Vimal Kishor Singh
Funding Agency: SERB
Sanctioned Amount: 43.67 Lakhs

Project Title- Project Title- "DBT-BUILDER PROGRAMME" - Level I



PI: Dr Rajendra Prasad
26 Funding Agency: DBT
Sanctioned Amount: 1.6 Crore

Project Title- "Differential Inhibition of Visfatin-PAK4 as a Novel Strategy in Esophageal Squamous Cell Carcinoma for Therapeutic Purpose"



23 PI: Dr Manoj K Kashyap & Dr Suresh Kr. Kalangi
Funding Agency: ICMR
Sanctioned Amount: 45.00 Lakhs

Project Title- "A Mass Spectrometric Approach to Unravel the Landscape of Sphingolipids as Major Signaling Determinants of Drug Resistance and Virulence in Emerging Human Fungal Pathogen Candida auris."



27 PI- Dr Rajendra Prasad
Funding Agency: DBT
Sanctioned Amount: 84.25 Lakhs

Project Title- "Identification of biomarker candidate for early diagnosis of myocardial reperfusion injury and reoccurrence centralizing GSK3 β using metanalysis"



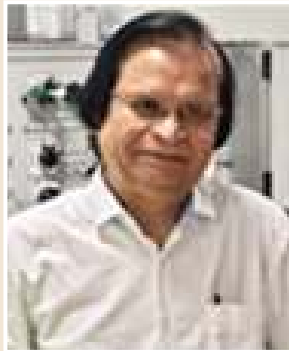
24 PI- Dr Arun Kumar, Dr Satish Sardana
Funding Agency: ICMR
Sanctioned Amount: 49.00 Lakhs

Project Title- "Novel Nanoarchitectures for selective multistep catalysis"




PI- Dr Anirban Das
28 Funding Agency: SERB, DST
Sanctioned Amount: 18.30 Lakhs


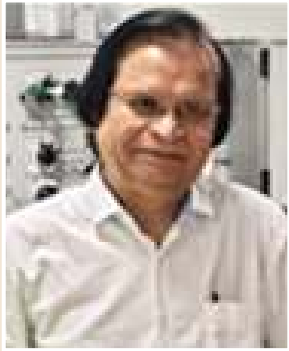
29 Project Title- “DBT Skill Vigyan Programme under state partnership in Life Science and Biotechnology”
PI- Dr Rajendra Prasad
Funding Agency: DBT
Sanctioned Amount: 1.23 Crore



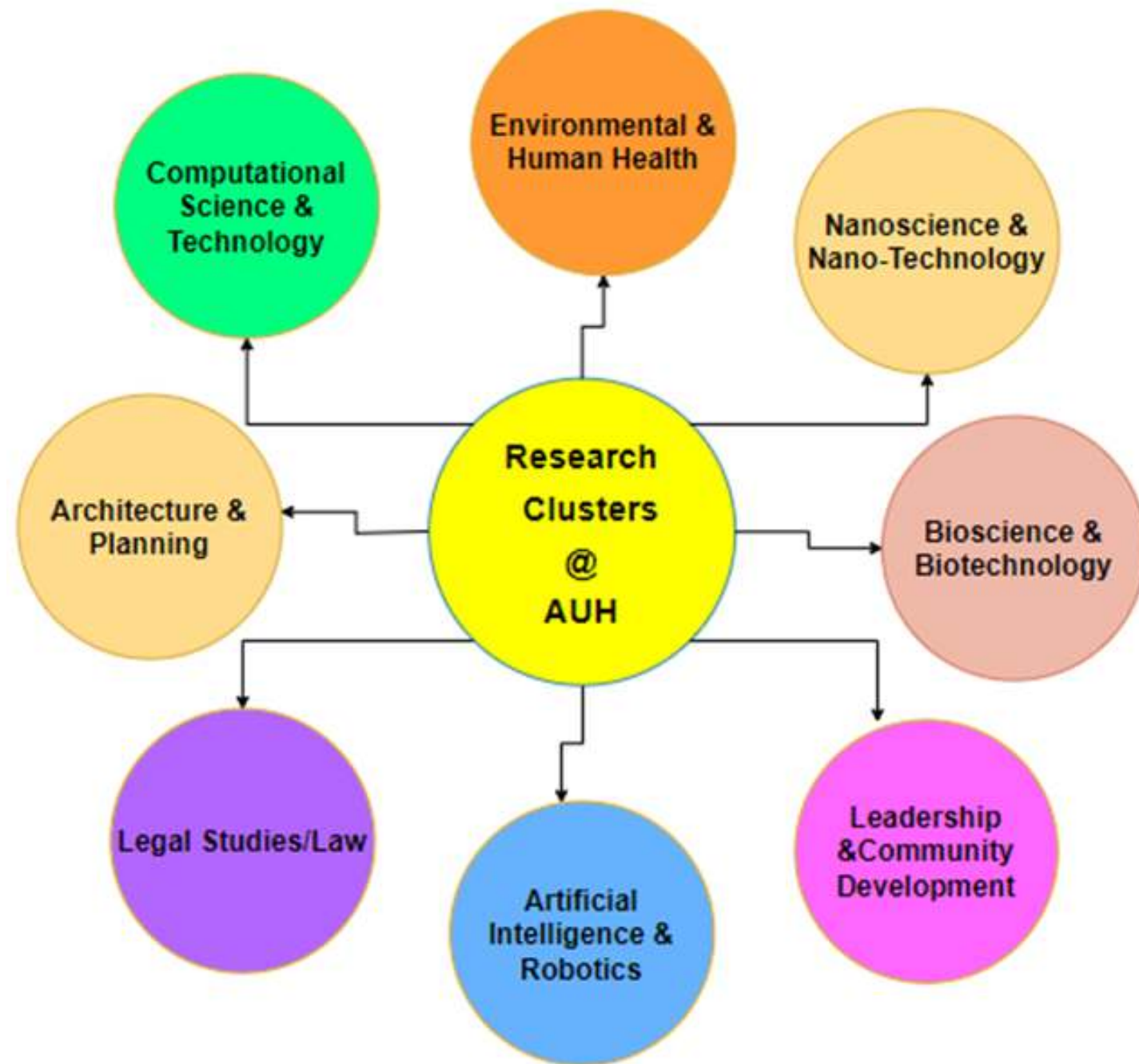
30 Project Title- “Regulation of ribosome biogenesis and SOS response by cyclic di-AMP in Mycobacterium”
PI: Dr .Krishna Murari Sinha
Funding Agency: SERB
Sanctioned Amount: 57.86 Lakhs



31 Project Title- “Insights into the efflux pump arsenal of the emerging pathogen C. auris and its implication in high order of antifungal resistance and virulence”
PI: Dr. Rajendra Prasad & Dr. Atanu Banerjee
Funding Agency: DBT
Sanctioned Amount: 54.89 Lakhs



RESEARCH CLUSTERS



AMITY SCHOOL OF APPLIED SCIENCES

INTRODUCTION

Established on the National Science Day in 2013, Amity School of Applied Sciences (ASAS) has a strong research focus and is actively engaged in imparting high-quality higher education leading to Bachelors, Masters and Doctoral degrees (BSc, MSc, MTech, PhD) in various disciplines of Applied Sciences. Its highly qualified and competent faculty drives research initiatives and strives for continuous innovation in teaching-learning processes. The school connects with its students at various levels to guide and motivate them for research and innovation, and prepare them well for a bright career. It encourages creative talent and emphasizes close interaction with industry. ASAS capitalizes on its strengths to provide professional services, deliver research output, and implements innovative approaches to meet the development needs and aspirations of the country.

Collaborative interdisciplinary research with leading universities and research labs/institutions is the hallmark of Amity School of Applied Sciences. Its research output is reflected through publications in high-impact journals and reputed conferences, and patents. ASAS research has an impact on engineering solutions, healthcare, energy and environment. Its research strength is recognized nationally as well as internationally, as evident from its collaborations and sponsored research activities. The latest in the list is the prestigious FIST-grant of Rs.84 lacs from DST, Govt. of India.

CURRENT RESEARCH AT ASAS

ASAS focuses on research in areas such as Material Synthesis and Characterization; Modeling and Simulation; Plasma and ECR-ion Source Instabilities; Theoretical Physics; Protein Aggregation and Engineering; Drug Delivery; Photo Catalysis; Polymer Composites; Biomedical Tissue Engineering; Organometallic Chemistry; Bio-inorganic Chemistry; Nanomedicine; Waste-water treatment; Biosensors and Chemosensors; Medicinal and Environmental Chemistry; Finger-printing; Questioned Documents; Forensic Ballistics; Toxicology; Scientific Computing and Algorithms; Petri net Modeling; Image Processing; Engineering Reliability; Queuing Theory and Fuzzy Mathematics; Atmospheric Modeling; Elasticity; Fractional Calculus; Fluid Dynamics; Solar Photovoltaic and Thermoelectric Devices; which are well supported by modern infrastructure having well-equipped laboratories of Electronic Materials and Nanomagnetism, Nano phosphorus Material, Solar Photovoltaic and Energy Systems, Nanoparticle Synthesis and Characterization, Computational Modeling and Studies. ASAS has set up a well-equipped Material Research Lab (MRL) funded under the FIST grant of DST, Govt of India, where major multi-users equipments has been set up. To give further boost to research and consultancy, a state-of-art computing facility will also be setup soon.

RESEARCH HIGHLIGHTS

ASAS has been in the forefront in research and innovation. It is actively engaged in publishing high-quality research papers and filing patents. ASAS takes pride in the fact that it has received the prestigious DST-FIST grant of Rs.84 Lacs in 2018, besides other funded projects. Its research articles are published in peer reviewed high-impact journals of international repute. Individual faculty members are also supported by extra mural research grants from the national and international funding agencies such as Department of Science & Technology (DST), National Board for Higher Mathematics (NBHM), Inter University Accelerator Centre (IUAC), UGC-DAE, National Institute of Solar Energy (NISE), Applied Membrane Technology (AMT), USA. Our collaborators include Korea Institute of Science and Technology (KIST), Korea, Changwang University, Korea, Pohang Accelerator Lab, Tel-Aviv University, CDRI Lucknow, IIT Delhi, IIT Roorkee, Jamia Milia Islamia, Punjabi University Patiala, RR CAT Indore, BARC Mumbai, University of Delhi, Aligarh Muslim University.

SPECIALIZED RESEARCH FACILITIES:

- **Electronic Materials and Nanomagnetism Lab:** The research activities in this lab focus on synthesis of magnetic nanostructures dilute magnetic semiconductors, magnetoelectric multiferroic and lead-free piezoelectric materials. The key areas of research include the study of properties and applications of the magnetism of isolated nanoparticles, nanodots, nanowires, thin films and multilayers, and also macroscopic samples that contain nanoscale particles.
- **Nanophosphors Material Lab:** The lab is equipped with all the latest technology equipments such as muffle furnace, centrifugal device, Teflon lined SS autoclave, heating mantle, hot air oven etc. which are used for the synthesis of nanophosphors particles. These particles have applicability in various areas of biomedical engineering, military, and defense.
- **Chemistry Research Lab:** The chemistry research laboratory is equipped with instruments like UV-Visible spectrophotometer which can be used for detection of impurities, structure elucidation of compounds, quantitative and qualitative analysis. In addition, instruments like bath sonicator, rotary evaporator, muffle furnace, Teflon lined autoclave, water distillation setup, stirrers and heating mantles supplement the experimental facilities.
- **Material Research Lab (MRL)** has been functional with high end instruments. These are Double Beam UV-Vis Spectrophotometer Lamda 365(Perkin Elmer), Modular Spectrometer (RIII India) Simultaneous Thermal Analyser ST 8000 (Perkin Elmer), Zetasizernano ZS (Malvern).

FACULTY

- A K Yadav, PhD; Professor
- S R Pathak, PhD; Professor
- Preeti Thakur, PhD; Professor
- Joydeep Dutta, PhD; Professor
- Anirban Das, PhD; Associate Professor
- Dipti Vaya, PhD; Associate Professor
- Jyotsna Sharma, PhD; Associate Professor
- Sudeshna Ghosh, PhD; Associate Professor
- Sunita Kumawat, PhD; Associate Professor
- Anurag Sharma, PhD; Assistant Professor
- Ayana Bhaduri, PhD; Assistant Professor
- Chander Shekhar, PhD; Assistant Professor
- Dimple Singh, PhD; Assistant Professor
- Bhuvnesh Yadav, PhD; Assistant Professor
- Vikas Lahariya, PhD; Assistant Professor
- Sudip Majumder, PhD; Assistant Professor
- Kamal Kumar, PhD; Assistant Professor
- Kamal Nayan, PhD; Assistant Professor
- Debasree Roy, PhD; Assistant Professor
- Sarika Jain, PhD; Assistant Professor
- Amit Sharma, PhD; Assistant Professor
- Reeta Bhardwaj, PhD; Assistant Professor
- S K Chauhan, PhD; Assistant Professor
- Monika Vats, PhD; Assistant Professor
- Manish Shandilya, PhD; Assistant Professor
- Richa Rohatgi, PhD; Assistant Professor
- C M Srivastava, PhD; Assistant Professor
- Gyandeshwar Rao, PhD; Assistant Professor
- Kamal Kant Behra, PhD; Assistant Professor
- G S Bumbrah, PhD; Assistant Professor
- Shivpoojan Kori, PhD; Assistant Professor
- Ravi Rathi, MSc; Teaching Associate
- Navneet Lal Sharma, PhD; Assistant Professor



Prof. AK Yadav

**Information Security, Image Processing,
Encryption and Watermarking,
Mathematical Transforms**

Research Interest My research work deals with development of cryptosystems for image encryption and watermarking. This involves use of various integral transforms and other mathematical transforms. The main objective is to develop secure and robust cryptosystems which can resist various attacks for unauthorized access.

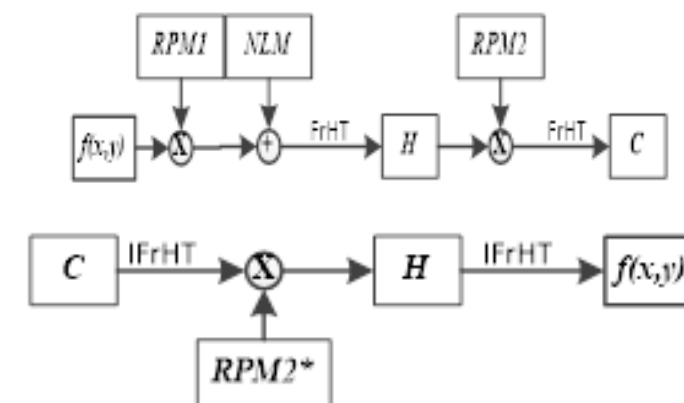


Fig. Schematic diagram of (a) encryption and (b) decryption process.

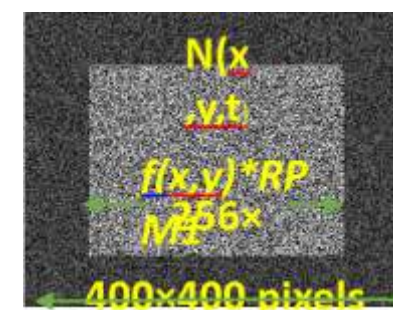


Fig. Nonlinear mask $N(x,y,t)$ added to $(RPM_y \times f_x$

Publications

1. Sameer Saharan, A K Yadav, Bhuvnesh Yadav, Novel C stain-based chemical method for differentiating real and forged fingerprints. Egyptian Journal of Forensic Science, 10, 16 (June 2020). DOI: 10.1186/s41935-020-00190-7. (Scopus)
2. S Dhar, S Yadav, J Singh, A K Yadav, P Singh, Particle Swarm Optimization Algorithm to Optimize the Activity Patterns of Internal Globus Pallidus in Parkinson Disease, International Journal of Recent Technology and Engineering (IJRTE), Volume -8, Issue - 5, pp. 5382 - 89, (Jan 2020), DOI: 10.35940/ijrte.E6923.018520 (Scopus)
3. S Dhar, S Yadav, J Singh, A K Yadav, P Singh, Analysis of Discharge Patterns of Subthalamic Nucleus and External Globus Pallidus Coupling in Parkinson Condition Using Particle Swarm Optimization Algorithm, Dynamics of Continuous, Discrete and Impulsive Systems-Series B (May 2020) (Scopus)
4. S Dhar, S Yadav, P Singh, J Singh, A K Yadav, Optimization of Discharge Patterns in Parkinson Condition in Subthalamic Nucleus Model of Basal Ganglia using Particle Swarm Optimization Algorithm, Advances in

Mathematics: Scientific Journal,9(2020), No.5, 3135–3153, <https://doi.org/10.37418/amsj.9.5.72>(Scopus)

- J Kumar, P Singh, A. K. Yadav, Asymmetric color image encryption using singular value decomposition and chaotic Tinkerbell map in fractional Fourier domain, Proc. SPIE 11509, Optics and Photonics for Information Processing XIV, 115090C(21 August 2020), doi: 10.1117/12.2568447 (Scopus)
- J Kumar, A K Yadav, P Singh, K Kumar, Phase Image Asymmetric Encryption using Lorenz Transform and Modified Equal Modulus Decomposition in Fractional Fourier Domain, Solid State Technology, Volume: 63 Issue: 5 (2020) (Scopus)

• **Patent**

- Complete Filing of “A System and Method for Differentiating Real and Forged Fingerprints”, File No. 201911014027, 09/04/2020, Sameer Saharan, Bhuvnesh Yadav, A K Yadav.

• **Book Chapters**

- Shri Dhar, Phool Singh, Jyotsna Singh, and A. K. Yadav, Optimization of Discharge Patterns in Parkinson Condition in External Globus Pallidus Model of Basal Ganglia Using Particle Swarm Optimization Algorithm, Adv in Intelligent Syst., Computing, Vol. 1169: Proc. of Int. Conference on Trends in Computational and Cognitive Engineering, 978-981-15-5413-1, 484998_1_En, (Chapter 23), Springer Nature.



Prof. Preet Thakur

Nanoferrites, characterization techniques, High Frequency Application, Radar absorbing Materials, High Frequency Applications, Wastewater Treatment

• **Research Interest**

My research interests include synthesis and characterization of nanoferrite materials for radar absorbing materials, sensor and high frequency applications. Application of magnetic nanoferrite materials for wastewater treatment and agriculture purposes.

Our group studied photocatalytic activity of Cobalt substituted Zinc ferrite for the degradation of methylene blue dye under visible light irradiation. Also, studies were performed to evaluate the antifungal activity of ferrite nanoparticles against various plant pathogenic fungi. We also achieved remarkable resistivity and improved dielectric values for Co-Zn nanoferrites which makes them useful for high frequency applications.

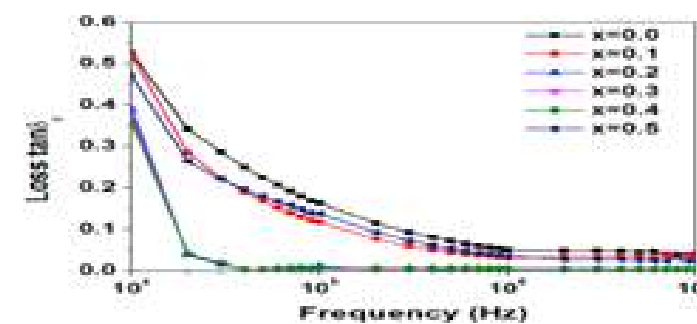


Fig. 1 Variation of dielectric loss tangent ‘tanδε’ with frequency at room temperature for CoZn nanoferrites

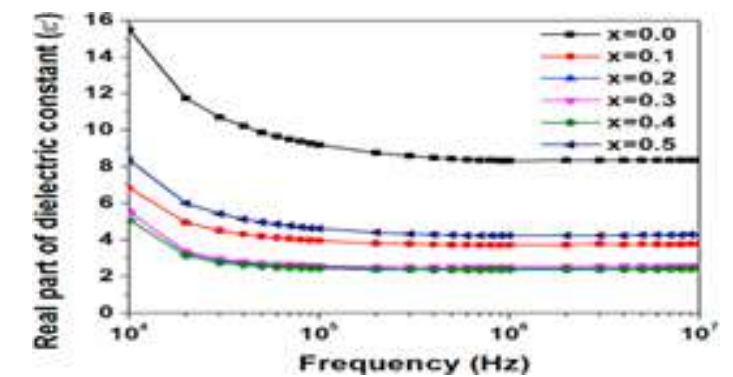


Fig. 2 Variation of real part of dielectric constant ε’ with frequency at room temperature for CoZn nanoferrites

Publications

- Influence of Bismuth Doping on Structural, Electrical and Dielectric Properties of Ni-Zn Nanoferrites. Preeti Thakur, Shilpa Taneja, Deepika Chahar, Atul Thakur. Journal of Alloys and Compounds. 859 (2020) 157760. (Impact factor 4.65)
- Synthesis of barium ferrite nanoparticles using rhizome extract of Acorus Calamus: Characterization and its efficacy against different plant phytopathogenic fungi. Atul Thakur, Nidhi Sharma, Manpreet Bhatti, Monica Sharma, Alex V. Trukhanov, Sergei V. Trukhanov, Larissa V. Panina, Ksenia A. Astapovich, Preeti Thakur. Nano-Structures & Nano-Objects. 24 (2020) 100599.

3. Recent advances in synthesis, characterization, and applications of nanoparticles for contaminated water treatment- A review. PinkiPunia, Manish Kumar Bharti, Sonia Chalia, Rakesh Dhar, Blaise Ravelo, Preeti Thakur, Atul Thakur. *Ceramics International* 47 (2021) 1526-1550. (Impact factor 3.8)
4. Potential of Magnetic Nanoferrites in Removal of Heavy Metals from Contaminated Water: Mini Review. Manish Kumar Bharti, Sakshi Gupta, Sonia Chalia, Isha Garg, Preeti Thakur, Atul Thakur. *Journal of Superconductivity and Novel Magnetism* 33 (2020) 3651–3665. (Impact factor 1.23)
5. Photocatalytic activity of Cobalt substituted Zinc ferrite for the degradation of methylene blue dye under visible light irradiation. Deepika Chahar, Shilpa Taneja, Shalini Bisht, Shubhi Kesarwani, Preeti Thakur, Atul Thakur, P. B. Sharma. *Journal of Alloys and Compounds*. 851 (2021) 156878. (Impact factor 4.65)
6. Magneto-Dielectric Substrate Effect on Bandpass li-Circuit NGD Performance. Kishore Ajay Kumar Ayyala, Samuel Ngoho, Preeti Thakur, M S Prasad, Atul Thakur and Blaise Ravelo. *Proceedings of the International Conference on Smart Electronics and Communication (ICOSEC 2020)*. IEEE Xplore Part Number: CFP20V90-ART; ISBN: 978-1-7281-5461-9
7. Diakoptics Modelling Applied to Flying Bird-Shape NGD Microstrip Circuit. Blaise Ravelo, Fayu Wan, Ningdong Li, Zhifei Xu, Preeti Thakur, Atul Thakur. *IEEE Transactions on Circuits and Systems II: Express Briefs*. 68 (2020) 637-641.
8. Innovative Theory of Low-Pass NGD Via-Hole-Ground Circuit. Ayu Wan, Bin Liu, Preeti Thakur, Atul Thakur, Sébastien Lalléchère, Wenceslas Rahajandraibe, and Blaise Ravelo. *IEEE Access* 8 (2020) 130172-130182
9. Low leakage current density and improved dielectric behavior of BiFexO3 nano-ceramics. Shilpi Chandel, Preeti Thakur, Atul Thakur. *Journal of Alloys and Compounds*. 845 (2020) 156287. ((Impact factor 4.65))
10. Negative group delay experimentation with tee connector and cable structures. Fayu Wan, Xiaoyu Huangi, Preeti Thakur, Atul Thakur, Sébastien Lalléchère, and Blaise Ravelo. *Eur. Phys. J. Appl. Phys. (EPJAP)* 91 (2020) 10903.
11. OIO-Shape PCB Trace Negative Group-Delay Analysis. Fayu Wan, Bin Liu, Preeti Thakur, Atul Thakur, Sébastien Lalléchère, Wenceslas Rahajandraibe, and Blaise Ravelo. *IEEE Access* 8 (2020) 97707 – 97717.
12. Remarkable Resistivity and Improved Dielectric Properties of Co-Zn Nanoferrites for High Frequency Applications. Deepika Chahar, Shilpa Taneja, Preeti Thakur, Atul Thakur. *Journal of Alloys and Compounds* 843 (2020) 155681. (Impact factor 4.65))
13. A review on MnZn ferrites: Synthesis, characterization and applications. Preeti Thakur, Deepika Chahar, Shilpa Taneja, Nikhil Bhalla, Atul Thakur*. *Ceramics International* 46 (2020) 15740-15763. (Impact factor 3.8)
14. Manganese Zinc Ferrites: A Short Review on Synthesis and Characterization. Preeti Thakur, Shilpa Taneja, Deepika Sindhu, Ulrike Lüders, Amit Sharma, Blaise Ravelo, Atul Thakur. *Journal of Superconductivity and Novel Magnetism* 33 (2020) 1569–1584. (Impact factor 1.23)
15. Colorimetric sensing approaches of surface-modified gold and silver nanoparticles for

detection of residual pesticides: a review. Rajat Singh, Preeti Thakur, Atul Thakur, Harish Kumar, Prince Chawla, Jignesh kumar V. Rohit, Ravinder Kaushik & Naveen Kumar. *International Journal of Environmental Analytical Chemistry*. <https://doi.org/10.1080/03067319.2020.1715382>

Book Chapters

1. Blaise Ravelo, Atul Thakur, Ashish Saini, Preeti Thakur. (2020) Temperature Effect Analysis on Microstrip Structure. In: Ravelo B. (eds) *Analytical Methodology of Tree Microstrip Interconnects Modelling For Signal Distribution*. Springer Nature, Singapore, pp 215-229. ISSN 978-981-15-0552-2. https://doi.org/10.1007/978-981-15-0552-2_11

Patents

1. Patent Application No.202011017917
Title: A Method For Synthesis Of Bismuth Doped Ni-Zn Ferrites



Biomaterial, wound healing, nanotechnology, Drug delivery, tissue engineering

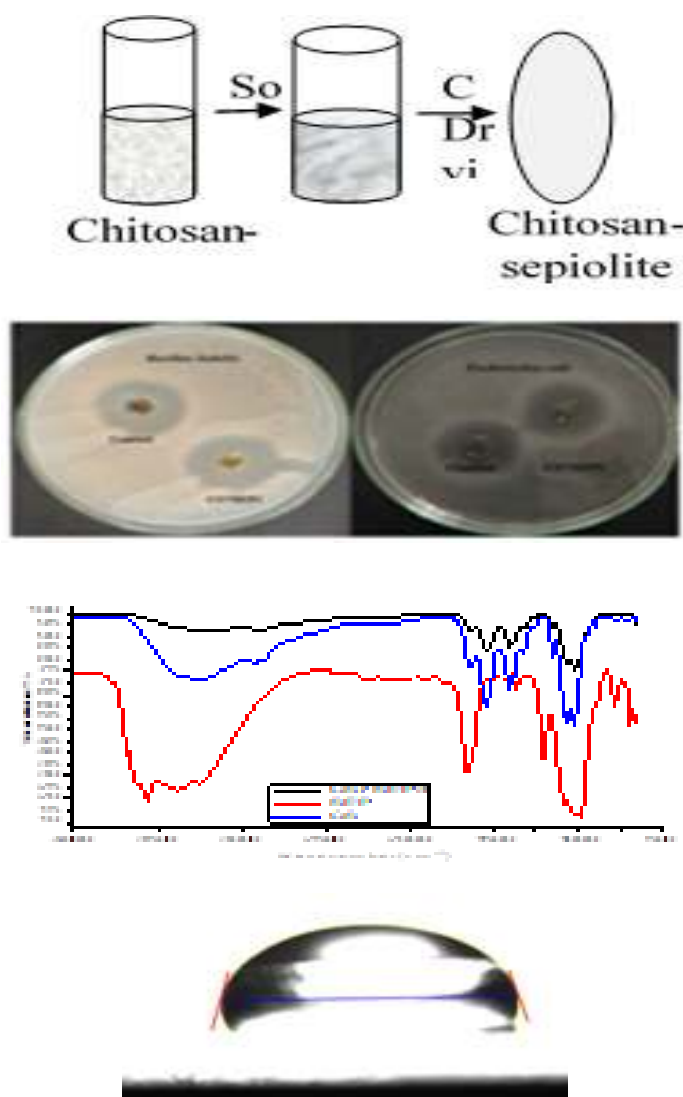
Dr Joydeep Dutta

Research Interest and Summary of Research

My current research interest has mainly focused on the development of chitosan based therapeutic wound dressings in the form of films, hydrogels, etc. Hydrogel is a cross-linked three-dimensional polymeric network which absorbs large volumes of water, biological fluids etc. Owing to its soft texture, high water content and rubbery nature, it may be more tissue compatible. These characteristics make hydrogel as an essential candidate for various biomedical applications.

Hydrogel has found a wide variety of applications ranging from cell delivery to drug delivery to wound/burn treatment.

In addition, my research team is also working on the development of chitosan-based nanocomposite transparent films for biomedical applications, especially for wound healing. Due to transparency of the films, wound healing progress can be easily monitored without removing the said dressing film from wound bed, which in turn, will obviate the need of changing the dressing frequently.



Antibacterial studies FTIR spectra Water contact angle

Publications

1. Nirmla Devi and Joydeep Dutta, "Development and in vitro characterization of chitosan/starch/halloysite nanotubes ternary nanocomposite films", International Journal of Biological Macromolecules, 127 (2019) 222-231.
2. Santosh Kumar, Joydeep Dutta, P. K. Dutta, and Joonseok Koh, A systematic study on chitosan-liposome based systems for biomedical applications, International Journal of Biological Molecules, 160 (2020) 470-481.
3. Joydeep Dutta and Nirmla "Preparation, optimization, and characterization of chitosan-sepiolite nanocomposite films for wound healing", International Journal of Biological Macromolecules, 186 (2021) 244-254.
4. Kumar Gaurav, Soni Kumari, and Joydeep Dutta, Utilization of Waste Chicken Eggshell as Heterogeneous CaO Nanoparticle for Biodiesel Production, Journal of Biochemical Technology, 12:1 (2021) 49-57.
5. Mohini, Priyanka and Joydeep Dutta, Effect of degree of deacetylation and molecular weight on physicochemical properties of various chitosan films, Journal of the Indian Chemical Society, 97 (2020) 731-735.
6. Joydeep Dutta, Several phases of research publication right from manuscript writing to its final acceptance (Invited talk), Proceedings of National Conference on Optometry and Vision Science - Amicon-III, Amity University Haryana, Gurugram, March 16-17, 2019.
7. Priyanka and Joydeep Dutta, Syntheses of different chitosan anhydride based derivatives and their physicochemical studies for biomedical applications, Proceedings of 8th Indian Chitin and Chitosan Society Meeting,

Institute of Chemical Technology, Mumbai, p. 71, September 19-20, 2019.

8. Joydeep Dutta, Chitosan: An environmentally benign material (Invited talk), Proceedings of National Conference on Green & Sustainable Chemistry", Manav Rachna University, Faridabad, November 7-8, 2019.

Book Chapters

1. Title of the Book: "Encyclopedia of Marine Biotechnology", Edited by Se-Kwon-Kim (Published by Wiley, ISBN: 1119143772, 9781119143772, 2020

Chapter 54 Potential Alternative marine bio-resources for biodiesel production

By Nathan, Mildred, Gaurav Kumar and Joydeep Dutta pp.737-765

2. Title of the Book: "Environmental Biotechnology", Edited by Gothandam K M (Published by Springer-nature)

Chapter 1 Switching to bioplastics for sustaining our environment

By Priyanka, Durga Yadav and Joydeep Dutta

Title of the book: "Green composites" Edited by Preetha Balakrishnan and Sabu Thomas (Published by Springer)

Chapter 21 Green approaches to prepare polymeric composites for wastewater treatment

By Durga Yadav, Priyanka and Joydeep Duttap p . 531-570

Patents

Indian Patent: "A wound care product" Indian Patent Application No. 1267/DEL/2015, filed May 7, 2015 (Hearing on 'First Examination Report' (FER) done on 29/10/2020) (Granted on 01/03/2021) Patent Number: 359941

Inventors: P K Dutta, D Archana, and Joydeep Dutta



Decision-making, soft computing,
fuzzy set theory, Aggregating operators

Dr. Kamal Kumar

Research Interest

My research interest is on fuzzy decision-making, soft computing based on the fuzzy set theory. We work on the simple decision-making problem, multi-criteria decision making (MCDM) problem, multi objective decision-making problem, multi-attribute decision making (MADM) problem etc based on the fuzzy set, intuitionistic fuzzy set, set pair analysis theory, linguistic fuzzy set theory.

Publications

1. Kumar Kamal, Shyi-Ming Chen, Multiattribute decision making based on converted decision matrices, probability density functions, and interval-valued intuitionistic fuzzy values, *Information Sciences*, 2020, <https://doi.org/10.1016/j.ins.2020.12.029> (SCI: Impact Factor:5.91).
2. Kamal Kumar, Shyi-Ming Chen, Multi attribute decision making based on interval-valued intuitionistic fuzzy values, score function of connection numbers, and the set pair analysis theory, *Information science*, Elsevier, 2020, <https://doi.org/10.1016/j.ins.2020.11.032>, (SCI:Impact Factor: 5.91).

3. Kamal Kumar, Scopes of Decision-making Related Researches in ICSES Transactions on Neural and Fuzzy Computing (ITNFC), *ICSES Transactions on Neural and Fuzzy Computing*, 3(2),1-6, 2020.
4. Kamal Kumar, Reeta Bhardwaj, Amit Sharma, Shortcomings Of Existing Ranking Methods For Interval-Valued Intuitionistic Fuzzy Numbers, *REST Journal on Emerging trends in Modelling and Manufacturing* 5(4) 2019, 76-79.
5. Reeta Bhardwaj, Kamal Kumar, Amit Sharma, Naveen Mani, Vibration of plate with effect of variation of Young's modulus and density, *Mathematical Sciences International ResearchJournal* 9(2), 27-33, 2020.



Catalyst designing, Electro- and photo-catalysis, Small molecule activation,
Nanomaterial synthesis and applications

Dr. Gyandshwar Kumar Rao

Research Interest

Research in the Rao laboratory is largely driven by the understanding of the natural process and their mimic. The group's research is mainly focused on the designing of new molecules (base metal complexes) and explores their activities towards industrial challenging chemical transformations. We are interested in designing new coordination environments for the stabilization of higher metal oxidation states. We are also engaged with the designing of new stable and efficient electro- and photo-catalysts for energy application. We are designing new Organometallic / Inorganic complexes for Cancer Therapy. In addition, we are exploring the potential of different donor ligands for stabilization of nanomaterials and sensing of metal ions. Other research interests include the activation of small molecules and reduction of CO₂ and water to valuable products.

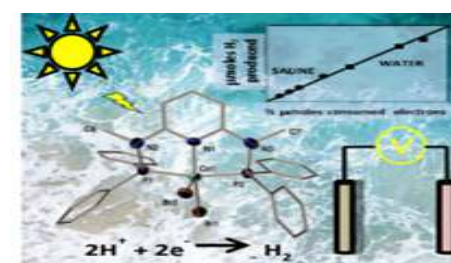


Fig. 1. A Co(II)-PNP complex capable of both electrocatalytic and photocatalytic H₂ production from sea water

Publications

1. Preformed molecular complexes of metals with organoselenium ligands: Syntheses and applications in catalysis. A. Arora, S. Singh, P. Oswal, D. Nautiyal, G. K. Rao, S. Kumar, A. Kumar. *Coord. Chem. Rev.* 438 (2021) 213885. (Impact Factor 22.315)
2. Electrocatalytic reduction of CO₂ to CO and HCO₂⁻ with Zn(II) complexes displaying cooperative ligand reduction. P. Berro, S. Norouziyanlakvan, G. K. Rao, B. Gabidullin, D. Richeson. *Chem. Commun.* (2021) Accepted for publication. (Impact Factor 6.222)
3. Tellurium-ligated Pd(II) complex with bulky organotellurium ligand: First report on insitu generation of 'telluropalladinite' (Pd₉Te₄) and role in highly efficient Suzuki coupling. A. Arora, P. Oswal, G. K. Rao, S. Kumar, A. K. Singh, A. Kumar. *Catal. Lett.* (2021) Accepted for publication. (Impact Factor 2.799)
4. Organoselenium ligands for heterogeneous and nanocatalytic systems: development and applications. A. Arora, P. Oswal, G. K. Rao, S. Kumar and A. Kumar. *Dalton Trans.*, 50 (2021) 8628. (Appeared as Cover page and Hot article). (Impact Factor 4.052)
5. Synthesis of 4-Aryldihydrocoumarins via a

- sequential Michael Addition-Lactonization route. A. K. Sinha, C. M. Srivastava, G. K. Rao, M. Karantak, V. P. Verma and V. Rawat. *Curr. Organocatalysis*, (2021) DOI: 0.2174/2213337208666210223151108. (Impact Factor 1.058)
- Easily synthesizable benzothiazole based designers palladium complexes for catalysis of Suzuki coupling: Controlling effect of aryl substituent of ligand on role and composition of insitu generated binary nanomaterial (PdS or Pd₁₆S₇). P. Oswal, A. Arora, S. Singh, G. K. Rao, S. Kumar, A. K. Singh and A. Kumar. *Cat. Commun.*, 149 (2021) 106242. (Impact Factor 3.800)
 - Catalytically active nanosized Pd₉Te₄ (telluropalladinite) and PdTe (kottulskite) alloys: first precursor-architecture controlled synthesis using palladium complexes of organotellurium compounds as single source precursors. A. Arora, P. Oswal, G. K. Rao, S. Kumar, A. K. Singh and A. Kumar. *RSC Adv.*, 11 (2021) 7214-7224. (Impact Factor 3.119)
 - Organoselenium ligand-stabilized copper nanoparticles: Development of a magnetically separable catalytic system for efficient, room temperature and aqueous phase reduction of nitroarenes. A. Arora, P. Oswal, S. Singh, D. Nautiyal, G. K. Rao, S. Kumar, A. K. Singh and A. Kumar. *Inorganica Chim. Acta*, 522 (2021) 120267. (Impact Factor 2.304)
 - Organochalcogen ligands in catalysis of oxidation of alcohols and transfer hydrogenation. P. Oswal, A. Arora, S. Singh, D. Nautiyal, S. Kumar, G. K. Rao and A. Kumar. *Dalton Trans.*, 49 (2020) 12503-12529. (Impact Factor 4.052)
 - Graphene oxide-manganese ferrite (GO-MnFe₂O₄) nanocomposite: One-pot hydrothermal synthesis and its use for adsorptive removal of Pb²⁺ ions from aqueous medium. M. Verma, A. Kumar, K. P. Singh, R. Kumar, V. Kumar, C. M. Srivastava, V. Rawat, G. K. Rao, S. Kumari, P. Sharma and H. Kim. *J. Mol. Liq.*, 315 (2020) 113769. (Impact Factor 5.065)
 - Zinc oxide nanoparticles functionalized on hydrogel grafted silk fibroin fabrics as efficient composite dressing. S. Majumder, U. R. Dahiya, S. Yadav, P. Sharma, D. Ghosh, G. K. Rao, V. Rawat, G. Kumar, A. Kumar, and C. M. Srivastava. *Biomolecules*, 10 (2020) 710 (1-15). (Impact Factor 4.694)
 - Microwave assisted Pd(OAc)₂-catalyzed chemoselective reduction of aryl α,β -unsaturated esters with triethylsilane. Y. Kumar, R. Yadav, A. K. Sinha, P. Rawat, G. K. Rao, C. M. Srivastava, N. K. Jangid, A. Srivastava, M. Srivastava and V. Rawat. *Iran. J. Cat.*, 10 (2020) 203. (Impact Factor 1.410)
 - Visible light photocatalytic reduction of CO₂ to formic acid with a Ru catalyst supported by an unprecedented ligand array. Y. Hameed, G. K. Rao, J. S. Ovens, B. Gabidullin and D. Richeson. *ChemSusChem*, 12 (2019) 3453. (Impact Factor 7.411)
 - Chalcogen (S/Se) ligated palladium (II) complexes of bulky ligands: Application in O-arylation of phenol" A. Arora, P. Oswal, G. K. Rao, J. Kaushal, S. Kumar and A. Kumar. *Chem. Select*, 36 (2019) 10765. (Impact Factor 1.716)
 - Facile synthesis of CuFe₂O₄ doped polyacrylic acid hydrogel nanocomposite and its application in dye degradation. R. Kannaujia, V. Prasad, Sapna, P. Rawat, V. Rawat, A. Thakur, S. Majumdar, M. Verma, G. K. Rao, A. P. Gupta, H. Kumar and C. M. Srivastava. *Mater. Lett.*, 252 (2019) 198. (Impact Factor 2.687)
 - Ultra-small palladium nano-particles

synthesized using bulky S/Se and N donor ligands as a stabilizer: Application as catalysts for Suzuki-Miyaura coupling. P. Oswal, A. Arora, J. Kaushal, G. K. Rao, S. Kumar, A. K. Singh and A. Kumar. *RSC Adv.*, 9 (2019) 22313. (Impact Factor 2.936)

- Bidentate organochalcogen ligands (N, E; E = S / Se) as stabilizers for recyclable palladium nanoparticles and their application in Suzuki-Miyaura coupling reactions. P. Sharma, A. Arora, P. Oswal, G. K. Rao, J. Kaushal, S. Kumar, S. Kumar, M. P. Singh, A. K. Singh and A. Kumar. *Polyhedron*, 171 (2019) 120. (Impact Factor 2.284)

Book Chapters

- A. Sharma, D. Manocha, A. Arora, A. Kumar, C. M. Srivastava, V. Rawat, H. Kim, M. Verma, G. K. Rao. (2021) Applications of green nanomaterials in electronic and electrical industries. Publisher: Elsevier, Accepted for publication.
- G. K. Rao, A. K. Sengar, S. R. Pathak. (2021) Chemical Sensor for the Diagnosis of Coronavirus. Publisher: Wiley-VCH, Accepted for publication.
- A. Arora, P. Oswal, D. Sharma, A. Chamoli, G. K. Rao, S. Kumar, A. Kumar and A. K. Singh. (2021) "Coinage metal chalcogenides via single source precursors" in "Nanomaterials via Single-Source Precursors". Editor; A. F. Hepp. Publisher: Elsevier
- A. Arora, P. Oswal, G. K. Rao, A. Kumar, A. K. Singh. (2020) Substituted benzimidazole as ligands: Recent development in design and application" in "Benzimidazole: Preparation and Applications". Editor; Aksel A. Vestergaard. NOVA publishinghouse.
- A. Arora, P. Oswal, G. K. Rao, S. Singh, D.

Nautiyal, N. Kala, S. Kumar, A. Kumar, A. K. Singh. (2020) "Chalcogenated ligands / nanoparticles and transfer hydrogenation" in "Advances in Chemistry Research". Editor; James C. Taylor. NOVA publishinghouse.

- P. Oswal, A. Arora, G. K. Rao, A. Kumar, A. K. Singh. (2020) "Pyrazole based ligands: Versatile building blocks" in "Pyrazole: Preparation and Uses". Editor; Dilipkumar Pal. NOVA publishinghouse.

Patents

- Patent Application No. 201911037155
- Title: A natural compost loaded acacia gum based biodegradable hydrogel for conditioning of agriculture land and grass ecosystem
- Inventors: C.M. Srivastava, V. Rawat, M. Verma, G. K. Rao



AMITY SCHOOL OF ENGINEERING AND TECHNOLOGY & AMITY INSTITUTE OF INFORMATION TECHNOLOGY

INTRODUCTION

Amity School of Engineering & Technology (ASET) and Amity Institute of Information Technology (AIIT) were established in 2010 with an aim to nurture talent in various streams of engineering and other technical programmes. The academic departments of ASET & AIIT deliver world class education in engineering in order that our graduates possess the skills, knowledge and attitudes necessary to become leaders in engineering industry, research and academia.

One of the best engineering schools in India, ASET & AIIT are located in C-Block at Amity University Haryana occupying an area 16493.62 sq. feet within a lush green campus of 110 Acres. The institutes have more than 60 faculty members & over 600 students. Our infrastructure is supported by 27 state of the art classrooms and 100 fully equipped laboratories.

Academic programmes at ASET and AIIT are designed to enable growth and learning in a highly focused and application-based environment. This is achieved through a combination of formal lectures and hands-on experience in well-equipped laboratories and through learning based projects.

The institutes with the support and centres of excellence conducts path breaking and innovative research in various spheres. Faculty is encouraged to write quality research papers, books and file patents. Our research programme is also supported by high-tech laboratories which act as ideal training ground for budding professionals that allow students to experiment and gain practical knowledge.

- Amity School of Engineering and Technology consists of following departments:
- Computer Science & Engineering
- Electronics & Communication/ Electrical Engineering
- Mechanical & Automation Engineering
- Civil Engineering
- Biomedical Engineering
- Aerospace Engineering
- Solar Engineering

CURRENT RESEARCH

Research and innovation is one of the major focus areas of ASET. In this quest the faculty of the school of engineering has taken up demonstrated research endeavors. ASET and AIIT have transitioned into a major research institution nationwide. Researchers at the university are advancing the frontiers of engineering and information technology in all domains. Graduate students have the opportunity to work alongside dynamic and renowned faculty and researchers in a variety of settings. Together they work to create solutions to society's most pressing problems.

RESEARCH HIGHLIGHTS

At ASET and AIIT research is a creative and ongoing collaboration between faculty and student researchers, academic partners and the community. The result is an ever-stronger national research institute that opens minds, creates knowledge and brings innovation into the marketplace for overall societal benefits. Highlights of contribution towards research are shown below:

DIRECTORATE OF RESEARCH & PUBLICATION

- More than 1600 Research Publications in journals and conferences
- Publications of ASET cover a range of topics and provide the latest research, analysis, and valuable starting points for exuberating novelty for campus practitioner and students.
- 90+ Books Authored and Edited
- 65 Patents Filed (25 patents published)

ASET/AIIT strongly appraise the demonstrative and quality research endeavors by faculty members and students. The endeavor is to promote gleaming researchers provide ownership of their novel inventions by filing of patents.

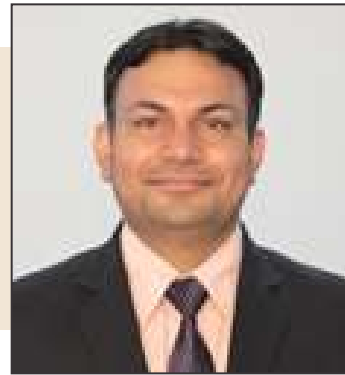
22 Projects (06 sanctioned and 16 submitted) and 07 Consultancy Projects

There are a myriad of opportunities at the two institutes for faculty members to obtain intramural support for their research, scholarship, and creative activities. Six outstanding projects by our faculty have been funded by different reputed bodies. Our worthy faculty members have submitted fifteen remarkable research projects to various funding agencies for research grant.

FACULTY

- | | |
|---|--|
| • Dr. Shalini Bhaskar Bajaj, Professor & HOD | • Ms Ashima Narang, Assistant Professor 1 |
| • Dr Charu Jain Assistant, Professor 2 | • Ms Poonam Sharma, Assistant Professor 1 |
| • Ms Aarti Chugh, Assistant Professor 3 | • Dr Anil Mishra, Assistant Professor 3 |
| • Dr Meenu Vijarania, Assistant Professor 2 | • Dr Rajesh Kumar Tyagi, Professor |
| • Mr Akshat Agarwal, Assistant Professor 2 | • Dr Jitendra Kumar Verma, Assistant Professor 3 |
| • Ms Ruchi Kamra, Assistant Professor 1 | • Dr Shweta Sinha, Associate Professor |
| • Ms Swati Gupta, Assistant Professor 1 | • Dr. Sanjeev Sharma, Associate Professor & HOD |
| • Ms Ashima Gambhir, Assistant Professor 1 | • Mr. Kuldeep Kumar, Assistant Professor 2 |
| • Mr Ankit Garg, Assistant Professor 2 | • Mr. Om Prakash, Assistant Professor 1 |
| • Ms Sarika Chaudhary, Assistant Professor 2 | • Mr. Ravi Kant Assistant Professor 1 |
| • Ms. Pooja Batra Nagpal, Assistant Professor 2 | • Mr. Hardial Singh, Assistant Professor 2 |
| • Dr Vikas Thada, Associate Professor | • Mr. Narender Kumar Assistant Professor 2 |
| • Dr. Rashmi Gupta, Assistant Professor 1 | • Mr. Deepak Kr. Sharma, Assistant Professor 1 |
| • Dr Anuj Kumar Singh, Assistant Professor 3 | • Dr. Rajesh Arora, Associate Professor |
| • Ms. Juhi Singh, Assistant Professor 1 | • Dr Sandeep Phogat, Assistant Professor 2 |
| • Mr. Vivek Birla, Assistant Professor 2 | • Mr Avinash Dholiwal, Assistant Professor 1 |
| • Ms. Neha Bhateja, Assistant Professor 1 | • Ms Rashi Koul, Assistant Professor 2 |
| • Dr. Sunil Sikka, Associate Professor | • Dr Anil Kumar, Associate Professor & HOD |
| • Ms Deepthi Sehrawat, Assistant Professor 1 | • Dr Neeraj Gupta, Assistant Professor 2 |
| • Dr Yojna Arora, Assistant Professor 1 | • Ms. Nisha Charaya, Assistant Professor 1 |
| • Ms Priyanka Makkar Assistant Professor 1 | • Dr Ved Prakash, Assistant Professor 2 |
| • Ms Nishu Sethi, Assistant Professor 1 | • Dr. Karamjit Kaur, Associate Professor |
| • Dr Aman Jatain, Assistant Professor 2 | • Dr Arun Kumar Singh, Assistant Professor 1 |
| • Dr Khushboo Tripathi, Assistant Professor 2 | • Ms. Manjeet Kaur, Assistant Professor 1 |
| • Ms Shivangi Kaushal, Assistant Professor 1 | • Mr. Manoj Kumar Pandey, Assistant Professor 3 |

- Dr. Mahesh Kumar, Associate Professor
- Dr. Naveen B P, Associate Professor & HOD
- Ms Sakshi Gupta, Assistant Professor 1
- Dr Praveen B Assistant Professor 1
- Dr Ashish Kumar Dash, Assistant Professor 2
- Prof.(Dr.) Shashi Bhushan Gupta, Professor & HOD
- Mr. Manish Kumar Bharti Assistant Professor 1
- Ms Sonia Chalia, Assistant Professor 1
- Dr Prakhar Jindal, Assistant Professor 1
- Dr Vimal Kishor Singh, Associate Professor
- Mr. Sandeep Panwar Jogi, Assistant Professor 1
- Prof. (Dr.) Subhra Das, Professor & HOD
- Dr Ranjana Arora, Assistant Professor 3
- Dr Barnamala Saha, Assistant Professor 1



Dr. Rajesh Arora

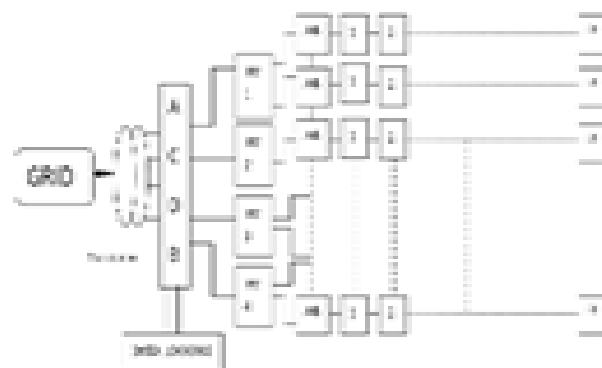
Computational fluid dynamics, Energy and exergy analyses of thermal energy conversion systems, Heating, Ventilation & Air-conditioning (HVAC), Solar Photovoltaics

Research Interest

My research interests include Computational fluid dynamics, Energy and exergy analyses of thermal energy conversion systems, Heating, Ventilation & Air-conditioning (HVAC), Solar Photovoltaics, Multi-objective optimization employing advanced optimization approaches viz. Genetic algorithm, NSGA-II, PSO, MOPSOCD etc.

As there is expanding demand of energy in today's scenario which has aggravated the concern of exploring new and renewable resources to ensure the energy security for longer term. In this context, the grid interactive solar photovoltaic (SPV) systems are gaining wide popularity at massive scale power generation. The performance assessment of 186 kWp installed capacity grid interactive ground mounted SPV power plant is carried out, in view of obtaining better designing, operation/maintenance characteristics of the system. The SPV plant is installed at Amity University Haryana, Gurugram, India, getting annual mean solar insolation and temperature of 550-700W/m² and 28.4oC respectively. The analyses have been accomplished for a complete year of 2018 and the magnitudes of yearly mean performance ratio and capacity utilization factor are reported to be 0.827 and 0.178 respectively. The yearly energy generation units from the

installed plant are observed to be approximately 289.39 MWh. Further, the actual energy production is compared to the predicted one obtained with PVSyst and system advisor model (SAM) and found to be in agreement with an approximate uncertainty of 1.34%. The net plant losses due to various factors viz. temperature, irradiance, SPV module quality, ohmic wire, inverter mismatch in arrays and maintenance losses are observed to be 27.7%.



Publications

1. Agrawal, A., Arora, R., Arora, R. and Agrawal, P., 2021. Applications of Artificial Intelligence and Internet of Things for Detection and Future Directions to Fight Against COVID-19. Emerging Technologies for Battling Covid-19, 324, p.107
2. Arora, R. and Arora, R., 2019. Parametric Investigations and Thermodynamic Optimization of Regenerative Brayton Heat Engine. In Advances in Fluid and Thermal Engineering (pp. 753-762). Springer, Singapore

Patents

- Patent Application No. 202011014571
Title: Emergency bathroom latch opener using a spring
Inventors: Dr. Rajesh Arora, Dr. Ranjana Arora, Mr. Om Prakash & Tanuj Joshi
- Patent Application No. 202011013536
Title: A soiling monitoring and cleaning device for SPV panel
Inventors: Dr. Kudzanayi Chiteka, Dr. Rajesh Arora, Dr. Ranjana Arora & Dr. S.N. Sridhara
- Patent Application No. 202011018834
Title: A multipurpose solar artifact integrated with phase change material
Inventors: Anant Patil, Dr. Rajesh Arora, Dr. S.N. Sridhara & Dr. Ranjana Arora
- Patent Application No. 202011032177
Title: A RETRACTABLE SEAT ASSEMBLY FOR A MOTOR VEHICLE”
Inventors: Dr. Edmund Shingirayi Maputi, Dr. Rajesh Arora, & Dr. Ranjana Arora
- Patent Application No. 20201101258
Title: A system and method of predictive

- optimisation for geopolymers cement production
Inventors: Zvikomborero Duri, Dr. Rajesh Arora, & Dr. Naveen B.P.
Patent Application No. 202011010830
Title: High speed blade type dry grinding machine tool
Inventors: Zvikomborero Duri, Dr. Rajesh Arora, & Dr. Naveen B.P.
Patent Application No. 202011011892
Title: Production of Chrysotile Asbestors Fiber Reinforced Geopolymer Bricks
Inventors: Zvikomborero Duri, Dr. Naveen B.P. & Dr. Rajesh Arora,



Energy Management, Solar Photovoltaic power system designing & installation, rooftop and off-grid solar power plants, solar power market survey and entrepreneurship, Energy Auditing of installed solar power systems

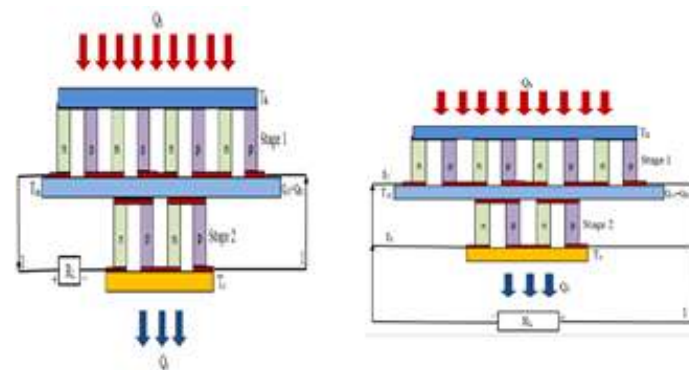
Dr. Ranjana Arora

Research Interest

My research interests include Energy Management, Solar Photovoltaic power system designing & installation, rooftop and off-grid solar power plants, solar power market survey and entrepreneurship, Energy Auditing of installed solar power systems etc.

Appropriate consideration of input parameters of a thermoelectric generator (TEG) is essential to design devices with superior performance criteria such as high thermal efficiency and power output. In this view, multi-objective evolutionary algorithm namely non-dominated sorting genetic algorithm-II (NSGA-II) is applied to two-stage exoreversible TEG in electrically series and electrically parallel configurations in matrix laboratory (MATLAB) simulink environment. Simultaneous optimization of proposed system for maximizing power output (P), thermal efficiency (η) and ecological function (E) is done with considering working electric current(I), number of thermoelectric elements in top 'n' and bottom stage 'm', temperature of hot side T_h and cold side T_c as design variables. The present work explores various optimal values of performance parameters/design variables from Pareto frontier of triple and dual objective functions and by using three decision making techniques viz. fuzzy, Shannon and TOPSIS, best

solution is selected. With the current study, it has been demonstrated that multi-objective optimization gives much lower difference between ideal and obtained solution, termed as deviation index, as compared to the dual/single objective optimization. The optimal design of TEG achieved by multi-objective optimization formulates an appropriate balance between power, efficiency and ecological function, in order that all the three are improved concurrently.



Publications

1. Arora, R., Agrawal, A., Arora, R., Poonia, R.C. and Madaan, V., 2021. Prediction and forecasting of COVID-19 outbreak using regression and ARIMA models. *Journal of Interdisciplinary Mathematics*, 24(1), pp.227-243
2. Arora, R., 2020. Thermodynamic investigations with maximum power point tracking (MPPT) of hybrid thermoelectric generator-heat pump model. *International Journal of Ambient Energy*, pp.1-9
3. Arora, R., 2020. Thermodynamic optimization of an irreversible regenerated Brayton heat engine using modified ecological criteria. *Journal of Thermal Engineering*, 6(1), pp.28-42
4. Arora, R., Arora, R. and Sridhara, S.N., 2019. Performance assessment of 186 kWp grid interactive solar photovoltaic plant in Northern India. *International Journal of Ambient Energy*, pp.1-14
5. Arora, R. and Arora, R., 2019. Parametric Investigations and Thermodynamic Optimization of Regenerative Brayton Heat Engine. In *Advances in Fluid and Thermal Engineering* (pp. 753-762). Springer, Singapore.
1. Ahmed, S.U., Arora, R. and Arora, R., 2019. Optimization of Glass-beads Water Slurry flow Characteristics using Taguchi's Decision-making Technique coupled with Genetic Algorithm
2. Arora, R. and Arora, R., 2019. Performance Characteristics and Thermodynamic Investigations on Single-Stage Thermoelectric Generator and Heat Pump Systems. *Pertanika Journal of Science & Technology*, 26(4)

3. Arora, R. and Arora, R., 2019. Experimental Investigations and Exergetic Assessment of 1 kW Solar PV Plant. *Pertanika Journal of Science & Technology*, 26(4)
4. Arora, R. and Arora, R., 2018. Multicriteria optimization based comprehensive comparative analyses of single-and two-stage (series/parallel) thermoelectric generators including the influence of Thomson effect. *Journal of Renewable and Sustainable Energy*, 10(4), p.044701
5. Arora R., Arora R., Multiobjective optimization and comprehensive comparison of single- and 2-stage thermoelectric heat pumps, *International Journal of Energy Research* (2018) 1-19.

Book Chapters

1. Agrawal, A., Arora, R., Arora, R. and Agrawal, P., 2021. Applications of Artificial Intelligence and Internet of Things for Detection and Future Directions to Fight Against COVID-19. *Emerging Technologies for Battling Covid-19*, 324, p.107
2. Arora, R. and Arora, R., 2019. Parametric Investigations and Thermodynamic Optimization of Regenerative Brayton Heat Engine. In *Advances in Fluid and Thermal Engineering* (pp. 753-762). Springer, Singapore

Patents

1. Patent Application No.202011014571
Title: Emergency bathroom latch opener using a spring
Inventors: Dr. Rajesh Arora, Dr. Ranjana Arora, Mr. Om Prakash & Tanuj Joshi

2. Patent Application No. 202011013536
Title: A soiling monitoring and cleaning device for SPV panel
Inventors: Dr. Kudzanayi Chiteka, Dr. Rajesh Arora, Dr. Ranjana Arora & Dr. S.N. Sridhara
3. Patent Application No. 202011018834
Title: A multipurpose solar artifact integrated with phase change material
Inventors: Anant Patil, Dr. Rajesh Arora, Dr. S.N. Sridhara & Dr. Ranjana Arora
4. Patent Application No. 202011032177
Title: A RETRACTABLE SEAT ASSEMBLY FOR A MOTORVEHICLE”

Inventors: Dr. Edmund Shingirayi Maputi, Dr. Rajesh Arora, & Dr. Ranjana Arora

Project (s):

Successfully completed DST funded project worth Rs 1 Lakh on 4-Week Online Training on Women Entrepreneurship Development Programme (WEDP-2021) during February 10, 2021 to March 06, 2021. (File NO. 09/96/2020-NEB (TR)).

Contributed in 5 batches of Suryamitra Skill Development Programme in the area of SPV power plant installations funded by National Institute of Solar Energy and National Skill Development Corporation programme under PMKY-2 Scheme.



Dr. Aman Jatain

Software Reuse, Software Metrics, Machine Learning, Clustering, Software Reengineering, Reverse Engineering, Software reusability, Software Quality, Predictive Analytics.

Research Interest

My research interests include Data Mining, Software engineering and application of Artificial intelligence in healthcare.

AI has been keeping up with today's fast paced world where medicine is concerned. Today, neurodevelopment is a sincere concern in the lives of growing children. Most of the roles that determine the future of a child, lies in neurodevelopment. Diagnosing a disorder in said area is not a particularly tedious task ironically it is just stressful considering the fact that no parent wants to think of her / his child being of less capability as compared with children of same age. At their own discretion if a parent or teacher would want to test the mental development of a child going to a doctor can be strenuous and ominous. This paper proposes a solution that well serves this underlying taboo. Computer aided neurodevelopmental disorder diagnosis helps parents and teachers determine if a child could potentially have a certain neurodevelopmental disorder and if yes, what could some of the recovery procedures be. This research has been developed over a mathematical as well as deep learning models to diagnose four different neurodevelopmental disorders that according to researchers are most prevalent in the early stages

of childhood development. The result is an application that does this, and if a child is found with symptoms, the parent / teacher is offered the possible remedies in the recovery process along with further professional assistance if they wish to pursue treatment. The research is a confluence of deep learning, math and healthcare in terms of both prognoses and remedials.

Parkinson's disease (PD) is a progressive neurodegenerative disorder that affects a sizeable fraction of the population and degrades the quality of life. Levodopamine (L-Dopa) is the first-line treatment drug for PD. However, the drug response prediction of L-Dopa is still an exigent task. There is an unresolved absence of any substantial biomarkers for a robust prediction of L-Dopa response for Parkinson's disease due to which the computer science technology and machine learning approaches become our crucial resolve in accomplishing the required task. The present study intends to develop a robust prediction model to predict the L-Dopa drug response in PD using machine learning approaches. The research intended to utilize the MJFF Levodopa Response Study data of Parkinson's subjects with conclusive preclinical and clinical assessments for resolving the significantly impending task of drug response prediction. The problem was identified as a

classification task which employed four different supervised machine learning classification algorithms for data analysis. The underlying task of predictive classification of drug response classified the responders as “good” and “bad”, based on comprehensive analysis on the selected feature space which identified the participants with an improvement in the symptoms as “good” responders and the ones with degraded or no improvement in the symptoms as “bad” responders. The decision tree’s (classification and regression tree) classification accuracy was 88.89% (area under receiver operating characteristics curve 0.9) for predicting levodopamine response. The presence or absence of the symptoms along with Unified Parkinson's Disease Rating Scale (UPDRS) scores and Hoehn and Yahr scale (H and Y) scores were recognized as the most distinguishing feature subset. The research stipulates the required preliminary evidence to the adaptive advancement of decision trees as an illuminating technique that can facilitate the prediction of the drug treatment response for Parkinson’s disorder, however, an extended effort is necessary to provide efficient predictive performance.

Consequently, the data was subjected to the process of feature selection for which the Wrapper Subset Evaluation method was employed. The method assessed the features by deploying a

training stratagem and detected the attribute sets which enhanced the overall predictive efficiency (Ron and John 1997). The bidirectional variant of the feature selection algorithm was applied which searched the feature space performing continuous feature evaluation by the means of an exhaustive approach. This method extended an optimized solution by implementing a greedy hill-climbing algorithm enhanced with a back-propagation algorithm that probes into the attribute set and identifies a feature subset. To overcome the issues like overfitting which are prominent in classification tasks and to increase the computation of more generalized outcomes, the wrapper subset evaluation method was employed with 10-fold cross-validation. Further, this generated a feature subset in addition to the number of times they were selected (varied from 0% to 100%) out of the 10 folds. The attributes which were iteratively selected across every fold, exhibited a selection weight of 100%, whereas, the attributes which were not ever chosen carried a selection weight of 0%. The resulting feature space generated for the current study was selected from the set of features selected across each fold of the 10 folds. The subset of features comprised principally of features with uniformly good performance across all the 10 folds (25% or more) of the cross-validation framework. Subsequently, the outcome was less vulnerable to overfitting and was more generalized to new inputs.

Classification Accuracy and Area Under Receiver Operating Characteristics (ROC) Curve (AUC) Performance of the Classifiers for Predicting L-Dopa Response.

	Support Vector Machine	Random Forest	Decision Tree	Logistic Regression
Accuracy (%)	55.56	66.67	88.89	77.78
AUC	0.575	0.7	0.9	0.8

Classification of L-Dopa Response (Confusion Matrix)

Support Vector Machine			CART		
	Classification (no.)			Classification (no.)	
	Positive	Negative		Positive	Negative
Response (+)	3	1	Response (+)	4	0
Response (-)	3	2	Response (-)	1	4

Random Forest			Logistic Ridge Regression		
	Classification (no.)			Classification (no.)	
	Positive	Negative		Positive	Negative
Response (+)	4	0	Response (+)	4	0
Response (-)	3	2	Response (-)	2	3

Response (+), good responder; Response (-), poor responder

Publications

- Ritika Aggarwal and Aman Jatain, “Genome-wide evolutionary analysis of precursor sequences of MIR156 and MIR172 family members in Brassica species” Research Journal of Biotechnology, 16(4):81-92, 2021. Scopus Indexed, Web of science.
- Deepshikha Gupta, Aman Jatain and Sarika Chaudhary, “ An improved machine learning model for diabetes predication using DR image”, International Journal of Advanced Science and Technology, Vol. 29, No. 7, pp. 8378-8387, 2020. Scopus Indexed
- Pooja Batra and Aman jatain, “DevOps: Current Practices, Challenges and Implications”, International Journal of Advanced Science and Technology, Vol. 29, No. 7, pp. Vol. 29, No. 7, pp 12002-12019, 2020. Scopus Indexed
- Aman Jatain, “Metric based reusability analysis of software systems”, Journal of Interdisciplinary Mathematics, Taylor & Francis, Vol. 23, No.1, pp. 107-116, 2020. Scopus Indexed.

- Bhavna Galhotra, Aman Jatain and Shalini Bhaskar Bajaj, “Security Concerns for Mobile based Digital Wallets with the use of IDS & IPS System”, Test Engineering & Management, Vol. 83, pp. 16618 – 16623, 2020. Scopus Indexed
- Ritika Agarwal, Aman Jatain and Shalini B. Bajaj, “Parkinson’s Disorder: Taking a Step towards Homogenizing Machine Learning and Medical Science”, International Journal of Psychosocial Rehabilitation, vol. 24(4), pp. 6558-6569, 2020. Scopus Indexed

Conference Publications:

- Pooja Batra, Aman Jatain, “Software Quality Enhancement Using Hybrid Model of DevOps”, International Conference on Intelligent Systems, Springer Nature, pp.287, 2021
- Jagrit Kalra Pardeep, Aman Jatain, Yojan Arora, “Dyslexia Detection Using Android Application”, International Conference on Machine Intelligence and Smart System, Springer, pp.2021.
- Sarika Chaudhary, Aman Jatain, “Performance

- Evaluation of Clustering Techniques in Test Case Prioritization”, IEEE International Conference on Computational Performance Evaluation (ComPE), pp. 699-703, IEEE Explore, 2020.
4. Pooja Batra, Aman Jatain, “Measurement Based Performance Evaluation of DevOps”, IEEE International Conference on Computational Performance Evaluation (ComPE), pp. 699-703, IEEE Explore, 2020.
 5. Shubham Jain, Aman Jatain and Shalini Bhaskar Bajaj, Smart City Management with IoT and Deep Learning”, 4th International Conference on Communication and Electronics Systems, IEEE Explore, 2019.
 6. Irin Anna Solomon, Aman Jatain and Shalini Bhaskar, “Neural Network Based Intrusion Detection: State of the Art”, International Conference on Sustainable Computing in Science, Technology and Management, Elsevier, 2019.
 7. Preeti Joon, Shalini Bhaskar Bajaj and Aman Jatain, “Segmentation and Detection of Lung Cancer Using Image Processing and Clustering Techniques”, Progress in Advanced Computing and Intelligent Engineering, Springer, pp. 13-23, 2019.

Book Chapter

1. Adhish Nanda, Aman Jatain, “Analysis of Breast Cancer Detection Techniques Using RapidMiner”, Advances in Intelligent Systems and Computing , vol. 1164, pp. 3-14, Springer, 2020.
2. Poonam Sharma, Akansha Singh, Aman Jatain, “Cognitive Computing for Smart Communication”, Machine Learning and Cognitive Computing for Mobile Communications and Wireless Networks, John

Wiley & Sons, pp. 83, 2020.

3. Mrityunjay Abhijeet Bhanja, Sarika Chaudhary, Aman Jatain, “Model Selection for Parkinson’s Disease Classification Using Vocal Features”, Recent Trends in Communication and Intelligent Systems: 145, Springer Nature, 2021.
4. Sarika Chaudhary, Aman Jatain, “Optimization of Test Case Prioritization Using Automatic Dependency Detection”, Recent Trends in Communication and Intelligent Systems: 135, Springer Nature, 2020.

Patents:

Patent Application No. 202011015184

Title: A system and method of L-DOPA response prediction for Parkinson's disease using machine learning approach

Inventors: Haziq Rahat Bullah, Ritika Agarwal, Abhishek Prabhakar, Aman Jatain, Shalini Bhaskar Bajaj.



AMITY INSTITUTE OF BIOTECHNOLOGY

INTRODUCTION

Amity Institute of Biotechnology (AIB) was established in 2010 with the aim to provide the excellence in Biotechnology Education, Training and Research. The mission of the Amity Institute of Biotechnology is to equip the students with extraordinary skills for life, making them not just job seekers, but also job creators. Amity Institute of Biotechnology has taken a lead in initiating a program in the most challenging area with high-tech advancement in meeting the growing need of Biotechnology and Bioinformatics to sustain the industrial venture and also in achieving the greater task of agriculture, healthcare, energy and environmental sustainability. With highly motivated faculty members and modern research infrastructure AIB is committed to imparting high quality science educations in research environment to young and bright UG and PG students. AIB provides a platform for biotechnology education, training and research at the interface of multiple disciplines. The institute offers various programs of study leading to B.Sc., B. Tech., M. Sc., M. Tech and Ph. D. degrees in Biotechnology supported by well-experienced faculty representing wide spectrum of expertise in modern biology. AIB equips the students with extraordinary skills and making them not merely job seekers, but also job creators. AIB takes lead in initiating programs in the most challenging areas with high-tech advancement in meeting the growing need of Biotechnology to sustain the industrial ventures and also in achieving the greater task of agriculture, healthcare, energy and environmental sustainability.

Amity Institute of Integrative Sciences & Health (AIISH) got established in 2015 with vision of widens the network of interdisciplinary research and innovation in the biotechnology sector. This has led to develop several collaborations with international universities, research institutes and industries of repute nationwide, which benefits the students for their training/placements and researchers for their respective research. AIISH offers Ph.D. and M.Sc. in Data Science and Computational biology.

CURRENT RESEARCH

AIB and AIISH focus research in areas such as Microbial and Industrial Technology; Plant Tissue Culture and Engineering; Animal Cell Culture and Stem Cells; Infectious Disease; Cancer, Molecular Diagnostics and Healthcare; Bioprocess, Bioengineering and Nanotechnology; Bio-resources, Energy & Environmental Technology; Bioinformatics and Computational Biology, well supported by modern infrastructure with well-equipped laboratories of Infectious Microbiology, Plant Tissue Culture, Animal cell culture, Computational Biology, Biochemistry and Molecular Biology. AIB/AIISH is in the process of setting up a well-equipped Common Instruments Research Facility (CIRF) where major multi-users equipment will be housed. Further, an herbal garden with upcoming greenhouse facilities, state-of-art computing room facilitate research and consultancy.

RESEARCH HIGHLIGHTS

AIB/AIISH takes pride in regularly publishing research articles in peer reviewed national and international journals of high impact. Individual faculty members are also supported by extra mural research grants from the national and international funding agencies such as Department of Science & Technology (DST), Department of Biotechnology (DBT), Indian Council of Medical Research (ICMR), Board of Research in Nuclear Sciences (BRNS), The European Union and other international agencies.

FACULTY

Prof. Rajendra Prasad, Director
Dr. Machiavelli Singh, Associate Professor
Dr. Gargi Bagchi, Associate Professor
Dr. Sangeeta Kumari, Associate Professor
Dr. Zeeshan Fatima, Associate Professor
Dr. Manju Sharma, Associate Professor
Dr. Saif Hameed, Associate Professor
Dr. Narendra Kumar, Associate Professor
Dr. Krishna Murari Sinha, Associate Professor
Dr. Soumyadeep Nandi, Associate Professor
Dr Chandramani Pathak, Associate Professor
Dr. Vaibhav Kapuriya, Associate Professor
Dr. Jinny Tomar, Assistant Professor 3
Dr. Munindra Ruwali, Assistant Professor 3
Dr. Ujjaini Dasgupta, Assistant Professor 3

Dr. Nitai Debnath, Assistant Professor 2
Dr. Alok Kumar Srivastava, Assistant Professor 3
Dr. Amresh Prakash, Assistant Professor 3
Dr. Kaustav Bandyopadhyay, Assistant Professor 3
Dr. Atanu Banerjee, Assistant Professor 2
Dr. Sarika Chaturvedi, Assistant Professor 2
Dr. Amit Kumar Pandey, Assistant Professor
Dr Shakir Bilal, Assistant Professor
Dr. Shweta Singh, Teaching Associate
Dr. Sumistha Das, Assistant Professor 2
Dr. Kumar Gaurav, Assistant Professor 2
Dr. Ravi Datta Sharma, Assistant Professor 2
Dr. Deepa Suhag, Assistant Professor 2
Dr. Ranjita Ghosh Moulick, Assistant Professor 2
Mr. Puspendra Partap Singh, Teaching Associate

AIB INFRASTRUCTURE & FACILITIES

Amity Institute of Biotechnology (AIB) is a well-known institute for research in biotechnology, encompassing modern biology tools and techniques to improve health, environment and food security. Specialized Research Clusters in the institute, including Microbial & Industrial Technology; Plant Tissue Culture & Engineering; Animal Cell Culture and Stem Cells; Infectious Disease; Molecular Diagnostics & Healthcare; Bioprocess, Bioengineering & Nanotechnology; Bio-resources, Energy & Environmental Technology; Bioinformatics and Computational Biology, add value to ongoing high quality of research.

AIB attracts private-public funding. It has a 'Centre of Excellence and Innovation in Biotechnology' that has earned `20 million grants from Department of Science & Technology, Department of Biotechnology, Indian Council of Medical Research, Board of Research in Nuclear Sciences, The European Union and other international agencies.



BIONNOVA LAB:

A world class, ultra-modern infrastructure biotechnology lab to facilitate the R&D projects with high-end precision and sophistication. Its focus is to expand the utilization of this major lab by team of scientists and research scholars in the domain of Tuberculosis, Molecular Diagnostics and Nano-biotechnology. AIB already offers a very vibrant Ph.D. program of diverse research groups lead by internationally trained faculty members who are dedicated to carrying out cutting edge research in basic and applied field of Biotechnology and development of such world class laboratories will aid the researchers to excel. Goal of the Ph.D. program is to produce independent, creative young scientist who are ready to take on the scientific challenges of the future.

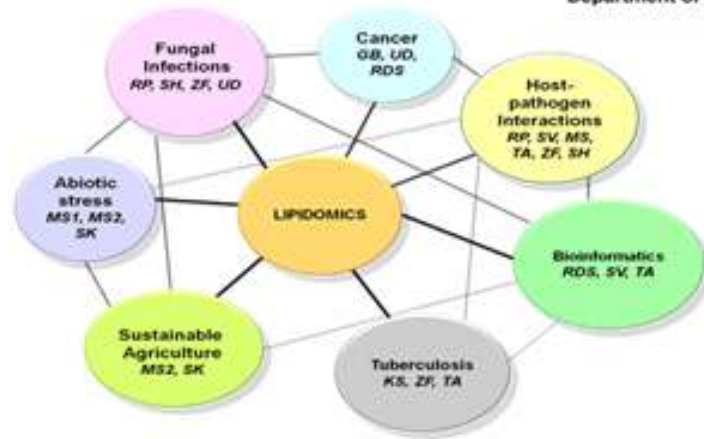


AMITY LIPIDOMICS RESEARCH FACILITY (ALRF):

An initiative under the “Fund for Improvement of Science & Technology (FIST) infrastructure in universities and higher educational institutions” under the aegis of Department of Science and Technology. The center is focused on development of application on lipidomics, proteomics and metabolomics tools for diagnostic and treatment in healthcare sciences. ALRF also outsource its services and offers regular short-term hands-on training courses on soft-electrospray ionization tandem mass spectrometry.



CORE GRANT DST-FIST



Biomarkers and Omics
Clinical Research
Forensics
Food & Beverage Testing
Drug Discovery
General chemical
Screening
Environmental Testing

Budget-1.65 CRORES

AMITY LIPIDOMICS RESEARCH FACILITY (ALRF)

DBT SUPPORTED M.Sc. BIOTECHNOLOGY PROGRAMME

भारत सरकार
GOVERNMENT OF INDIA

विज्ञान और प्रौद्योगिकी मंत्रालय
MINISTRY OF SCIENCE AND TECHNOLOGY



जैवप्रौद्योगिकी विभाग
DEPARTMENT OF BIOTECHNOLOGY

RESEARCH FUNDING 1.3 CORER



DBT BUILDER PROGRAMME

भारत सरकार
GOVERNMENT OF INDIA

विज्ञान और प्रौद्योगिकी मंत्रालय
MINISTRY OF SCIENCE AND TECHNOLOGY



जैवप्रौद्योगिकी विभाग
DEPARTMENT OF BIOTECHNOLOGY

RESEARCH FUNDING 1.6 CORER



Skill Vigyan – Department of Biotechnology



LIFE SCIENCES SECTOR SKILL
DEVELOPMENT COUNCIL

भारत सरकार
GOVERNMENT OF INDIA

विज्ञान और प्रौद्योगिकी मंत्रालय
MINISTRY OF SCIENCE AND TECHNOLOGY



जैवप्रौद्योगिकी विभाग
DEPARTMENT OF BIOTECHNOLOGY



RESEARCH FUNDING 1.23 CRORE

RESEARCH CLUSTERS

1. CANCER BIOLOGY

Aim: Developing cancer diagnostics and therapeutic applications using a combination of targeted and untargeted approaches

Despite relentless effort by biologists, chemists and clinicians towards developing a solution to cure cancer, this dreaded disease is still an enigma. It is one of the crucial areas of continued research and exploration. The Cancer Biology Cluster uses interdisciplinary approaches to unravel various facets of cancer diagnosis and plausible therapeutics.

- Genomic and nongenomic androgen signaling in prostate cancer.
- Role of lncRNAs in DNA damage response and drug resistance phenotype in breast and ovarian cancer
- Intricacies of sphingolipid signalling cues in tumor progression for the identification of biomarkers
- Exploitation of combination therapy on tumor and its microenvironment
- Linking cancer metabolism to epigenetics.
- Regulation of Programmed cell death signaling in cancer

Scientists associated with Cancer Biology Cluster:



Dr. Ujjaini Dasgupta



Dr. Amit K. Pandey



Dr. Gargi Bagchi



Dr. Munindra Ruwali



Dr. Vaibhav Kapuria



Dr. Chandramani Pathak

2. COMPUTATIONAL BIOLOGY AND DATA SCIENCE

Aim: To provide support in analysis of data and build new algorithms

From the beginning of the Human Genome project, bioinformatics and computational biology have provided the support to store, analyze and decipher the meaningful insight hidden in the emerging vast of amount of data. In AUH, we are employing various techniques such as bioinformatics, computational biology, structural biology, system biology and data science to understand some of the very basic ideas of disease development to improve diagnosis and prevention of these life-threatening diseases.

- Development of novel algorithm in the area of genomics and transcriptomics
- Providing data analysis support in healthcare
- Employing omics in understanding the basics of disease development, prevention and diagnosis
- Understanding the system biology of disease

Scientists associated with Computational Biology Cluster:



Dr. Alok Srivastava



Dr. Amresh Prakash



Dr. Ravi Datta Sharma



Dr. Jinny Tomar



Dr. Saumyadeep Nandi



Dr. Shakir Bilal

3. PLANT BIOTECHNOLOGY

Aim: Achieving Agri-excellence through sustainable and enviro-smart crops

With projected world population of 12 billion by 2025, scientists will face hefty challenges to arrange food for all. The current trend of applying more fertilizers and pesticides to increase yield will only compromise our environment to a point of no return. Therefore, the need of the hour is to modify our crops to make them resilient under harsher environment, low-fertile soil, and pathogen challenges. To this aim we are using following multiprong strategies:

- Genetic improvement of quality traits of crop species
- Understanding plant-pathogen interaction
- Identifying bio-based solutions to minimise use of chemical fertilizer and pesticide.

Scientists associated with Plant Biotechnology Cluster:



Dr. Narendra Kumar



Dr. Manju Sharma



Dr. Kaustava Bandhopadhyay

4. INFECTIOUS DISEASES

Aim: To Combat Antimicrobial Resistance

Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat hence increasing the risk of disease spread, severe illness and death. AUH infectious disease research cluster is employing following strategies to tackle the ever-increasing problem of AMR which is linked to 1.5-2 million deaths each year.

- Discovery for novel antimicrobial natural products
- Repurposing of FDA approved drugs
- Insights of AMR mechanisms
- Combating AMR using novel strategies

Scientists associated with Infectious Disease Cluster:



Dr. Rajendra Prasad



Dr. Saif Hamid



Dr. Krishna Murari Sinha



Dr. Atanu Banerjee



Dr. Zishan Fatima

DIRECTORATE OF RESEARCH & PUBLICATION

5. NANOTECHNOLOGY

Aim: Addressing big problems of human beings using the science behind the miniscules

Nanotechnology involves study of nano materials (one-billionth of a meter in size) are truly like “Alice’s wonderland’, where the materials start showing completely new properties (e.g., yellow gold turns into red or blue in colour etc.). These novel properties of nanomaterials can be utilized to make better and more sensitive devices, make our agriculture sector economically and environmentally more sustainable, help in early diagnosis and treatment of diseases and solve many more problems of our daily lives. The nanoscience research group is mainly focusing on the following issues:

- Development of biosensors for the early detection of diseases
- Nano formulation as delivery system for fertilizers, pesticides etc to reduce use of toxic chemicals in agriculture.
- Nanomaterials for improving photosynthesis.
- Early detection and treatment of cancer

Scientist associated with Nanotechnology Cluster:



Dr. Deepa Suhag



Dr. Nitai Debnath



Dr. Susmista Das



Dr. Ranjita Gosh



Dr. Kaustava Bandhopadhyay

6. INDUSTRIAL BIOTECHNOLOGY

Aim: Exploiting the industrial biologicals, and reaching environment friendly solutions in agriculture, energy and environment sector.

As industrial paradigm shifted to biologicals based and the new expectation that renewable microbial and plant-derived biomolecules can displace usage of a significant fraction of chemicals and other fossil fuels. The objective is to develop cost effective and sustainable 'green' industrial processes.

- Microbial enzymes from agro-waste.
- Use of oleaginous microorganism for biodiesel production.
- Bio stimulants for sustainable agriculture
- Environmental microbiology and bioremediation

Scientists associated with Industrial Biotechnology Cluster:



Dr. Machiavelli Singh



Dr. Kumar Gaurav



Dr. Sarika Chaturvedi



Dr. Sangeeta Kumari



FUNGAL DRUG RESISTANCE

Prof. Rajendra Prasad
 Ph.D. (Biochemistry), FNASc, FASc, FNA
 Dean, Faculty of Science, Engineering and Technology
 Director, Amity Institute of Integrative Sciences and Health
 Director, Amity Institute of Biotechnology

Core group

PhD Students

- Garima Shahi
- Suman Sharma (ICMR Fellow)
- Suraiya Muzaffar (ICMR Fellow)
- Amandeep Saini (DBT SRF)
- Ashok Yadav
- Praveen Kumar (ICMR Fellow)
- Mohit Kumar (NETJRF/ICMR Fellow)
- Anshu Yadav (DBT SRF)
- Basharat Ali (UGC/NET Fellow)
- Rajlaxmi Yadav
- Kusum Yadav
- Mohd. Wasi
- Sonam Kumari
- Juhi Sharma
- Abhishek Kumar
- Syed Bilal Jilani

Technical Assistant

- Rajesh

Collaborators

- Pierre Falson, CNRS Research Director, IBCP LYON - France
- Alexander Lorenz, The Institute of Medical Sciences (IMS), University of Aberdeen, Aberdeen, UK
- Neil Gow, Deputy Vice Chancellor Research and Impact, Exeter University, Exeter, Devon, UK
- Neeraj Chauhan, NJ Med School, Rutgers

University, USA

- Amitabha Chattopadhyay, CCMB, Hyderabad
- Alok Mondal, JNU, New Delhi
- Naseem Gaur, ICGEB, New Delhi
- Andrew M. Lynn, JNU, New Delhi
- Kaustuv Sanyal, JNCASR, Bangalore
- Arunaloake Chakrabarti, PGIMER, Chandigarh

Projects

Structure-function studies of fungal drug transporters

Multidrug resistance (MDR) transporters belonging to either ATP-binding Cassette (ABC) or Major Facilitator Superfamily (MFS) groups are major determinants of clinical drug resistance in fungi. The overproduction of these proteins enables the extrusion of incoming drugs at rates that prevent lethal effects. The promiscuity of these proteins is intriguing because they export a wide range of structurally unrelated molecules. With large numbers of drug transporters potentially involved in clinical drug resistance in pathogenic yeasts, our work focuses on the drug transporters of the important pathogen *Candida albicans*. This organism harbors many such proteins, several of which have been shown to actively export antifungal drugs. Of these, the ABC protein CaCdr1 and MFS protein CaMdr1 are the two most prominent and have thus been subjected to intense site directed mutagenesis and

suppressor genetics-based analysis. Numerous results point to a common theme underlying the strategy of promiscuity adopted by both CaCdr1 and CaMdr1. Our work has provided insight into how multidrug transporters function and deliver their remarkable polyspecificity.

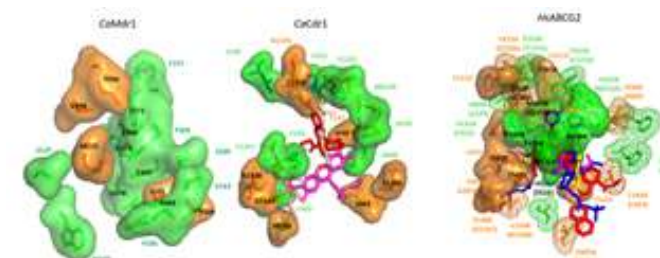


Fig: Structural basis for polyspecificity of multidrug efflux pumps. Left panel, GltT-based model of CaMdr1 amino acid residues of interest. Middle panel: ABCG5-G8-based model of CaCdr1 amino acid residues of interest with Rhodamine 6G (magenta), fluconazole (light pink) and rhodamine 123 (red) docked. Right panel: cryo-EM structures of human ABCG2 in complex with substrates and inhibitors. Residues are shown in surface, with those always implicated in substrate binding in green and those involved in binding specific ligands (polyspecificity) in orange. Residues shown in mesh in the right panel correspond to similar residues of CaCdr1, indicated in brackets

Projects

- Mechanism, evolution and pharmacology of multidrug resistance in the emerging fungal pathogen *Candida auris* among Indian cohort of patients, AUH/JNCASR/PGIMER, 2018-21, ICMR
- Novel Potential Antifungal drugs active against multidrug resistant yeasts from the *Candida* genes. 2017-20, Indo-Poland (DST)
- Unraveling the links between bioenergetics constraints, cell wall integrity, and multidrug resistance in fungi. 2018-20. DST – RFBR (Russia)
- Insight into the mechanism of drugs transport mediated by multidrug transporters of *Candida*, AUH/JNU, 2017-20, DBT
- Insights into the efflux pump arsenal of the emerging pathogen *C. auris* and its implication in high order of antifungal resistance and virulence, (Co-PI), 2020-23, DBT

Genetic regulation of antifungal resistance

The transcription of CDR1 is controlled by several well-characterized trans-factors which are shown to interact with host of cis elements interspersed in its promoter. The mutational analysis demonstrated that most of the regulatory elements are positioned at the proximal promoter region. An increased CDR1 transcription and mRNA stability were two predominant factors implicated in the development of azole tolerance in azole resistant *Candida* isolate in comparison with the isogenic susceptible isolates. We showed that the transcriptional regulation of CDR1 by Ncb2, the β subunit of NC2 complex, a heterodimeric regulator of transcription which show preferential recruitment of Ncb2 to the TATA box region of CDR1 in azole resistant isolates.

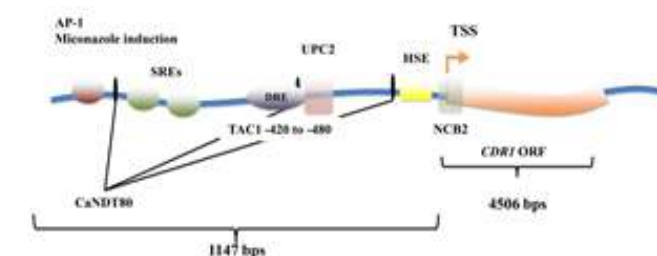


Fig: Cis Regulatory elements on CDR1 Promoter. Model shows approximate location of cis elements

More recently alternate splicing events of select genes have been shown to be govern drug resistance in *Candida albicans*.

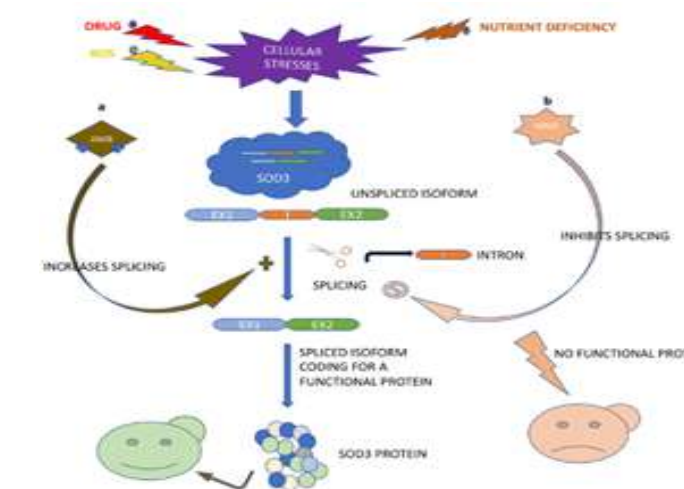


Fig: Schematic describing the effect of different cellular stresses on the splicing of SOD3 gene in *Candida albicans*. *Candida albicans* expresses SOD3 gene in two isoforms, spliced isoform and an unspliced isoform. When *Candida albicans* encounters stresses, the splicing of this gene increases, producing more of the functional protein to combat stress. The differential splicing response does not follow a similar pattern. This schematic shows the opposite effects of amphotericin and MND on SOD3 splicing.

Project

- Alternate splicing in clinical drug resistance in pathogenic *Candida*, DST-SERB; 2018-21

High throughput omics to decipher antifungal resistance mechanisms

On one hand systematic RNA-Seq of isogenic pair of *Candida* isolates helped discover newer drug resistance determinants while on the other hand, high throughput lipidomics of clinical drug resistant isolates is revealing as to how imbalances in select lipid levels influence onset of resistance in these pathogenic *Candida* spp. Our recent analysis of sphingolipids (SL) confirmed the presence of 140 SL species within nine major SL classes and one of the species α OH-GlcCer was found to be most abundant in isolates displaying higher resistance to a specific drug. The observed diversity of molecular species of SL classes based on fatty acyl composition was further reflected in their distinct specific imprint, suggesting their influence in drug resistance and dynamism of SL structures, their synthesis and link to the drug resistance.

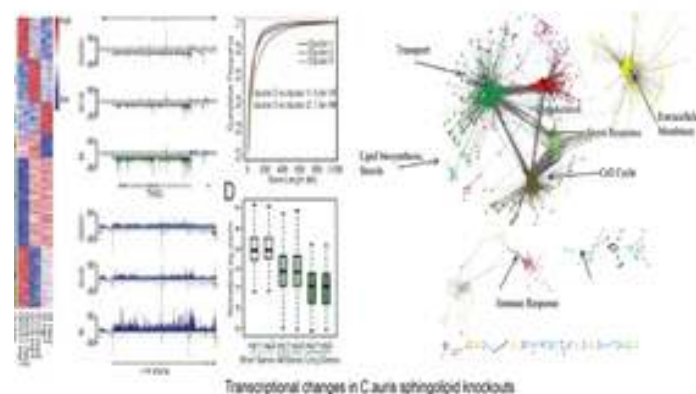
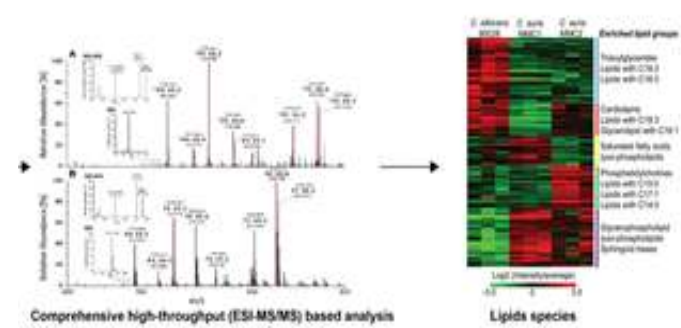


Fig: Schematic representation of sphingolipidomics of *C. auris* different clade strains and analysis of sphingolipid by LC-MS/MS. RNAseq of selected mutants to understand the effect of sphingolipid mutations at transcriptional level.

Projects

- A mass spectrometric approach to unravel the landscape of sphingolipids as major signaling determinants of drug resistance and virulence in emerging human fungal pathogen *Candida auris*, 2020- 23, DBT

Publications

1. Assessment of Antifungal Resistance and Associated Molecular Mechanism in *Candida Albicans* Isolates from Different Cohorts of Patients in North Indian State of Haryana. Ashok Kumar, Remya Nair, Mohit Kumar, Atanu Banerjee, Arunaloche Chakrabarti, Shivaprakash M Rudramurthy, Ruchika Bagga, Naseem A Gaur, Alok K Mondal, Rajendra Prasad. *Folia Microbiol (Praha)*. 2020 Mar 26. doi: 10.1007/s12223-020-00785-6
2. A homologous overexpression system to study roles of drug transporters in *Candida glabrata*. Kumari, Sonam; Kumar, Mohit; Khandelwal, Nitesh; Pandey, Ajay; Bhakt, Priyanka; Kaur, Rupinder; Prasad, Rajendra; Gaur, Naseem. *FEMS Yeast Research*, 2020 Jun 1; 20(4):foaa032. Doi: 10.1093/femsyr/foaa032
3. A detailed lipidomic study of human pathogenic fungi *Candida auris*. Shahi G,

Kumar M, Kumari S, Rudramurthy SM, Chakrabarti A, Gaur NA, Singh A, Prasad R. *FEMS Yeast Res*. 2020 Sep 1;20(6):foaa045. Doi: 10.1093/femsyr/foaa045.

4. Sphingolipidomics of drug resistant *Candida auris* clinical isolates reveal distinct sphingolipid species signatures. Mohit Kumar; Ashutosh Singh, Sonam Kumari, Praveen Kumar, Mohd. Wasi, Alok K Mondal, Shivaprakash M. Rudramurthy; Arunaloche Chakrabarti; Naseem A. Gaur, Neil A. R. Gow, Rajendra Prasad, *BBA - Molecular and Cell Biology of Lipids*, 2020, 1866(1):158815. doi: 10.1016/j.bbalip.2020.158815. Epub 2020 Sep 15.
5. Secretome produced by a newly isolated *Aspergillus flavus* strain in engineered medium shows synergy for biomass saccharification with a commercial cellulase, Mohit Kumar, Ajay Kumar Pandey, Sonam Kumari, Shahid Ali Wani, Shaik Jakeer, Rameshwar Tiwari, Rajendra Prasad and Naseem Gaur, *Biomass Conversion and Biorefinery*, 2020, <https://doi.org/10.1007/s13399-020-00935-3>
6. Deletion of *pgi* gene in *E. coli* increases tolerance to furfural and 5-hydroxymethyl furfural in media containing glucose-xylose mixture. Syed Bilal Jilani, Chandra Dev, Danish Eqbal, Kamran Javed, Rajendra Prasad, Syed Shams Yazdani, *Microb Cell Fact* 19, 153 (2020) <https://doi.org/10.1186/s12934-020-01414-0>
7. Identification of Genome-Wide Alternative Splicing Events in Sequential, Isogenic Clinical Isolates of *Candida albicans* Reveals a Novel Mechanism of Drug Resistance and Tolerance to Cellular Stresses" by Suraya Muzafar, Ravi Sharma, Abdul Shah, Naseem Gaur, Ujjaini Dasgupta, Neeraj Chauhan, and Rajendra

Prasad., *mSphere* 2020 Aug 12;5(4):e00608-20. doi:10.1128/mSphere.00608-20.

8. Protonophore FCCP provides fitness advantage to PDR-deficient yeast cells. Galkina KV, Finkelberg JM, Markova OV, Azbarova AV, Banerjee A, Kumari S, Sokolov SS, Severin FF, Prasad R, Knorre DA. *J Bioenerg Biomembr*. 2020 Oct; 52(5):383-395. doi: 10.1007/s10863-020-09849-1. Epub 2020 Aug 17.
9. Do multiple drug resistance transporters interfere with cell functioning under normal conditions? Dmitry A. Knorre, Kseniia V. Galkina, Tatiana Shirokovskikh, Atanu Banerjee, Rajendra Prasad. *Biochemistry (Moscow)*, 2020, Vol. 85, No. 12, pp. 1560-1569.
10. Cdr1p highlights the role of the non-hydrolytic ATP-binding site in driving drug translocation in asymmetric ABC pumps Atanu Banerjee, Alexis Moreno, Mohammad Firoz Khan, Remya Nair, Suman Sharma, Sobhan Sen, Alok Kumar Mondal, Jorgaq Pata, Cédric Orelle, Pierre Falson, Rajendra Prasad, *Biochim Biophys Acta Biomembr*. 2020 Feb 1;1862(2):183131. doi: 10.1016/j.bbamem.2019.183131. Epub 2019 Nov 14
11. In vitro characterization, ADME analysis, and histological and toxicological evaluation of BM1, a macrocyclic amidinourea active against azole-resistant *Candida* strains. Orofino F, Truglio GI, Fiorucci D, D'Agostino I, Borgini M, Poggialini F, Zamperini C, Dreassi E, Maccari L, Torelli R, Martini C, Bernabei M, Meis JF, Khandelwal NK, Prasad R, Sanguinetti M, Bugli F, Botta M. *Int J Antimicrob Agents*. 2020 Mar; 55(3):105865. doi: 10.1016/j.ijantimicag.2019.105865. Epub 2019 Dec 20.

12. Structural heterogeneity in RNA recognition motif 2 (RRM2) of TAR DNA-binding protein 43 (TDP-43): clue to amyotrophic lateral sclerosis. Prakash A, Kumar V, Banerjee A, Lynn AM, Prasad R.J *Biomol Struct Dyn*. 2020 Jan 22:1-11. doi: 10.1080/07391102.2020.1714481.

Book Chapters

1. A. Banerjee, A. Moreno, J. Pata, P. Falson, R. Prasad, ABCG2; A new fold of ABC exporters and a whole new bag of riddles! In: *Advances in Protein Chemistry and Structural Biology: APCS Volume 123 Transporter proteins*. (2020) <https://doi.org/10.1016/bs.apcsb.2020.09.006>
2. A. Kumar, A. Banerjee, A. Singh, R. Prasad, Background of Membrane Lipids. In: Prasad R., Singh A. (eds) *Analysis of Membrane Lipids*. Springer Protocols Handbooks. Springer, New York, NY. (2020) https://doi.org/10.1007/978-1-0716-0631-5_1

Nanomaterial-Assisted Mass Spectrometry: An Evolving Cutting-Edge Technique, Ashutosh Singh, Nitin Bhardwaj, and Rajendra Prasad, S. K. Saxena, S. M. P. Khurana (eds.), *Nano Bio-Medicine*,

HIGHLIGHTS

EDITOR'S CHOICE

EDITOR'S CHOICE

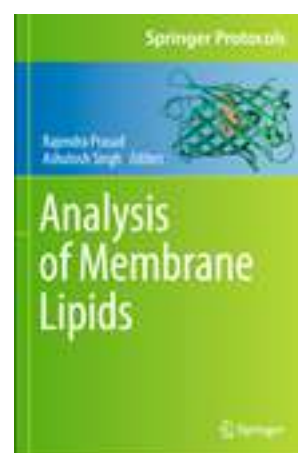
A homologous overexpression system to study roles of drug transporters in *Candida glabrata*

Sonam Kumari et al.

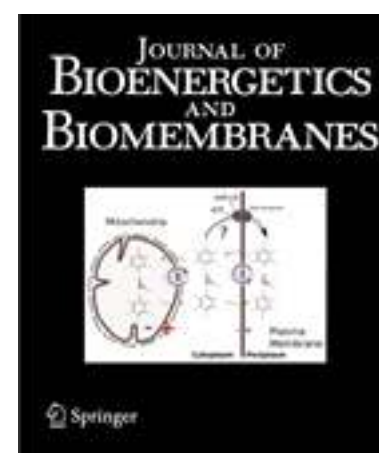
FEMS Yeast Research, Volume 20, Issue 4, 1 June 2020, foaa032, <https://doi.org/10.1093/femsyn/foaa032>



BOOK



COVERPAGE



Dr. Amit Kumar Pandey

Biology of Non Coding RNAs in Cancers

PhD Students

- Samarth Kansara
- Bhupender Yadav
- Abhishesh Kumar Badal
- Priya Rajput

Project Assistant

- Ayushee Sharma

Collaborators

- Marat Papylov, Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Russia
- Yury Rubstov, Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Russia
- Dubois Thierry, Institut Curie, France
- Gautam Sethi, National University of Singapore, Singapore
- Manoj Garg, Amity University Noida, India
- Peter Lobie, Tsinghua-Berkeley Shenzhen institute, China
- Malabika Datta, Institute of Genomics and Integrative Biology, India

Projects

Understanding Wnt Pathway and LncRNAs interaction for the identification of novel therapeutic targets in triple-negative breast cancers

Breast cancer is the leading cancer in women, with about 1.7 million cases per year worldwide. Although the efficacy of breast cancer therapies has improved considerably, patients with triple-negative breast cancer (TNBC) maintain the poorest prognosis. TNBC patients have a high incidence of disease recurrence and overall, the highest mortality amongst breast cancer patients. TNBCs will often display an aberrant activation of an important developmental pathway – the WNT pathway. Our and our collaborator's group and others have shown that key Wnt pathway players, such as Wnt transmembrane receptors, are overexpressed in TNBC and can actively contribute to pro-tumorigenic processes. To date, TNBC-targeted therapies have not been successfully developed. In parallel, WNT-targeting compounds against breast cancers are still currently in clinical trials. The advances in the development of sequencing technologies have allowed us to start characterizing the molecular landscape of TNBC. Although various genes involved in the Wnt pathway have been well characterized, several aspects of their function and regulation are not yet fully understood. It has been recently proposed that long non-coding RNAs (lncRNAs) are dysregulated in many cancers and may be linked to aberrant WNT activity. In this proposed study we aim to characterize the interplay between lncRNAs

and Wnt pathway activation in TNBC. We have generated a large collection of Wnt activity TNBC fluorescent reporter cell lines that display various levels of Wnt activity. We have found very dynamic and heterogeneous WNT activity levels within the TNBC models. We will use RNA-seq technology to identify novel WNT-regulating lncRNA in the WNT subpopulations from TNBC models with differential WNT activation status. The biological functions of novel lncRNAs will be characterized in our TNBC models and further validated in patient samples from our curated breast cancer cohort. Taken together, our study aims to unravel the lncRNA mediated regulation of Wnt signaling with the ultimate goal of identifying novel targetable mechanisms in TNBCs.

Unraveling the molecular mechanism of lncRNAs involvement in Glioblastoma

Based on existing literature and our preliminary data, we hypothesize that LINC-ROR should have very important role in glioblastoma cells. Little is known about fine molecular mechanisms of LINC-ROR action inside tumor cells. We suggest that interaction of LINC-ROR with survivin protein and likely involvement of LINC-ROR in regulation of MDM2 level by unknown mechanism could be crucial molecular switch in regulation of glioblastoma proliferation and survival. Therefore, dissection of molecular mechanisms of LINC-ROR in glioblastoma is very important, since LINC-ROR, according to our predictions, could become new target molecule in future glioblastoma treatment. In this project we aim at further confirmation of critically important participation of LINC-ROR in glioblastoma survival and proliferation, as well as at characterization of molecular mechanisms of LINC-ROR function in glioblastoma.

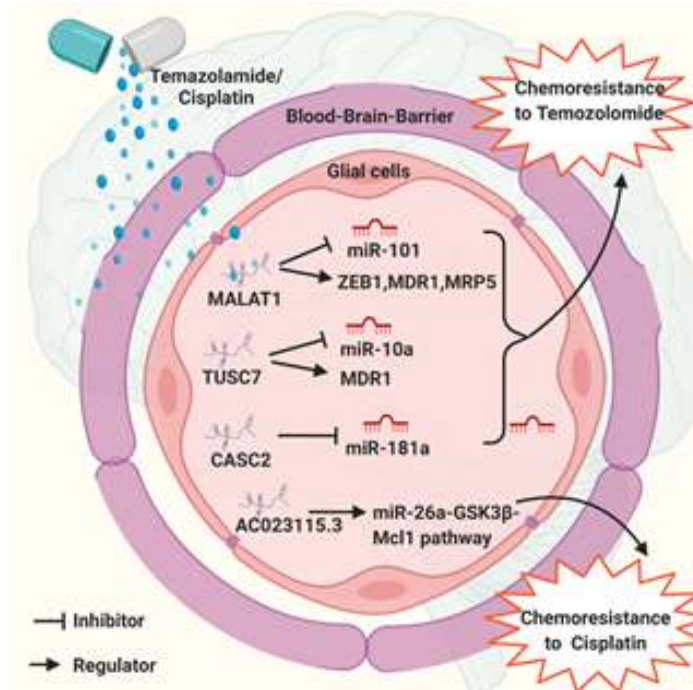


Fig: Illustrating the mechanism of chemoresistance in glioma to temozolamide and cisplatin with the involvement of lncRNAs, CASC2, MALAT1, and TUSC7 promotes chemoresistance to TMZ by suppressing the miRNAs while AC023115.3 mainly targets the mcl1 pathway and enhances the glioma cells chemosensitivity to cisplatin.

Identifying the role of P53 regulated long non-coding RNAs (lncRNAs) by Crispr/Cas9 in ovarian cancer

Cellular DNA is subject to constant stress and cells have developed robust mechanisms to correct and maintain genome integrity. In cancer, these mechanisms are impaired which accounts for the complex genomic alterations. Although, all the DNA repair genes have been identified and how they repair damaged DNA is for the most part understood, their regulation is still not completely clear. P53 which is important in maintaining genome integrity is the most frequent mutated gene in cancer. The earliest cellular signals in response to genotoxic stress and their relationship to p53 are poorly understood. lncRNAs present in non-coding genomic regions is emerging as major regulators of many genes involved in normal

biological processes. There is some data to suggest that lncRNAs may be important in regulating directly the genes involved in DNA damage response. Further, there is emerging evidence of the role of lncRNAs in the pathogenesis of cancer. Therefore, an evaluation of lncRNA's and their role in cancer, especially in relation to DNA damage response is important.

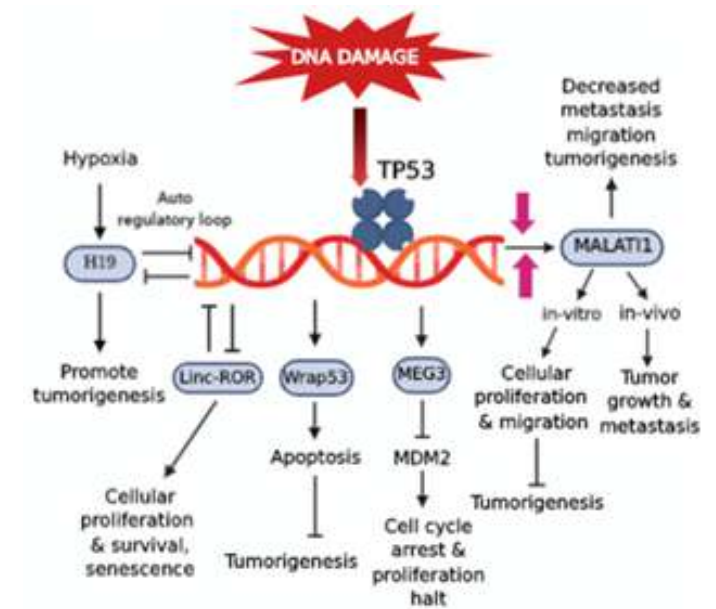


Fig: The role of p53-regulators of lncRNAs that directly and/or indirectly regulate p53 activity either Figure 2. The role of p53-regulators of lncRNAs that directly and/or indirectly regulate p53 activity repressing and/or activating its expression levels. MEG3 downregulates MDM2 expression that activates either repressing and/or activating its expression levels. MEG3 downregulates MDM2 expression that p53 resulting in cell cycle arrest and inhibits cell proliferation and tumorigenesis. Other lncRNAs like activates p53 resulting in cell cycle arrest and inhibits cell proliferation and tumorigenesis. Other H19, RoR, act in an autoregulatory loop in cooperation with TP53.

This is particularly so, as many of the commonly used drugs directly interact with DNA and do not allow normal repair causing cellular apoptosis. In

ovarian cancer, p53 is mutated at a high frequency, and in breast significantly. In addition, in both cancers, defects in homologous recombination are common and occur at a frequency of up to 50%. It is, therefore, pertinent to ask whether which lncRNAs are expressed in response to DNA damaging drugs in both cancers and their relationship with p53.

Publications-9

1. The implication of long non-coding RNAs in the diagnosis, pathogenesis and drug resistance of pancreatic ductal adenocarcinoma and their possible therapeutic potential. Pandya G, Kirtonia A, Sethi G, Pandey AK, Garg M. *Biochim Biophys Acta Rev Cancer*. 2020 Dec;1874(2):1884232.
2. A brief overview of antitumoral actions of bruceine D. Sin ZW, Bhardwaj V, Pandey AK, Garg M., *Explor Target Antitumor Ther*. 2020;1: 200-217
3. Mechanistic Involvement of Long Non-Coding RNAs in Oncotherapeutics Resistance in Triple-Negative Breast Cancer. S Kansara, V Pandey, PE Lobie, G Sethi, M Garg, AK Pandey. *Cells*. 2020 Jun 21;9(6):1511
4. A comprehensive review of genetic alterations and molecular targeted therapies for the implementation of personalized medicine in acute myeloid leukemia. Kirtonia A, Pandya G, Sethi G, Pandey AK, Das BC, Garg M. *J Mol Med (Berl)*. 2020 Aug;98(8):1069-1091
5. Repurposing of drugs: An attractive pharmacological strategy for cancer therapeutics. Kirtonia A, Gala K, Fernandes SG, Pandya G, Pandey AK, Sethi G, Khattar E, Garg M. *Semin Cancer Biol*. 2020 May 4: S1044-579X (20)30094-8
6. Deciphering the mounting complexity of the p53 regulatory network in correlation to

- lncRNAs in ovarian cancer. Pal S, Garg M, Pandey AK. *Cells*. 2020 Feb 25;9(3):527
7. Yadav B, Pal S, Rubstov Y, Goel A, Garg M, Pavlyukov M, Pandey AK. Long non-coding RNAs Associated with Glioblastoma: From Transcriptional Noise to Novel Regulators with a Promising Role in Therapeutics. *Mol Ther Nucleic Acids*. 2021 Apr 2; 24:728-742. doi: 10.1016/j.omtn.2021.03.018
 8. Pandya G, Kirtonia A, Singh A, Goel A, Mohan CD, Rangappa KS, Pandey AK, Kapoor S, Tandon S, Sethi G, Garg M. A comprehensive review of the multifaceted role of the microbiota in human pancreatic carcinoma. *Semin Cancer Biol*. 2021 May 26: S1044-579X(21)00157-7. doi: 10.1016/j.semcan.2021.05.027
 9. Long non-coding RNAs orchestrate various molecular and cellular processes by modulating epithelial-mesenchymal transition in head and neck squamous cell carcinoma, Ayushi Sharma, Samarth Kansara, Mehul Mahajan, Bhupender Yadav, Manoj Garg, Amit Kumar Pandey, 2021, 166240, ISSN 0925-4439, *Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease*, <https://doi.org/10.1016/j.bbdis.2021.166240>

Academic Achievements

- Editorial Board Member- Plos One
- Review Editorial Board Member- Frontiers in Molecular Biosciences
- Editorial Board Member- Cancer Treatment and Research Communications
- Selected as Member of Royal Society of Biology (MRSB), London

Book Chapter/ Book Publications

- Sonali Pal, Manoj Garg and Amit Kumar Pandey. Biomarkers as putative therapeutic targets in colorectal cancer in book entitled *Colon Cancer Diagnosis and Therapy Vol 1*, Springer (Nature), 2020. ISBN 9783030633684



Dr Ujjaini Dasgupta

Decoding the Intricacies of Sphingolipid Signaling in Cancer Biology

PhD Students

- Kajal Rajput
- Trishna Pani
- Ali Khan
- Md. Nafees

Project Assistant

- Pankaj Sharma

Collaborators

- Avinash Bajaj, Regional Center for Biotechnology, NCR Biocluster, Faridabad, India
- SVS Deo, BRA-Rotary Cancer Center, AIIMS, New Delhi, India
- Jyothi Prabhu, Division of Molecular Medicine, St John's National academy of Health Sciences, Bangalore, India
- Arnab Mukhopadhyay, National Institute of Immunology, New Delhi, India
- Aneesh Kumar AG, National Institute of Immunology, New Delhi, India

Projects

Unravelling the Role of mTORC2 in Regulation of Sphingolipid Biosynthesis in Mammalian Breast Cancer Cells

Recent reports have shown that mTORC2 pathway and sphingolipid biosynthesis play significant role

in pathogenesis of cancer. We are trying to unravel mTORC2 mediated sphingolipid regulation in mammalian cells, and target sphingolipid mediated mTORC2 specific therapeutic window to combat breast cancer progression. We hypothesized that there might be parallels between yeast and mammals with

respect to regulation of sphingolipid biosynthesis by TORC2. We performed genetic depletion of RICTOR in MCF7 and BT474 cell lines by shRNA mediated silencing of RICTOR gene and generated MCF7 sh_RICTOR and BT474 sh_RICTOR cell lines. Quantitative estimation of sphingolipids by LC-MS/MS mass spectrometry showed downregulation of glucosylceramides in MCF7 cells and upregulation of ceramides and lactosylceramides in BT474 cells. The alterations in the lipid levels could be co-related with corresponding changes in the gene expression level.

UDP-Glucose Ceramide Glucosyltransferase (UGCG) is one of the key enzymes of sphingolipid pathway that is responsible for synthesis of glucosylceramides, and plays an important role in cell proliferation and development of drug resistance. Genetic manipulations were done by overexpressing and silencing UGCG in MCF7 cells to mimic the alterations in sphingolipids as seen on

RICTOR silencing, followed by in vitro proliferation and migration assays to see the phenotypic effect. We found a significant decrease in cell proliferation and migration on silencing UGCG which is comparable to RICTOR silenced MCF7 cell line. We now propose to identify and elucidate the role of different transcription factors regulated by RICTOR that modulates UGCG expression, and impact of this regulation on sphingolipid metabolism. We also propose to validate the effect of mTORC2-mediated regulation of UGCG on cell proliferation in murine models to know whether genetic manipulation of UGCG can mimic the inhibition of mTORC2-mediated cell proliferation. This will provide the potential for translating our fundamental findings and developing a sphingolipid based therapeutic target for breast cancer with potentially lower side effects and/or inherent toxicities and a more widely acceptable therapeutic window.

Identification of Sphingolipid-based Biomarkers for Triple Negative Breast Cancer (TNBC) and Luminal A Patients and their Clinicopathological Correlation

Breast cancer poses a myriad of challenges to clinicians and patients. It is, therefore, imperative to address the issue with innovation, depth, feasibility and care. In this proposal we aim to identify sphingolipid-based biomarkers for estrogen negative, Triple Negative Breast Cancer (TNBC) and estrogen positive Luminal A subtypes and establish a clinico-pathological correlation. Sphingolipids, with their diverse as well as specific biological activities are emerging as potential biomarkers for various diseases including cancer. Thus, we hypothesize that key sphingolipid species can represent a stage-specific (Stage I to IIIa) bio-signature for TNBC and Luminal A patients. We propose that alterations in qualitative and quantitative distribution of different sphingolipids

are correlative to prognosis and contributory to development and progression of tumor. Based on this hypothesis we will use liquid chromatography mass spectrometry extensively

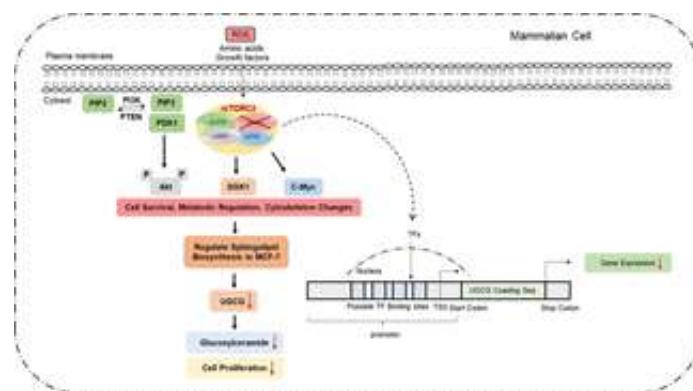


Figure 1: Diagrammatic representation of the mTORC2 pathway illustrating that mTORC2 regulates sphingolipid biosynthesis in mammalian breast cancer cells, like MCF7. Inhibition of mTORC2 pathway by silencing RICTOR downregulates Glucosylceramides and UGCG, the gene that codes for the enzyme that converts Ceramides to Glucosylceramides, along with significant reduction in cell proliferation. We propose to elucidate the identity of the RICTOR regulated transcription factors that modulate UGCG expression and validate the role of UGCG to mimic mTORC2 signaling in a murine model.

to elucidate the sphingolipid profile from tumors and adjoining normal tissue of different stages of TNBC and Luminal A. The aim is to identify key sphingolipids and correlate them to pathological synopsis of the cancer stage and/or grade.

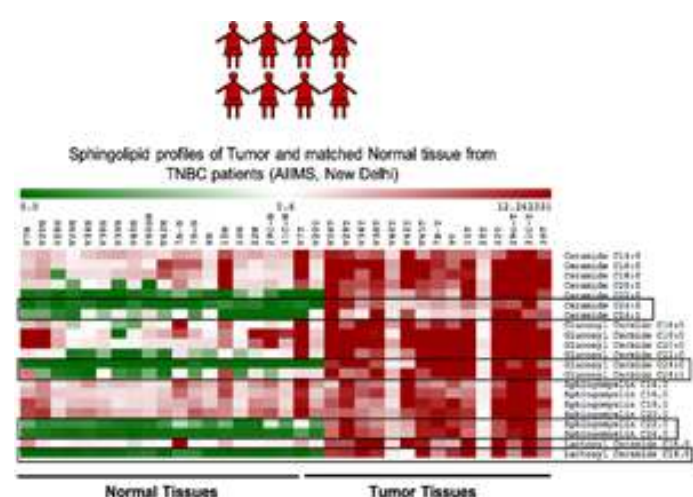


Figure 2: Heat map showing representative sphingolipid profile from tissue taken from tumor of TNBC patients along with adjoining normal tissue

Transcriptional and Post-Transcriptional Mechanisms Regulating the Sphingolipid Pathway Targeting Tumor Microenvironment in Response to Nanomedicine

Targeting multiple pathways in cancer cells or targeting multiple processes through combination of drugs in solid tumors provide the best strategies to combat tumor progression. In this project, we are studying the effect of different engineered nanoparticles/biomaterials of commonly used chemotherapeutic drugs on sphingolipid signaling in murine and human breast cancer models that would help to understand sphingolipid-mediated mechanism of these therapeutics and engineering of future combination therapies targeting multi-drug resistance.

In a recent study we presented the identification of a combination of doxorubicin, a DNA-binding topoisomerase inhibitor, with naturally occurring triterpenoid, celastrol, that induces a synergistic effect on apoptosis of colon cancer cells.

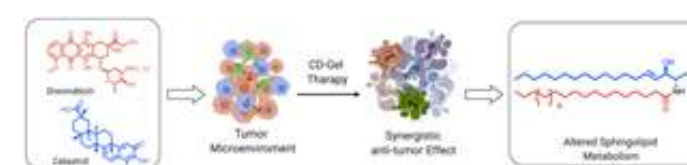


Figure 3: Schematic showing the release of Doxorubicin and Celastrol entrapped in hydrogel at the tumor site.

Hydrogel-mediated sustained release of a murine tumor model abrogates tumor proliferation and increases the median survival with enhanced apoptosis and concurrent reduction in proliferation. Sphingolipid profiling (LC-MS/MS) of treated tumors showed that combination of celastrol and doxorubicin induces global changes in the expression of sphingolipids with an increase

in levels of ceramides. We further demonstrate that this dual drug combination induces significant increase in expression of ceramide synthase 1, 4, and 6, thereby increasing the level of ceramides that contribute to synergistic apoptotic effect. Therefore, hydrogel-mediated localized delivery of a combination of celastrol and doxorubicin provides a new therapeutic combination that induces a sphingolipid-mediated synergistic effect against colon cancer.

Publications

1. S. Pal, N. Medatwal, S. Kumar, A. Kar, V. Komalla, P. S. Yavvari, D. K. Mishra, D. Malakar, M. Pillai, A. Srivastava, R. D. Sharma, S. Sengupta, U. Dasgupta* & A. Bajaj (2019) A Localized Chimeric Hydrogel Therapy Targets Tumor Microenvironment through Alteration of Sphingolipid Metabolism. ACS Central Sci. 5, 1648-1662. (IF: 12.837).
2. N. Medatwal, M. N. Ansari, S. Kumar, S. Pal, K. Rana, U. Dasgupta* and A. Bajaj (2020) Hydrogel-mediated Delivery of Celastrol and Doxorubicin Induces Synergistic Effect on Tumor Regression via Upregulation of Ceramides. Nanoscale 12, 18463-18475. (IF: 6.895).
3. S. Muzafar, R. D. Sharma, A. Shah, N. Gaur, U. Dasgupta, N. Chauhan, and R. Prasad (2020) Identification of Genome-Wide Alternative Splicing Events in Sequential, Isogenic Clinical Isolates of Candida albicans Reveals a Novel Mechanism of Drug Resistance and Tolerance to Cellular Stresses. mSphere 5, 00608-20 (IF: 4.28).
4. V. Sreekanth, A. Kar, S. Kumar, S. Pal, P. Yadav, Y. Sharma, V. Komalla, H. Sharma, R. Shyam, R. D. Sharma, A. Mukhopadhyay, S. Sengupta, U. Dasgupta* and A. Bajaj (2021) Bile Acid-tethered Docetaxel-based Nanomicelle

Mitigates Tumor progression via Epigenetic Changes. Angew. Chem. Int. Ed. 60, 5394-5399 (IF: 12.959)

5. S. Pal, D. Mehta, U. Dasgupta, and A. Bajaj, (2021) Advances in Engineering of Low Molecular Weight Hydrogels For Chemotherapeutic Applications. Biomed. Mater. 16, 024102 IF: 3.75). (Review article).
6. T. Pani, K. Rajput, A. Kar, H. Sharma, R. Basak, N. Medatwal, S. Saha, G. Dev, S. Kumar, S. Gupta, A. Mukhopadhyay, D. Malakar, TK. Maiti, AG. Aneeshkumar, SVS. Deo, RD. Sharma, A. Bajaj and U. Dasgupta* (2021) Alternative Splicing of Ceramide Synthase 2 Alters Levels of Specific Ceramides and Modulates Cancer Cell Proliferation and Migration in Luminal B Breast Cancer Subtype. Cell Death Dis. 12,171 (IF: 6.3)
7. S. Pal, V. Soni, S. Kumar, S. K. Jha, N. Medatwal, K. Rana, P. Yadav, D. Mehta, D. Jain, R. Kar, A. Srivastava, V. S. Patil, U. Dasgupta, V. Nandicoori, and A. Bajaj, (2021) A Hydrogel-based Implantable Multidrug Antitubercular Formulation Outperforms Oral Delivery. Nanoscale 13, 13225-13230. (IF: 6.895).
8. T. Pani, K. Rajput, A. Kar, U. Dasgupta,* (2021) Alternative Splicing of CERS2 Promotes Cell Proliferation and Migration in Luminal B subtype Breast Cancer Cells, Oncoscience, 8, 50-52. (Research perspective)

Academic achievements Patent/s applied for

Ujjaini Dasgupta and Ravi Datta Sharma, "A method providing spliced transcripts of Ceramide synthase 2 gene to alter the level of ceramides to affect tumor regression" CRN3846, Patent application no. 202011011239

Book Chapter/ Book Publications

1. N. Medatwal, U. Dasgupta. 2020. Quantitation of Sphingolipids in Mammalian Cell Lines by Liquid Chromatography–Mass Spectrometry. In: Prasad R., Singh A. (eds) Analysis of Membrane Lipids. Springer Protocols Handbooks: 103-117. Springer, New York, NY



Dr. Ravi Datta Sharma

Computational Biology of mRNA

PhD Students

- Harsh Sharma
- Ajeet Kumar
- Ankita Shrawan
-

Collaborators

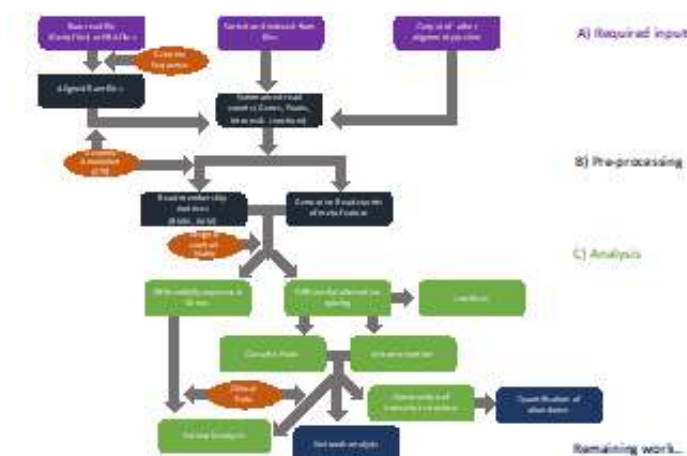
- Dr. Arnab Mukhopadhyay, National Institute of Immunology, New Delhi
- Dr. Ramandeep Singh, THSTI, Faridabad
- Dr. Avinash Bajaj, RCB, Faridabad
- Dr. Ujjaini Das Gupta, Amity University Haryana
- Dr. Gargi Bagchi, Amity University Haryana
- Dr. Amresh Prakash, Amity University Haryana
- Prof. Rajendra Prasad, Amity University Haryana

Projects

A computational software to find biomarkers using alternative splicing as a tool

The alternative processing of premature-mRNA to generate multiple isoforms is a well-conserved mechanism to increase complexity of the transcriptome and consequently, the diversity of proteins in multi-cellular organisms. In this project, we propose a novel software R-package that includes methods to find; most common

splicing events, the number of isoform expressed in particular condition, construction of isoform structure using information of meta-features, estimation of isoform abundance, and network analysis of AS genes that would enable finding of novel splicing regulators, using RNA Seq data, even if biologist has a little experience in handling programming language. After validating the algorithm in C. elegans, main emphasis will be on finding biomarkers in breast carcinoma. Finding disease specific or age-related biomarkers might allow; early diagnosis of diseases and their prevention strategies to assure healthy longevity, and identification of personalized medicine.



Overview of RNA-Seq analysis software package FASE-finding alternative splicing events (cassette exons and intron Retention events). FASE can accept raw-reads files (fastq) or already aligned reads to genome (BAM) files or output of other read alignment software packages in the form of direct read counts of meta-features including exons, introns and junctions. Above said inputs are then processed to generate pre-requisite matrices; Read-counts Matrix (consist of read counts for Meta-feature of a gene times samples in the study), and a read-membership matrix (defining the structure of gene). Given the contrast and design matrices, FASE can be applied to find differentially expressed genes, differentially spliced exons and intron events. Green color boxes show the output of the pipeline for the part that has been developed. Dark Blue color boxes show the under-development work of the pipeline

Publications

1. Alternative Splicing of Ceramide Synthase 2 Alters Levels of Specific Ceramides and Modulates Cancer Cell Proliferation and Migration in Luminal B Breast Cancer Subtype, Trishna Pani, Kajal Rajput, Animesh Kar, Harsh Sharma, Rituparna Basak, Nihal Medatwal, Sandhini Saha, Gagan Dev, Sharwan Kumar, Siddhi Gupta, Arnab Mukhopadhyay, Dipankar Malakar, Tushar Maiti, Aneeshkumar G. Arimbasseri, SVS Deo, Ravi Sharma, Avinash Bajaj, and Ujjaini Dasgupta, *Cell Death & Disease*, 2, Article number: 171 (2021), Impact factor-6.5
2. A multi class random forest (MCRF) model for classification of small plant peptides, Ankita Tripathi, Tapas Goswami, Shrawan Kumar Trivedi, Ravi Datta Sharma, *International Journal of Information Management Data Insights*, 1(2), November 2021, 100029

3. "Identification of Nafamostat and VR23 as COVID-19 drug candidates by targeting 3CLpro and PLpro.", Deep Bhowmik, Ravi Datta Sharma, Amresh Prakash, Diwakar Kumara, *Journal of Molecular Structure*, 1233(2021), 30094
4. Identifying the natural polyphenol Catechin as a multitargeted agent against SARS-cv2 For the plausible therapy of COVID19: An Integrated computational approach, Chandra Bhushan Mishra, Preeti Pandey, Ravi Datta Sharma, Md. Zubair Malik, Raj Kumar, Mongre, Andrew. M. Lynn, Rajendra Prasad, Raok Jeon and Amresh Prakash, *Briefings in Bioinformatics* (2020, Accepted), Impact factor-9
5. Bile Acid-tethered Docetaxel-based Nanomicelle Mitigates Tumor progression via Epigenetic Changes, Vedagopuram Sreekanth, Animesh Kar, Sandeep Kumar, Sanjay Pal, Poonam Yadav, Yamini Sharma, Varsha Komalla, Harsh Sharma, Radhey Shyam, Ravi D Sharma, Arnab Mukhopadhyay, Sagar Sengupta, Ujjaini Dasgupta, Avinash Bajaj, *Angewandte Chemie*, (Accepted 2020), Impact factor- 12.9
6. Activation of GPR56, a novel adhesion GPCR, is necessary for nuclear androgen receptor signaling in prostate cells, Julie Pratibha Singh, Manisha Dagar, Gunjan Dagar, Sudhir Rawal, Ravi Datta Sharma, Rakesh Kumar Tyagi, Sudhir Kumar, Gargi Bagchi, *Plos One*, 2020, 15(9): e0226056 (IF-2.7)
7. Identification of Genome-Wide Alternative Splicing Events in Sequential, Isogenic Clinical Isolates of *Candida albicans* Reveals a Novel Mechanism of Drug Resistance and Tolerance to Cellular Stresses" by Suraya Muzafar, Ravi Sharma, Abdul Shah, Naseem Gaur, Ujjaini Dasgupta, Neeraj Chauhan, and Rajendra

Prasad, *MSphere*, July 2020, 5:e00608-20 (IF-4.2)

8. VapBC22 toxin-antitoxin system from *Mycobacterium tuberculosis* is required for pathogenesis and modulation of host immune response, Sakshi Agarwal, Arun Sharma, Rania Bouzeyen, Amar Deep, Harsh Sharma, Kiran K Mangalparthi, Keshava K Datta, Saqib Kidwai, Harsha Gowda, Raghavan Varadarajan, Ravi Datta Sharma, Krishan Gopal Thakur and Ramandeep Singh, *Science Advances*, 03 Jun 2020:6(23), Impact factor-13
9. A Localized Chimeric Hydrogel Therapy Combats Tumor Progression through Alteration of Sphingolipid Metabolism, Sanjay Pal, Nihal Medatwal, Sandeep Kumar, Animesh Kar, Varsha Komalla, Prabhu Srinivas Yavvari, Deepakkumar Mishra, Zaigham Abbas Rizvi, Shiv Nandan, Dipankar Malakar, Manoj Pillai, Amit Awasthi, Prasenjit Das, Ravi Datta Sharma, Aasheesh Srivastava, Sagar Sengupta, Ujjaini Dasgupta, and Avinash Bajaj, *ACS Central Sciences*, 2019, 5 (10), 1648-1662, DOI: 10.1021/acscentsci.9b00551, Impact factor-13
10. Delineating the conformational dynamics of intermediate structures on the unfolding pathway of β -lactoglobulin in aqueous urea and dimethyl sulfoxide, Ruhar Singh, Naveen Kumar Meena, Trishala Das, Ravi Datta Sharma, Amresh Prakash Icon & Andrew M. Lynn, *Journal of Biomolecular Structure and Dynamics*, 2019, DOI:10.1080/07391102.2019.1695669, Impact factor-3.3
11. Multiple transcription factors co-regulate the *Mycobacterium tuberculosis* adaptation, response to Vitamin C, Malobi Nandi, Kriti Sikri, Neha Chaudhary, Shekhar Chintamani Mande, Ravi Datta Sharma & Jaya Sivaswami Tyagi, *BMC Genomics* 20, Article number: 887(2019), Doi: 10.1186/s12864-019- 6190-3

, Impact factor-3.7

12. Identification of Best Features of Small Peptides Using Various Feature Selection, Ankita Tripathi, Tapas Goswami, Shrawan Kumar Trivedi and Ravi Datta Sharma, *International Journal of Advanced Research in Engineering and Technology*, 11(12), 2020, pp. 384-394
13. A Localized Chimeric Hydrogel Therapy Combats Tumor Progression through Alteration of Sphingolipid Metabolism, Sanjay Pal, Nihal Medatwal, Sandeep Kumar, Animesh Kar, Varsha Komalla, Prabhu Srinivas Yavvari, Deepakkumar Mishra, Zaigham Abbas Rizvi, Shiv Nandan, Dipankar Malakar, Manoj Pillai, Amit Awasthi, Prasenjit Das, Ravi Datta Sharma, Aasheesh Srivastava, Sagar Sengupta, Ujjaini Dasgupta, and Avinash Bajaj, *ACS Central Sciences*, 2019, 5 (10), 1648-1662, DOI: 10.1021/acscentsci.9b00551, Impact factor-13
14. Delineating the conformational dynamics of intermediate structures on the unfolding pathway of β -lactoglobulin in aqueous urea and dimethyl sulfoxide, Ruhar Singh, Naveen Kumar Meena, Trishala Das, Ravi Datta Sharma, Amresh Prakash Icon & Andrew M. Lynn, *Journal of Biomolecular Structure and Dynamics*, 2019, DOI:10.1080/07391102.2019.1695669, Impact factor-3.3
15. Multiple transcription factors co-regulate the *Mycobacterium tuberculosis* adaptation, response to Vitamin C, Malobi Nandi, Kriti Sikri, Neha Chaudhary, Shekhar Chintamani Mande, Ravi Datta Sharma & Jaya Sivaswami Tyagi, *BMC Genomics* 20, Article number: 887(2019), Doi: 10.1186/s12864-019- 6190-3, Impact factor-3.7

Patent Filled

1. A method for Identification of GPR56 as a receptor for androgen signalling, Gargi Bagchi, Julie Pratibha Singh, Ravi Datta Sharma, 2019 [Application no. 201911002934]

Academic Achievements

- Editorial Board Member- Exploratory biotechnology research
- Member of Advisory Committee, Society for Green Environment, New Delhi, India

Book Chapter/ Book Publications

- Chapter 34: In Silico Analysis of Endosymbionts of Bemisia tabaci (White Fly) by Artemis and Artemis Comparison Tool, Pardeep Kumar, Ravi Datta Sharma and Machiavelli Singh, Book: Trends in Technology for Agriculture, Food, Environment and Health” Editors: R. K. Behl, Machiavelli Singh, Achim Ibbenthal and Manfred J Kern released with AGROBIOS (INTERNATIONAL) ISBN: 978-81-947480-7-7



Dr. Saif Hamid

Infectious diseases biology and diagnostics

Ph.D. Students

- Shweta Singh
- Sandeep Hans
- Himanshu Sharma

Collaborators

- Shankar Thangamani, Midwestern University, USA
- Muriel Billamboz, INSERM, France
- Aijaz Ahmad, Witz University, Johannesburg
- Ritu Pasrija, Maharashi Dayanand University, Rohtak
- Nidhin Marimuthu, Christ University, Bangalore
- Luqman Ahmad Khan, Jamia Millia Islamia, New Delhi

Projects

Understanding membrane dynamics and host pathogen interaction in response to magnesium deprivation in *Candida albicans*

Invasive fungal infections create a serious hazard to human health worldwide in which *Candida albicans* is a leading fungal pathogen. Mortality is in part due to the limited arsenal of effective anti-fungal, with drug resistance on the rise. Novel strategies to surmount drug resistance in *C. albicans* are urgently needed. Previously, we have shown that magnesium deprivation affects drug

susceptibilities of known anti-fungal drugs and found that Mg chelation leads to enhanced drug susceptibility of membrane targeting antifungals with remarkable differences in ergosterol levels, propidium iodide and efflux pump. Hence, in the purposed study we will explore the lipid associated changes under Mg deprived condition along with analysis of the host-pathogen interaction with Mg deprived *C. albicans* cells. Since lipid play important as structural as signaling molecules, these lipids could be exploited as antifungal target.

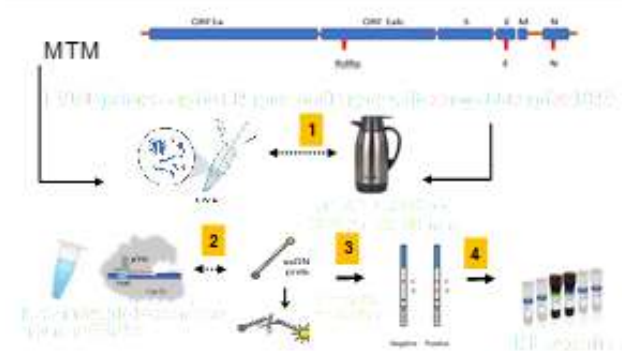
Development of on-spot diagnostic kit for COVID-19 by integrating RT-LAMP based technique

The recent pandemic COVID-19 caused by novel coronavirus (SARS-CoV-2), has become public health emergency all over the world is undebatable. In absence of any vaccine or therapeutics to limit the spread of infection, screening and testing is the only option available till date for containment of SARS-CoV-2. Hence, development of rapid and simple to operate, alternative to traditional RT-qPCR based diagnostic system is urgently required for better management of COVID-19.

The only available RT-PCR based diagnostic for SARS-Cov-2 essentially depends on sophisticated PCR machine and trained molecular biologist. This

represents strong limitation of the current diagnostic technique to use in general and particularly in tier II and III cities of India. Moreover, trained medical staffs are required for collecting nasopharyngeal or oropharyngeal swab samples and coughing induced during the collection process carries high risk of transmission to the health care workers, also the transportation logistics are difficult to manage. Due to these laborious and cumbersome requirements, the number of detection tests per day is limited. Considering the high infectivity of SARS CoV-2, it is prudent to identify easy to obtain surrogate specimen where patients themselves can collect the samples. Recent studies have shown that saliva and faecal samples presents a potential resource. Further there is study where RT-LAMP was applied directly on SARS-CoV-2 nasopharyngeal or oropharyngeal swabs samples, with no RNA purification step. They also claim the success of protocol on self-sampled saliva from confirmed cases. Hence, we propose to develop a lateral flow read out diagnostic kit for SARS-Cov-2 based on RT-LAMP integrated FAM-Biotin reporter labelled CRISPR-Cas12 activity by direct nasopharyngeal or oropharyngeal swab samples from the suspects/patients.

Rapid on-spot detection by integrating RT-LAMP with CRISPR-Cas



Publications

1. Saif Hameed, Sandeep Hans, Shiv Nandan and Zeeshan Fatima (2021) "Mechanistic insights into the antimycobacterial action of unani medicine, Qurs Sartan Kafoori." J Tradit Complement Med. DOI 10.1016/j.jtcme.2021.07.009.
2. Akansha Bhatt, Zeeshan Fatima, Munindra Ruwali and Saif Hameed (2021) "An inventory of diagnostic tools for detection of COVI-19." Curr. Mol. Med. (in press).
3. Saif Hameed, Sandeep Hans, Shweta Singh, Ruby Dhiman, Ross Monasky, Ramendra Pati Pandey, Shankar Thangamani and Zeeshan Fatima (2021) "Revisiting the vital drivers and mechanisms of β -glucan masking in human fungal pathogen, *Candida albicans*." Pathogens. 10: 942.
4. Muriel Billamboz, Zeeshan Fatima, Saif Hameed and Samir Jawhara (2021) "Promising drug candidates and new strategies for fighting against the emerging superbug *Candida auris*." Microorganisms. 9(3): 634.
5. Saif Hameed, Sandeep Hans, Ross Monasky, Shankar Thangamani and Zeeshan Fatima (2021) "Understanding human microbiota offers novel and promising therapeutic options against *Candida* infections." Pathogens. 10(2):182.
6. Sandeep Hans, Zeeshan Fatima, and Saif Hameed (2021) "Insights into the modulatory effect of magnesium on efflux mechanisms of *Candida albicans* reveal inhibition of ATP binding cassette multidrug transporters and dysfunctional mitochondria." Biometals. 34(2): 329-339.
7. Ananya S Agnihotri, Zeeshan Fatima, Saif Hameed, Nidhin Marimuthu (2021) "Highly

surface active anisotropic silver nanoparticles as antimicrobial agent against human pathogens, *Mycobacterium smegmatis* and *Candida albicans*." ChemistrySelect. 6(22): 5466-5473.

8. Venkata Saibabu, Zeeshan Fatima, Luqman A. Khan and Saif Hameed (2021) "Mechanistic insights into the anticandidal action of vanillin reveal disruption of cell surface integrity and mitochondrial functioning". Infect. Disord Drug Targets. 21(3):405-415.
9. Metabolic fitness of *Candida albicans* is indispensable for functional drug efflux, ergosterol and chitin biosynthesis. Hans S, Fatima Z and Hameed S. Curr Med Mycol. 2020 6(3): 9-14.
10. Rec A disruption unveils cross talk between DNA repair and membrane damage, efflux pump activity, biofilm formation in *Mycobacterium smegmatis*". Hans S, Purkait D, Nandan S, Bansal M, Hameed S and Fatima Z. Microb. Pathog. 2020, 149 (2020): 104262.
11. Repurposing of respiratory drug theophylline against *Candida albicans*: Mechanistic insights unveil alterations in membrane properties and metabolic fitness". Singh S, Fatima Z, Ahmad K and Hameed S. J. Appl. Microbiol. 2020, 129 (4): 860-875.
12. Octyl gallate reduce ABC multidrug transporter CaCdr1p expression and lead to its mislocalization in azole-resistant clinical isolates of *Candida albicans*". Singh S, Fatima Z, Ahmad K and Hameed S. J. Glob Antimicrob Resist. 2020, 22: 497-503.
13. Understanding mass spectrometry based global Mycobacterial lipidomics." Fatima Z, Nandan S and Hameed S. Curr. Mol. Med. doi: 10.2174/1566524020666200206120840.

14. Vanillin confers antifungal drug synergism in *Candida albicans* by impeding CaCdr2p driven efflux". Saibabu V, Fatima Z, Singh S and Hameed S. J. Mycol Med. 2020, 30(2020): 100921.
15. Vanillin impedes metabolic adaptability and virulence of *Candida albicans* by inhibiting glyoxylate cycle, morphogenesis and biofilm formation. Saibabu V, Fatima Z, Ahmad K, Khan LA and Hameed S. Curr Med Mycol. 2020, 6(1): 1-8.
16. Phospholipid biosynthesis disruption renders the yeast cells sensitive to antifungals". Kundu D, Hameed S, Fatima Z and Pasrija R. Folia Microbiol. 2020, 65: 121-131.
17. Octyl gallate triggers dysfunctional mitochondria leading to ROS driven membrane damage and metabolic inflexibility along with attenuated virulence in *Candida albicans*". Saibabu V, Fatima Z, Ahmad K, Khan LA and Hameed S. Med Mycol. 2020, 58(3):380-392.
18. Protein kinases as potential anticandidal drug targets". Singh S, Rehman S, Fatima Z and Hameed S. Front. Biosci 25:1412-1432.
19. Lipidomic insights to understand membrane dynamics in response to vanillin in *Mycobacterium smegmatis*". Sharma S, Hameed S and Fatima Z. Int Microbiol. 2020, 23: 263-276.
20. Harnessing metal homeostasis offers novel and promising targets against *Candida albicans*. Hameed S, Hans S, Singh S and Fatima Z. Curr. Drug Discov. Technol. 2020 17(4):415-428.
21. Potential drug targets in mycobacterial cell wall: Non-lipid perspective." Das S, Hameed S and Fatima Z. Curr. Drug Discov. Technol. 2020, 17(2): 147-153.

DIRECTORATE OF RESEARCH & PUBLICATION

22. Monoterpenoid Geraniol improves anti-TB drug efficiency by interfering with lipidome and virulence of mycobacteria". Sharma S, Hameed S and Fatima Z. *Infect. Disord Drug Targets*. 2020, 4: 467-485.

Academic Achievements

- Association of Microbiologist of India (AMI): Life Member
- Review Editor of *Frontiers in Fungal Genomics and Evolution* (specialty section of *Frontiers in Fungal Biology*)

Book Chapter/ Book Publications

1. Saif Hameed, Suriya Rehman, Dyuti Purkait, Insha Nahvi and Zeeshan Fatima (2021) "Ecological drivers of infectious diseases." Book Chapter in book titled "Stress tolerant Microbes: Reclamation of Degraded Land and Ecosystems". Springer-Nature. Ed: Rafiq Lone. (in press)
2. Zeeshan Fatima, Dyuti Purkait, Suriya Rehman, Suchitra Rai and Saif Hameed (2021) "Multidrug Resistance: A Threat to antibiotic era." Book Chapter in book titled "Biological and Environmental Hazards, Risks, and Disasters- 2nd edition". Elsevier. Ed: Ramesh Sivan Pillai. (in press)
3. Dyuti Purkait, Saif Hameed and Zeeshan Fatima. (2021) "Pathogen-Omics: Challenges and Prospects in Research and Clinical Settings." Book chapter in book titled "Integrated Omics Approaches to Infectious Diseases." Springer-Nature. Eds: Saif Hameed and Zeeshan Fatima. ISBN: 978-981-16-0690-8. Pp: 521-542.
4. Zeeshan Fatima, Priyanka Kumari, Suriya Rehman and Saif Hameed (2021) "Virulence traits of *Candida* spp: An Overview." Book Chapter in book titled "Recent Trends in

Mycological Research". Springer-Nature. Pp: 439-455. Eds: Ajar Nath Yadav. ISBN: 978-3-030-60658-9.

5. Zeeshan Fatima, Bablu Kumar, Suriya Rehman and Saif Hameed (2020) "Retrograde signaling: A novel antifungal drug target." Book Chapter in book titled "New and future developments in microbial biotechnology and bioengineering". Elsevier. Eds: Ali Asghar Rastegari, Ajar Nath Yadav, Abhishek Kumar Awasthi, Neelam Yadav. ISBN: 9780128205280. Pp: 219-226.
6. Dyuti Purkait, Saif Hameed and Zeeshan Fatima (2020) "Gut microbiome: Current development, challenges and perspectives." Book Chapter in book titled "New and future developments in microbial biotechnology and bioengineering". Elsevier. Eds: Ali Asghar Rastegari, Ajar Nath Yadav, Abhishek Kumar Awasthi, Neelam Yadav. ISBN: 9780128205280. Pp: 227-241.
7. Shweta Singh, Zeeshan Fatima and Saif Hameed (2020) "Plant phenolics for overcoming multidrug resistance in human fungal pathogen". Book Chapter in book titled "Plant Phenolics and their exploitation in sustainable agriculture". Springer-Nature. Eds: Rafiq Lone, Razia Shuab and Azra M. Kamli. DOI: 10.1007/978-981-15-4890-1. ISBN: 978-981-15-4889-5. Pp: 407-430.
9. Saif Hameed and Zeeshan Fatima. (2020) "Response of *Mycobacterium tuberculosis* to pH stress: Promising approach to control Tuberculosis." Book chapter in book titled "Pathogenecity and Drug Resistance of Human Pathogens: Mechanisms and Novel Approaches." Springer-Nature. Eds: Saif Hameed and Zeeshan Fatima. ISBN: 978-981-329-448-6. Pp: 81-92. DOI: 10.1007/978-981-32-9449-3.

10. Saif Hameed, Sharda Sharma and Zeeshan Fatima (2020) "Techniques to understand mycobacterial lipids and use of lipid based nanoformulations for tuberculosis management." Book Chapter in book titled "Nanobiomedicine". Springer-Nature. Eds: SK Saxena, SM Paul Khurana and RK Gaur. ISBN: 978-981-329-897-2. Pp: 433-451. DOI: 10.1007/978-981-32-9898-9_18
11. Zeeshan Fatima, Shweta Singh and Saif Hameed (2020) "Nanophytotherapeutic potential of essential oils against *Candida albicans*." Book Chapter in book titled "Nanobiomedicine". Springer-Nature. Eds: SK Saxena, SM Paul Khurana and RK Gaur. ISBN: 978-981-329-897-2. Pp: 315-331. DOI: 10.1007/978-981-32-9898-9_13
12. Himanshu Sharma, Saif Hameed and Zeeshan Fatima (2020) Lipidomics in human pathophysiology: Progress and prospects. Book Chapter in book titled "Advances in Medicine and Biology". Nova Science Publishers, Inc. New York, USA. Ed: Leon V. Berhardt. ISBN: 978-1-53617-84



Antimicrobial Resistance and Lipid Biology

Dr. Zeeshan Fatima

Ph.D. Students

- Himanshu Sharma
- Inderjeet Yadav
- Meenakshi

Collaborators

- Stephane Canaan, CNRS, France
- V. Rema, NBRC, Haryana
- Nasreen Z. Ehtesham, NIOP, New Delhi
- Sarman Singh, AIIMS, Bhopal
- Sabareesh V., VIT, Vellore
- S. Srikrishna, BHU, Varanasi

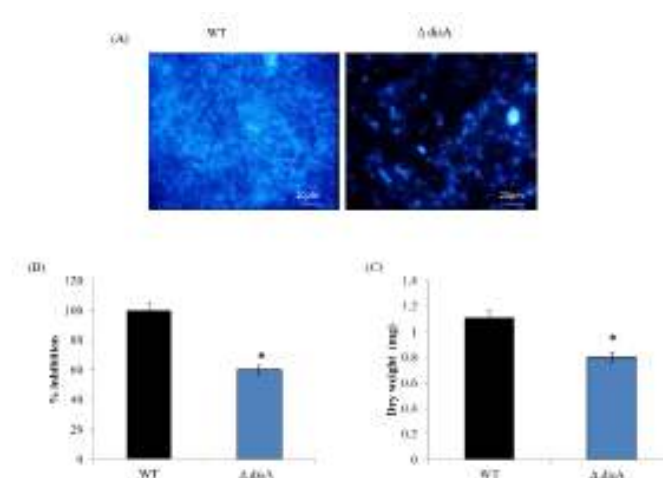
Projects

Evaluation of antimycobacterial potential of Unani drugs “Qurs-e- Sartan Kafoori and Sharbat-e-Ejaz – A mechanistic approach

Tuberculosis (TB) cause by Mycobacterium tuberculosis (MTB) remains global emergency particularly affecting poor and developing countries with 8 to 10 million new cases, clamming around 2 million lives annually. Multidrug resistance (MDR) and the highly lethal extensively drug-resistant (XDR) TB are adding new challenges to present therapeutics. Antimycobacterial therapy has become less effective with tremendous side effects rendering researchers struggle hard to find novel approaches to tackle

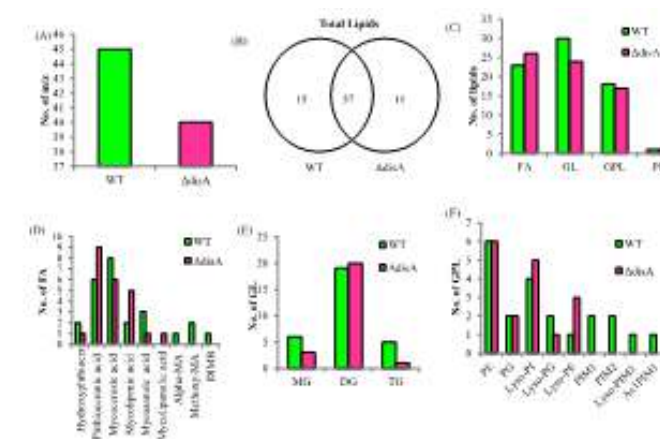
this ever-growing problem. The failure of present therapeutic regiments renders the search for novel compounds capable of

servicing novel therapeutic option. Present era need is to look for natural alternative to be used either as drugs or adjunct to the drugs. Considering the importance of Ayurvedic, Unani, Homeopathy and other alternative system of medicines in current scenario, my lab is working to re-connect traditional drug with modern medicine and elucidate the mechanism of action of traditional drugs for the management of TB.



Comparative omics study to understand the biology of drug resistant Mycobacterium tuberculosis clinical isolates from Arunachal Pradesh

Poor understanding of the basic biology of bacterium hampers development of much-needed drugs, vaccines, and diagnostic tests. High-throughput “omics” techniques have been applied to the study of MTB biology in recent years to address questions at the systems level. Genomic studies are increasing our understanding of MTB evolution and the development of drug resistance, while proteomics and lipidomics have enhanced our understanding of the real-time physiological status of bacilli in the host. Hence, my lab is engaged in understanding lipid biology in persistence, pathogenesis, and drug resistance of MTB.



Publications

- Saif Hameed, Sandeep Hans, Shiv Nandan and Zeeshan Fatima (2021) “Mechanistic insights into the antimycobacterial action of unani medicine, Qurs Sartan Kafoori.” J Tradit Complement Med. DOI 10.1016/j.jtcme.2021.07.009.
- Akansha Bhatt, Zeeshan Fatima, Munindra Ruwali and Saif Hameed (2021) “An inventory of diagnostic tools for detection of COVI-19.”

Curr. Mol. Med. (in press).

- Saif Hameed, Sandeep Hans, Shweta Singh, Ruby Dhiman, Ross Monasky, Ramendra Pati Pandey, Shankar Thangamani and Zeeshan Fatima (2021) “Revisiting the vital drivers and mechanisms of β-glucan masking in human fungal pathogen, Candida albicans.” Pathogens. 10:942.
- Muriel Billamboz, Zeeshan Fatima, Saif Hameed and Samir Jawhara (2021) “Promising drug candidates and new strategies for fighting against the emerging superbug Candida auris.” Microorganisms. 9(3): 634.
- Saif Hameed, Sandeep Hans, Ross Monasky, Shankar Thangamani and Zeeshan Fatima (2021) “Understanding human microbiota offers novel and promising therapeutic options against Candida infections.” Pathogens. 10(2):182.
- Sandeep Hans, Zeeshan Fatima, and Saif Hameed (2021) “Insights into the modulatory effect of magnesium on efflux mechanisms of Candida albicans reveal inhibition of ATP binding cassette multidrug transporters and dysfunctional mitochondria.” Biometals. 34(2): 329-339.
- Ananya S Agnihotri, Zeeshan Fatima, Saif Hameed, Nidhin Marimuthu (2021) “Highly surface active anisotropic silver nanoparticles as antimicrobial agent against human pathogens, Mycobacterium smegmatis and Candida albicans.” ChemistrySelect. 6(22): 5466-5473.
- Venkata Saibabu, Zeeshan Fatima, Luqman A. Khan and Saif Hameed (2021) “Mechanistic insights into the anticandidal action of vanillin reveal disruption of cell surface integrity and mitochondrial functioning”. Infect. Disord Drug Targets. 21(3):405-415.

- Metabolic fitness of *Candida albicans* is indispensable for functional drug efflux, ergosterol and chitin biosynthesis. Hans S, Fatima Z and Hameed S. *Curr Med Mycol.* 2020 6(3):9-14.
- Rec A disruption unveils cross talk between DNA repair and membrane damage, efflux pump activity, biofilm formation in *Mycobacterium smegmatis*". Hans S, Purkait D, Nandan S, Bansal M, Hameed S and Fatima Z. *Microb. Pathog.* 2020, 149 (2020): 104262.
- Repurposing of respiratory drug theophylline against *Candida albicans*: Mechanistic insights unveil alterations in membrane properties and metabolic fitness". Singh S, Fatima Z, Ahmad K and Hameed S. *J. Appl. Microbiol.* 2020, 129 (4): 860-875.
- Octyl gallate reduce ABC multidrug transporter CaCdr1p expression and lead to its mislocalization in azole-resistant clinical isolates of *Candida albicans*". Singh S, Fatima Z, Ahmad K and Hameed S. *J. Glob Antimicrob Resist.* 2020, 22: 497-503.
- Understanding mass spectrometry based global Mycobacterial lipidomics." Fatima Z, Nandan S and Hameed S. *Curr. Mol. Med.* doi: 10.2174/1566524020666200206120840.
- Vanillin confers antifungal drug synergism in *Candida albicans* by impeding CaCdr2p driven efflux". Saibabu V, Fatima Z, Singh S and Hameed S. *J. Mycol Med.* 2020, 30(2020): 100921.
- Vanillin impedes metabolic adaptability and virulence of *Candida albicans* by inhibiting glyoxylate cycle, morphogenesis and biofilm formation. Saibabu V, Fatima Z, Ahmad K, Khan LA and Hameed S. *Curr Med Mycol.* 2020, 6(1): 1-8.
- Phospholipid biosynthesis disruption renders the yeast cells sensitive to antifungals". Kundu D, Hameed S, Fatima Z and Pasrija R. *Folia Microbiol.* 2020, 65: 121-131.
- Octyl gallate triggers dysfunctional mitochondria leading to ROS driven membrane damage and metabolic inflexibility along with attenuated virulence in *Candida albicans*". Saibabu V, Fatima Z, Ahmad K, Khan LA and Hameed S. *Med Mycol.* 2020, 58(3):380-392.
- Protein kinases as potential anticandidal drug targets". Singh S, Rehman S, Fatima Z and Hameed S. *Front. Biosci* 25:1412-1432.
- Lipidomic insights to understand membrane dynamics in response to vanillin in *Mycobacterium smegmatis*". Sharma S, Hameed S and Fatima Z. *Int Microbiol.* 2020, 23: 263-276.
- Harnessing metal homeostasis offers novel and promising targets against *Candida albicans*. Hameed S, Hans S, Singh S and Fatima Z. *Curr. Drug Discov. Technol.* 2020 17(4):415-428.
- Potential drug targets in mycobacterial cell wall: Non-lipid perspective." Das S, Hameed S and Fatima Z. *Curr. Drug Discov. Technol.* 2020, 17(2): 147-153.
- Monoterpenoid Geraniol improves anti-TB drug efficiency by interfering with lipidome and virulence of mycobacteria". Sharma S, Hameed S and Fatima Z. *Infect. Disord Drug Targets.* 2020, 4: 467-485.

Academic Achievements

- Association of Microbiologist of India (AMI): Life Member

Book Chapter/ Book Publications

- Saif Hameed, Suriya Rehman, Dyuti Purkait, Insha Nahvi and Zeeshan Fatima (2021) "Ecological drivers of infectious diseases." Book Chapter in book titled "Stress tolerant Microbes: Reclamation of Degraded Land and Ecosystems". Springer-Nature. Ed: Rafiq Lone. (in press)
- Zeeshan Fatima, Dyuti Purkait, Suriya Rehman, Suchitra Rai and Saif Hameed (2021) "Multidrug Resistance: A Threat to antibiotic era." Book Chapter in book titled "Biological and Environmental Hazards, Risks, and Disasters- 2nd edition". Elsevier. Ed: Ramesh Sivan Pillai. (in press)
- Dyuti Purkait, Saif Hameed and Zeeshan Fatima. (2021) "Pathogen-Omics: Challenges and Prospects in Research and Clinical Settings." Book chapter in book titled "Integrated Omics Approaches to Infectious Diseases." Springer-Nature. Eds: Saif Hameed and Zeeshan Fatima. ISBN: 978-981-16-0690-8. Pp: 521-542.
- Zeeshan Fatima, Priyanka Kumari, Suriya Rehman and Saif Hameed (2021) "Virulence traits of *Candida* spp: An Overview." Book Chapter in book titled "Recent Trends in Mycological Research". Springer-Nature. Pp: 439-455. Eds: Ajar Nath Yadav. ISBN: 978-3-030-60658-9.
- Zeeshan Fatima, Bablu Kumar, Suriya Rehman and Saif Hameed (2020) "Retrograde signaling: A novel antifungal drug target." Book Chapter in book titled "New and future developments in microbial biotechnology and bioengineering". Elsevier. Eds: Ali Asghar Rastegari, Ajar Nath Yadav, Abhishek Kumar Awasthi, Neelam Yadav. ISBN: 9780128205280. Pp: 219-226.
- Dyuti Purkait, Saif Hameed and Zeeshan Fatima (2020) "Gut microbiome: Current development, challenges and perspectives." Book Chapter in book titled "New and future developments in microbial biotechnology and bioengineering". Elsevier. Eds: Ali Asghar Rastegari, Ajar Nath Yadav, Abhishek Kumar Awasthi, Neelam Yadav. ISBN: 9780128205280. Pp: 227-241.
- Shweta Singh, Zeeshan Fatima and Saif Hameed (2020) "Plant phenolics for overcoming multidrug resistance in human fungal pathogen". Book Chapter in book titled "Plant Phenolics and their exploitation in sustainable agriculture". Springer-Nature. Eds: Rafiq Lone, Razia Shuab and Azra M. Kamli. DOI: 10.1007/978-981-15-4890-1. ISBN: 978-981-15-4889-5. Pp: 407-430.
- Saif Hameed and Zeeshan Fatima. (2020) "Response of *Mycobacterium tuberculosis* to pH stress: Promising approach to control Tuberculosis." Book chapter in book titled "Pathogenicity and Drug Resistance of Human Pathogens: Mechanisms and Novel Approaches." Springer-Nature. Eds: Saif Hameed and Zeeshan Fatima. ISBN: 978-981-329-448-6. Pp: 81-92. DOI: 10.1007/978-981-32-9449-3.
- Saif Hameed, Sharda Sharma and Zeeshan Fatima (2020) "Techniques to understand mycobacterial lipids and use of lipid based nanoformulations for tuberculosis management." Book Chapter in book titled "Nanobiomedicine". Springer-Nature. Eds: SK Saxena, SM Paul Khurana and RK Gaur. ISBN: 978-981-329-897-2. Pp: 433-451. DOI: 10.1007/978-981-32-9898-9_18
- Zeeshan Fatima, Shweta Singh and Saif Hameed (2020) "Nanophytotherapeutic potential of essential oils against *Candida*

albicans.” Book Chapter in book titled “Nanobiomedicine”. Springer-Nature. Eds: SK Saxena, SM Paul Khurana and RK Gaur. ISBN: 978-981-329-897-2. Pp: 315-331. DOI: 10.1007/978-981-32-9898-9_13

Himanshu Sharma, Saif Hameed and Zeeshan Fatima (2020) Lipidomics in human pathophysiology: Progress and prospects. Book Chapter in book titled “Advances in Medicine and Biology”. Nova Science Publishers, Inc. New York, USA. Ed: Leon V. Erhardt. ISBN: 978-1-53617-849-4.



Dr. Vaibhav Kapuria

New Connect

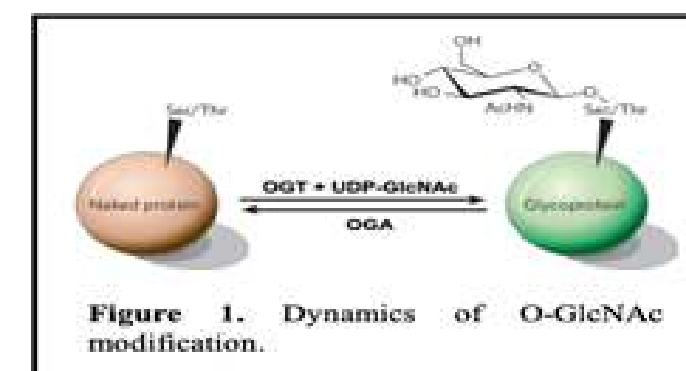
O-GlcNAc Modification – Implications in disease biology

1. Introduction

The diverse realm of post-translational modification (PTM) influences almost all aspects of normal cell biology and pathogenesis of several diseases. Therefore, identifying and understanding PTMs is critical in the study of cell biology, disease treatment and its prevention. PTMs offer a plethora of candidates for biomarker identifications, which further complement the discoveries made using proteomic and genomic approaches to identify novel therapeutic targets. In recent years, there has been an overwhelming appreciation, not just for the diversity of PTMs, but most importantly, on the interplay between them (PTM crosstalk). The overall goal of my future research projects will be focussed on understanding one such post-translational regulation of protein function - O-GlcNAcylation - and its role in human-cell proliferation and oncogenesis.

O-GlcNAcylation involves the addition of a carbohydrate O-Linked N-acetylglucosamine (O-GlcNAc) to serine and threonine residues of over 1,000 cytosolic and nuclear proteins. This PTM is catalyzed by the enzyme O-GlcNAc transferase (OGT) and its co-substrate UDP-N-acetylglucosamine (UDP-GlcNAc). Another enzyme, O-GlcNAcase (OGA), removes O-GlcNAc

from proteins (Figure 1).



In addition to its glycosyltransferase activity, OGT has recently been shown to function as a protease in the maturation of Host cell factor-1 (HCF-1), an essential transcriptional co-regulator required for cell cycle progression. Such a dual glycosyltransferase–protease activity is unprecedented, and integrates both reversible and irreversible forms of protein PTM within one enzyme. As UDP-GlcNAc is the end product of hexosamine biosynthetic pathway (HBP), O-GlcNAcylation is seen as a nutrient sensor PTM.

2. Past Research Highlights

During my post-doctoral research, I have investigated the mechanism of OGT-induced HCF-1 proteolysis by combining (a) x-ray crystallography, computational modeling and simulation, (b) mutational approaches, and (c) chemical biology approaches.

OGT-mediated HCF-1 proteolysis occurs on six centrally located 26-mer repeat sequences – HCF-1PRO repeats - at a key glutamate residue at position 10 (E10) of the HCF-1PRO repeat (Figure 2).

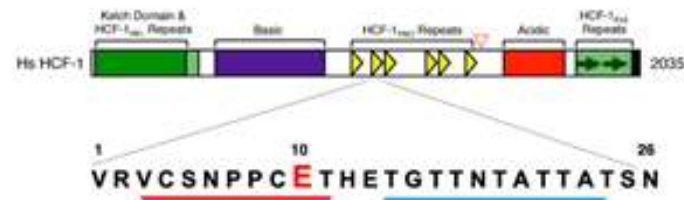
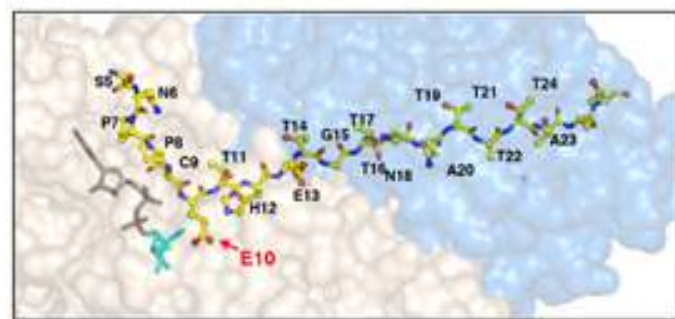


Figure 2. Domain representation of HCF-1
Co-crystallization of OGT and an HCF-1PRO repeat revealed that the HCF-1PRO repeat mimics the binding mode of a glycosylation-competent peptide by positioning the critical E10 residue at the same site as occupied by a serine glycosylation substrate (Figure 3). Indeed, an E-to-S substitution called E10S changes the HCF-1PRO repeat from a proteolytic substrate into a glycosylation substrate, indicating a very close relationship between OGT-induced proteolysis and glycosylation.

Figure 3. Interaction between HCF-1PRO (yellow) rep and OGT (tan-blue).



My research has shown that, while at first appearing very similar, glycosylation and HCF-1 proteolysis are two distinguishable conserved activities of the OGT:UDP-GlcNAc complex. Two OGT mutants of interest have already been

identified from my research. One such mutant is called Swap OGT, which retains full HCF-1 protease activity, but loses all glycosyltransferase activity. As shown in Figure 4, Swap OGT is equally capable of cleaving HCF-1 precursor compared to WT OGT but is completely deficient for any glycosyltransferase activity. Alternatively, the K396A OGT mutant retains full glycosyltransferase activity, but is deficient in HCF-1 proteolysis (Figure 4 & 5).

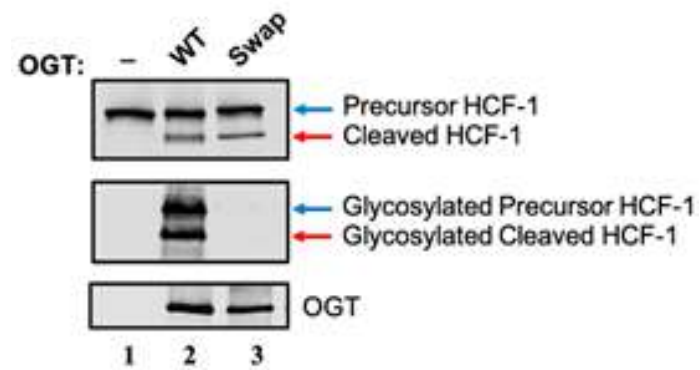


Figure 4. HCF-1 Cleavage Assay. HCF-1 substrate was incubated with either wild-type OGT (lane 2) or swap OGT (lane 3) to induce HCF-1 cleavage and glycosylation. HCF-1 cleavage and glycosylation were detected with anti-GST and anti-O-GlcNAc antibody.

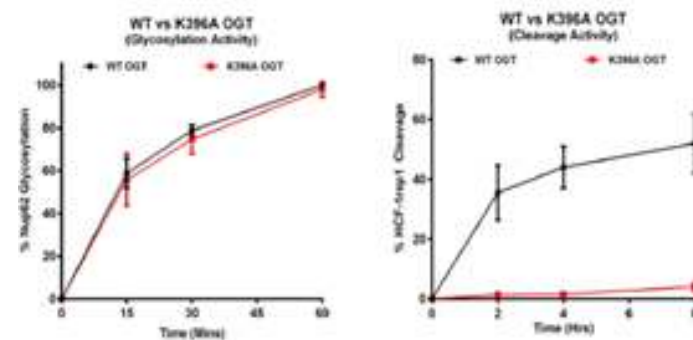


Figure 5. Graph depicting glycosylation (left) and HCF-1 cleavage (right) activities of wild-type and K396A OGT.

Additionally, my research has also shed light on unique catalytic mechanism of OGT. I have shown that depending on the substrate, OGT can choose to use either the alpha-phosphate Oxygen atom of sugar donor UDP-GlcNAc or amino acid residue D554 on its catalytic domain to catalyse the O-glycosylation event. Importantly, we have shown, as a proof of principle, that OGT can cleave heterologous proteins also, provided they contain a glutamate at residue location 10 of their glycosylation site and a functional interactive Threonine-rich region (blue bar in figure 2).

3. Future Research

As UDP-GlcNAc is the end product of hexosamine biosynthetic pathway (HBP), O-GlcNAcylation is seen as a nutrient sensor PTM. Cancer cells are known to reprogram their glucose metabolism and energy production from oxidative phosphorylation to aerobic glycolysis, an effect termed as the Warburg effect. Hyper O-GlcNAcylation is rapidly emerging as a general characteristic of most cancer types, owing to cancer-associated metabolic reprogramming. Additionally, elevated protein levels of OGT and decreased levels of OGA have been observed in most cancers examined. However, potential mechanistic links between (i) hyper-O-GlcNAcylation and the underlying cancer cell altered metabolism, and (ii) its role in promoting oncogenesis are still lacking. The aim of my future research is to uncover mechanisms of cancer cell proliferation and metabolic deregulation, and I propose to advance this aim by continuing my studies on OGT and O-GlcNAcylation. My future research will combine cancer biology, biochemistry, and cell biology to gain a better understanding of OGT's different activities, which are critical for assessing its potential as a therapeutic target.

4. Relevant Publications

- I. V. Kapuria et al., Proteolysis of HCF-1 by Ser/Thr glycosylation-incompetent O-GlcNAc transferase:UDP-GlcNAc complexes. *Genes Dev* 30,960-972 (2016).
- II. V. Kapuria et al., The conserved threonine-rich region of the HCF-1PRO repeat activates promiscuous OGT:UDP-GlcNAc glycosylation and proteolysis activities. *J Biol Chem* 293, 17754-17768 (2018).
- III. K. Rafie et al., Recognition of a glycosylation substrate by the O-GlcNAc transferase TPR repeats. *Open Biol* 7, (2017).
- IV. M. B. Lazarus et al., HCF-1 is cleaved in the active site of O-GlcNAc transferase. *Science* 342,1235-1239 (2013).

5. Potential Collaborators

- I. Prof. Shilpi Minocha, Assistant Professor, Kusuma School of Biology, IIT-Delhi. Area of expertise – HCF-1 biology and its role in regeneration.
- II. Prof. Daan Van Aalten, Professor, University of Dundee, Scotland UK. Area of expertise – OGT and O-GlcNAcylation.
- III. Prof. Rajesh Ramachandran, Associate Professor, IISER Mohali, Area of expertise – Regenerative biology.



Dr. Chandramani Pathak

New Connect

Programmed Cell Death Signaling in Cancer

Ph.D. Guided: 05

Research Grant Completed: 06

Collaborators

- Dr. Rakesh K. Sharma, The M.S. University Baroda
- Dr. Ajay Kumar, Department of Zoology, BHU, Varanasi
- Prof. M.N. Patel, SP University, Anand, Gujarat
- Dr. Bhupesh Bhatt, SP University, Anand, Gujarat
- Dr. Sarika Gupta, NII, New Delhi

Research Interest

1. Programmed cell death signaling in Cancer

Our research is focused on unraveling the molecular mechanism and cross talk between multiple cellular process including oxidative stress, metabolism, inflammation and programmed cell death signaling in cancer. Each cell has complex cellular machinery and signaling networks to regulate various cellular process in defined manner. Dysregulation of cellular machinery and signaling leads to various pathological consequences. Therefore, it is important to find out a new molecular target and explore the cellular and molecular mechanism, which can control to define fate of cell. We are

trying to explore possible molecular mechanism and targeting to regulate critical regulators of programmed cell death signaling (apoptosis, autophagy and necroptosis) in cancer cells.

2. Nanoparticle based drug delivery in cancer cells:

Cancer is the second leading cause of death worldwide. The recent advances in cancer therapy include surgery, chemotherapy, radiotherapy and immunotherapy exhibits adverse side effects along with systemic toxicities and drug resistance. Therefore, there is a constant need of alternative therapies to battle with cancer. Since decades several molecules and natural derivatives have been identified with broad spectrum biological properties but could not be used as a anti-cancer drug due to poor bioavailability including limited solubility, systemic toxicity, renal clearance, metabolic degradation and impermeability in crossing the blood brain and intestinal barriers. Recent advances in Nanotechnology have paved the way for therapeutic potential using different strategies and pharmacological manipulation. We are also focusing our research on nanoparticle-based drug delivery and exploring their molecular mechanism for induction of cell death in cancer cells for therapeutic intervention.

Publications

1. Bharat H. Pursuwani, Bhupesh S. Bhatt, Dilip B. Raval, Vasudev R. Thakkar, Jyoti Sharma, Chandramani Pathak & Mohan N. Patel (2021) Synthesis, characterization, and biological applications of pyrazole moiety bearing osmium(IV) complexes, *Nucleosides, Nucleotides & Nucleic Acids*, 40:6, 593-618, DOI: 10.1080/15257770.2021.1921795
2. Mayur P. Parmar, Bhargav N. Waghela, Foram U. Vaidya, Chandramani Pathak, Dipak V. Parmar (2021) "Evaluation of Antimitotic Activity of Herbal Extracts Using Plant-Based Model Systems and Their Cytotoxic Potential against Human Colon Carcinoma Cells", *Journal of Cancer Research and Therapeutics*, DOI: 10.4103/jcrt.JCRT_853_19.
3. Reena R. Varma, Juhee G. Pandya, Foram U. Vaidya, Chandramani Pathak, Ravi A. Dabhi, Milan P. Dhaduk, Bhupesh S. Bhatt, Mohan N. Patel (2021) DNA interaction, anticancer, antibacterial, ROS and lipid peroxidation studies of quinoxaline based organometallic Re(I) carbonyls, *Journal of Molecular Structure*, DOI: <https://doi.org/10.1016/j.molstruc.2021.130529>.
4. Bhargav N. Waghela, Foram U. Vaidya, Chandramani Pathak (2021) Upregulation of NOX-2 and Nrf-2 promotes 5-Fluorouracil-resistance of human colon carcinoma (HCT-116) cells. *Biochemistry (Moscow)*. DOI. 10.1134/S0006297921030044
5. Divyang H. Gandhi, Foram U. Vaidya, Chandramani Pathak, Tushar N. Patel & Bhupesh S. Bhatt (2021) Mechanistic insight of cell anti-proliferative activity of fluoroquinolone drug-based Cu(II) complexes. *Mol Divers*. <https://doi.org/10.1007/s11030-021-10199-2>
6. Bharat H. Pursuwani, Bhupesh S. Bhatt, Foram U. Vaidya, Chandramani Pathak & Mohan N. Patel (2021) Fluorescence, DNA Interaction and Cytotoxicity Studies of 4,5-Dihydro-1H-Pyrazol-1-Yl Moiety Based Os(IV) Compounds: Synthesis, Characterization and Biological Evaluation. *J Fluoresc*. <https://doi.org/10.1007/s10895-020-02657-1>
7. Bhargav N. Waghela, Foram U. Vaidya, Yashika Agrawal, Manas Kumar Santra, Vinita Mishra, Chandramani Pathak (2021) Molecular Insights of NADPH Oxidases (NOX) and Its Pathological Consequences. *Cell Biochemistry and Function*. 39 (2), 218-234.
8. Reena R. Varma, Juhee G. Pandya, Jyoti Sharma, Chandramani Pathak & Mohan N. Patel (2021) DNA interaction, in vivo and in vitro cytotoxicity, reactive oxygen species, lipid peroxidation of -N, S donor Re(I) metal complexes. *Molecular Diversity*, 25: 687-699 DOI <https://doi.org/10.1007/s11030-020-10040-2>.
9. Bharat H. Pursuwani, Bhupesh S. Bhatt, Foram U. Vaidya, Chandramani Pathak & Mohan N. Patel (2020) Synthesis, Characterization, and Biological Evaluation of Osmium (IV) Pyrazole Carbothioamide Complexes, *Polycyclic Aromatic Compounds*, DOI: 10.1080/10406638.2020.1852581
10. Pradip Kumar Jaiswara, Vishal Kumar Gupta, Pratishtha Sonker, Shiv Govind Rawat, Rajan Kumar Tiwari, Chandramani Pathak Santosh Kumar Ajay Kumar (2021) Nimbolide induces cell death in T lymphoma cells: Implication of altered apoptosis and glucose metabolism. *Environmental Toxicology* <https://doi.org/10.1002/tox.23067>
11. Bhargav N. Waghela, Foram U. Vaidya, Abu Sufiyan Chhipa, Kishu Ranjan, Budhi Sagar

- Tiwari, Chandramani Pathak (2021) AGE-RAGE synergy influences Programmed Cell death signaling to promote cancer. *Molecular and Cellular Biochemistry*. 476 (2), 585-598, DOI: 10.1007/s11010-020-03928-y
12. Bharat H. Pursuwani, Bhupesh S. Bhatt, Foram U. Vaidya, Chandramani Pathak & Mohan N. Patel (2021) Tetrazolo[1,5-a]quinoline moiety-based Os(IV) complexes: DNA binding/cleavage, bacteriostatic and photocytotoxicity assay, *Journal of Biomolecular Structure and Dynamics*, 39 (8), 2894-2903, DOI: 10.1080/07391102.2020.1756912
 13. Kishu Ranjan, Bhargav N Waghela, Foram U Vaidya and Chandramani Pathak (2020) Cell penetrable peptide conjugated FADD induces apoptosis and regulates inflammatory signaling in cancer cells. *Int. J. Mol. Sci.* 2020, 21, 6890; doi:10.3390/ijms21186890.
 14. Foram U. Vaidya, Abu S. Chhipa, Vinita Mishra, Vishal Kumar Gupta, Shiv Govind Rawat, Ajay Kumar, Chandramani Pathak (2020) Molecular and Cellular Paradigms of Multidrug Resistance in Cancer. *Cancer Reports*. DOI: 10.1002/cnr2.1291
 15. Reena Varma, Juhee Pandya, Foram Vaidya, Chandramani Pathak, Bhupesh Bhatt, Mohan Patel (2020) Biological activities of pyrazoline-indole based Re(I) carbonyls: DNA interaction, antibacterial, anticancer, ROS production, lipid peroxidation, in vivo and in vitro cytotoxicity studies. *Chemico-Biological Interactions*. doi.org/10.1016/j.cbi.2020.109231.
 16. Reena R. Varma, Juhee G. Pandya, Foram U. Vaidya, Chandramani Pathak, Bhupesh S. Bhatt and Mohan N. Patel (2020) Synthesis, Characterization and Biological Application of Ppyrazolo[1,5-a]pyrimidine Based Organometallic Re(I) Complexes. *Acta Chimica Slovenica*. DOI: 10.17344/acsi.2020.6017
 17. Bhargav N. Waghela, Foram U. Vaidya, Gaurav Dave, and Chandramani Pathak (2020) Inhibition of NADPH oxidase activity augments 5-fluorouracil mediated cell Death in human colon carcinoma cells, *Int. J. Adv. Res.* 8(07), 865-874.
 18. Khushbu Priyadarshi, Kavita Shirsath, Bhargav Waghela, Anupama Sharma, Ajay Kumar, Chandramani Pathak (2020) Surface modified PAMAM Dendrimers with Gallic acid inhibits, cell proliferation cell migration and inflammatory response to augments apoptotic cell death in human colon carcinoma cells. *Journal of Biomolecular Structure & Dynamics*. <https://doi.org/10.1080/07391102.2020.1802344>
 19. Nikita J. Patel, Bhupesh S. Bhatt, Pankaj A. Vekariya, Foram U. Vaidya, Chandramani Pathak, Juhi G. Pandya, and Mohan N. Patel (2020) Synthesis, characterization, structural-activity relationship and biomolecular interaction studies of heteroleptic Pd(II) complexes with acetyl pyridine scaffold. *Journal of Molecular Structure* <https://doi.org/10.1016/j.molstruc.2020.128802>
 20. Bharat H. Pursuwani, Bhupesh S. Bhatt, Foram U. Vaidya, Chandramani Pathak and Mohan N. Patel (2020) Oxadiazole based Os(IV) compounds as potential DNA intercalator and cytotoxic agents. *Inorganic Chemistry Communications*. <https://doi.org/10.1016/j.inoche.2020.108070>
 21. Pooja Doshi, Poonam Bhargava, Vijai Singh, Chandramani Pathak, Chaitanya Joshi, Madhvi Joshi (2020) Escherichia coli strain engineering for enhanced production of

- serratiopeptidase for therapeutic applications. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2020.05.256>
22. Bhupesh S. Bhatt, Divyang H. Gandhi, Foram U. Vaidya, Chandramani Pathak & Tushar N. Patel (2020) Cell apoptosis induced by ciprofloxacin based Cu(II) complexes: Cytotoxicity, SOD mimic and antibacterial studies, *Journal of Biomolecular Structure and Dynamics*, DOI: 10.1080/07391102.2020.1776641.
 23. Darshana N. Kanthecha, Bhupesh S. Bhatt, Dilip B. Raval, Vasudev R. Thakkar, Foram U. Vaidya, Chandramani Pathak, Mohan N. Patel (2020) Bipyrazole based novel bimetallic μ -oxo bridged Au(III) complexes as potent DNA intercalative, genotoxic, anticancer, antibacterial and cytotoxic agents. *Journal of Inorganic and Organometallic Polymers and Materials*. DOI: <https://doi.org/10.1007/s10904-020-01618-2>

Member of Scientific Societies:

- Executive Committee & Life Member of Indian Society of Translation Research (2018-Conti)
- Executive Committee & Life Member of Indian Society of Cell Biology (2017-2019)
- Executive Committee & Life Member of Society of Inflammation Research, India
- Life member of Indian Academy of Biomedical Science
- Life member of Indian Society of Cell Biology.
- Life member of Society of Biological Chemist, India.
- Life member of Indian Association for Cancer Research
- Life member of Society for Free Radical Research, India

- Life member of Indian society of Chemists and Biologists.
- Life Member of Society of Mitochondrial Research & Medicine, India
- Life Member of Indian Society of Nanomedicine.
- Life Member of Biotechnology Research Society of India

Editorial Board Member

- Current Drug Metabolism
- Frontiers in Oncology
- Frontier in Cancer Genetics
- International Journal of Immunology Research
- Indian Journal of Pathology & Microbiology.

Book Chapter/ Book Publications

- Chandramani Pathak, Foram U. Vaidya, Bhargav N. Waghela, Abu Sufiyan Chhipa, Budhi Sagar Tiwari and Kishu Ranjan (2021) Advanced glycation end products mediated oxidative stress and regulated cell death signalling in cancer; Sajal Chakraborty (Eds) *Handbook of Oxidative Stress in Cancer: Mechanistic Aspects*. 1-16, Springer-Nature, DOI: 10.1007/978-981-15-4501-6_44-1, ISBN 978-981-15-4501-6
- Foram U. Vaidya, Abu Sofiyan Chhipa, Nibha Sagar and Chandramani Pathak (2020) Oxidative stress and inflammation can fuel cancer; In Maurya et al. (Eds) *Role of oxidative stress in pathophysiology of disease*. Springer, Singapore. ISBN: 978-981-15-1567-5
DOI: https://doi.org/10.1007/978-981-15-1568-2_14.



PI: Dr. Atanu Banerjee
AIB, AUH



CO-PI: Dr. Rajendra Prasad
AIB, AUH



CO- PI: Prof. Andrew M.
Lynn

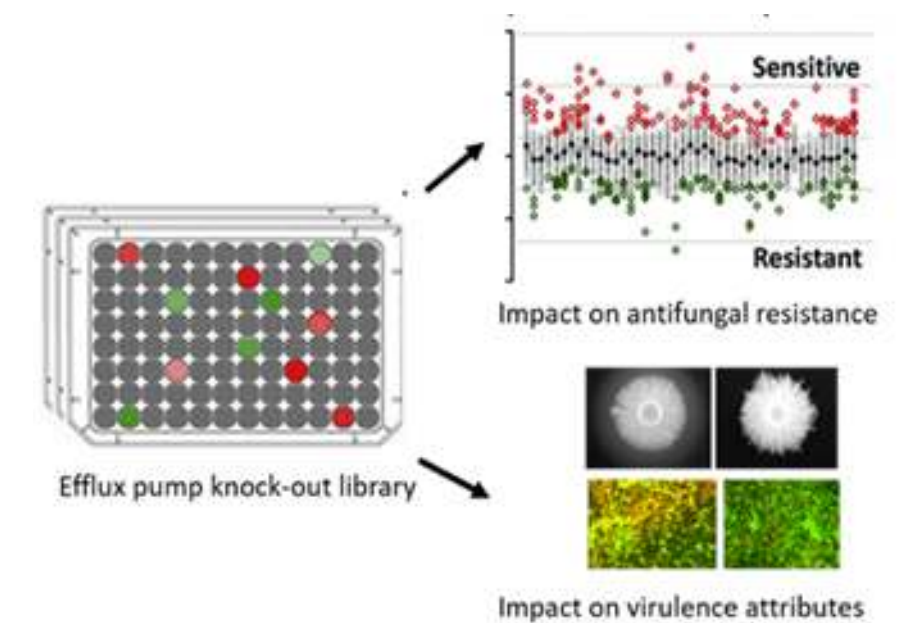
Insights into the efflux pump arsenal of the emerging pathogen *C. auris* and its implication in high order of antifungal resistance and virulence

Funding Agency: DBT

Amount: 56 Lakhs13.50Lacs

SUMMARY

- Construction of mini-library of disruptants of select ABC (belonging to PDR sub-family) and MFS (belonging to DHA1 family) transporters in *C. auris* employing in house fusion PCR.
- Drug Susceptibility profiling and drug transport measurements of deletants of *C. auris* to map the substrate repertoire of select *C. auris* ABC/MFS transporter proteins.
- Impact of ABC/MFS gene deletions on pathogenesis of *C. auris*.
- Transcriptomic landscape of select transporter deletants to unravel alternative roles and crosstalk with signaling cascades involved in antifungal resistance.





PI:
Dr. Arunaloche Chakrabarti
PGIMER, Chandigarh



CO-PI:
Dr. Rajendra Prasad
AIB, AUH



CO- PI:
Dr. Kaustuv Sanyal,
JNCASR, Bangalore



CO- PI:
Dr. S.M. Rudramurthy
PGIMER, Chandigarh

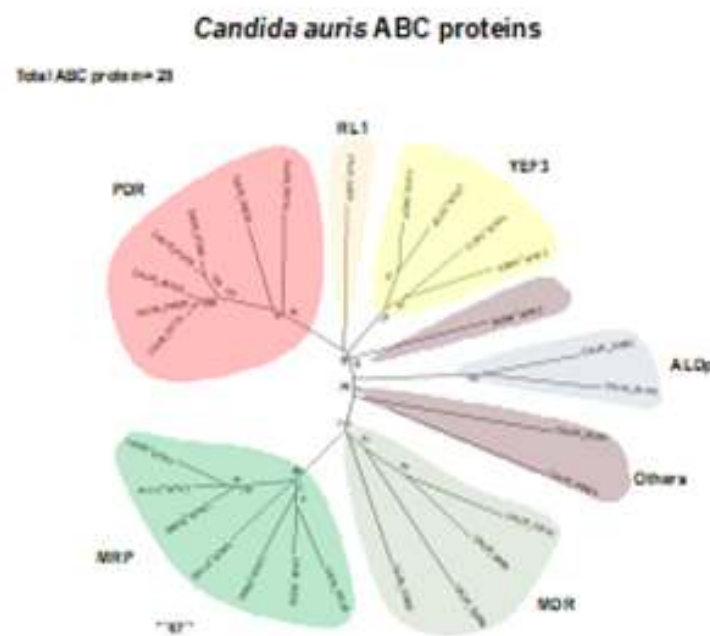
Mechanism, Evolution And Pharmacology Of Multidrug Resistance In The Emerging Fungal Pathogen Candida Auris Among Indian Cohort Of Patients

Funding Agency: DBT

Amount: 2.88 Cr

SUMMARY

- Whole genome sequencing of azole and echinocandin sensitive and resistant/non-susceptible isolates.
- Detection of genome changes in *C. auris* contributing to resistance against azoles and echinocandins
- Detection of chromosomal changes in *C. auris* contributing to resistance against azoles and echinocandins
- Detection of changes at the gene level (mutations in the known drug resistance-related genes, single nucleotide polymorphisms (SNPs), copy number variations (CNVs), loss of heterozygosity (LOH) events, insertions, and deletions (Indels))
- Transcriptomics to evaluate global gene expression patterns in azole/echinocandin susceptible and resistant *C. auris* isolates



PI- Avinash Bajaj
RCB, Faridabad



CO-PI: Dr. Rajendra Prasad
AIB, AUH



CO- PI: Ujjaini Dasgupta
AIB, AUH

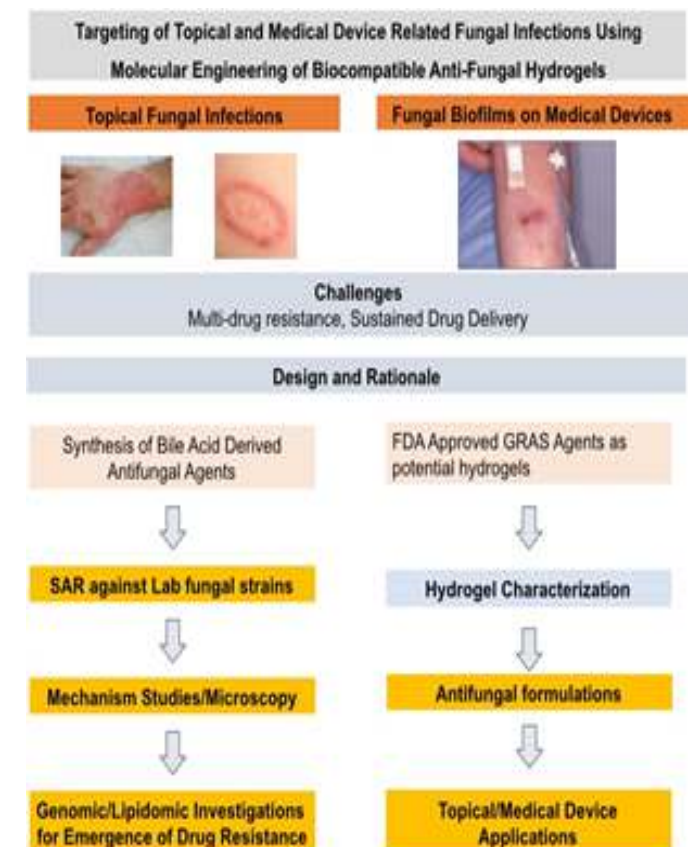
Combating Topical And Medical Device Related Multidrug Resistant Fungal Infections Using Molecularly Engineered Anti-Fungal Hydrogels

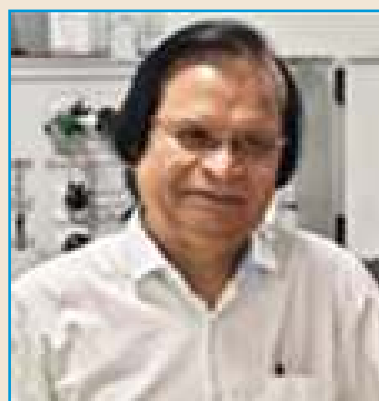
Funding Agency: DBT

Amount: 1,72 Cr.

SUMMARY

This project proposal aims to design and engineer membrane targeting amphiphiles and amphiphile-drug conjugates (ADCs); followed by their nanoformulations for combating topical and medical device related fungal infections. Synthesized amphiphiles and ADCs will be tested for their antifungal activities against different drug-sensitive and drug-resistant laboratory and clinical fungal strains. Most potent amphiphile/ADC will then be investigated for their activity against biofilms, and intracellular fungal infection. In-depth mechanistic studies like membrane permeabilization, microscopy (TEM/AFM), genomic, and lipidomic profiling will be undertaken to decipher the mechanism of action of these amphiphiles/ADCs; and ability of the fungal strains to develop drug resistance. We will then engineer hydrogel based nanoformulations from these amphiphiles, and investigate their antifungal activity against medical device related and topical fungal infections in murine models.





CO-PI: Dr. Rajendra Prasad
AIB, AUH



PI: Slawomir Milewski,
Gadansk Technical University, Poland

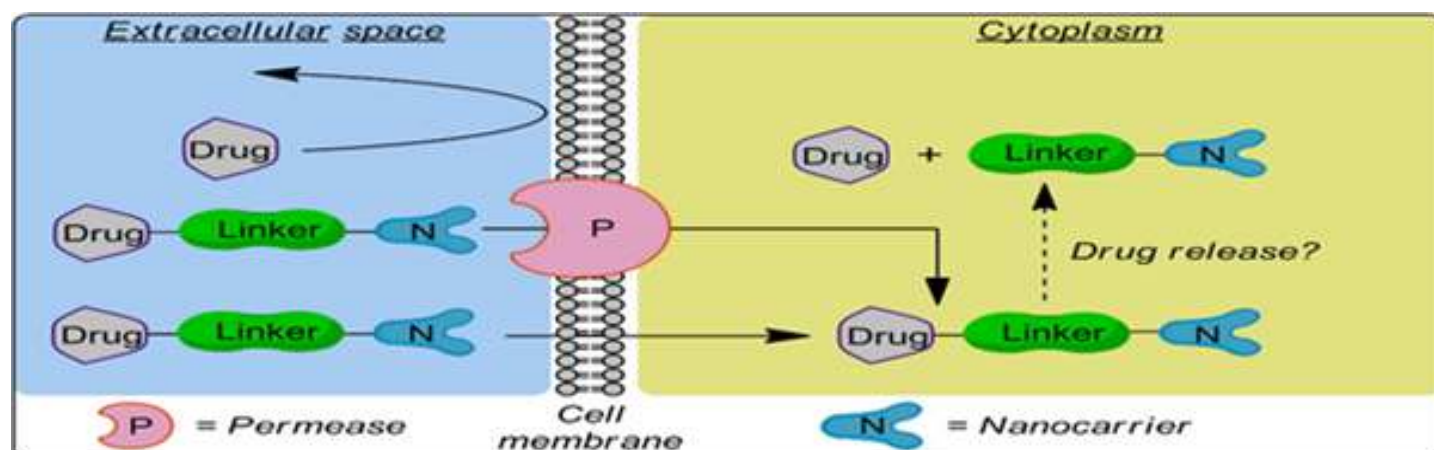
Novel Potential Antifungal Drugs Active Against Multidrug Resistant Yeasts From The Candida Genes

Funding Agency: DST (INDO-POLAND)

Amount: 26 Lakhs

SUMMARY

Commonly used azoles are fungi statics rather than fungicidal to Candida cells. As a result this tolerance to azoles contributes to the development frequently encountered resistance in the clinical isolates in immuno compromised patients. Therefore, efficacy of azoles is threatened by shifting population of pathogenic fungi towards the intrinsically tolerant species since the cells are allowed to persist and the immune function is not sufficient to clear the residuals fungal cells. Our main focus is to explore and develop new inhibitors from various sources, which could block growth of Candida cells. These compounds, including a Glutamine analog known as FMDP, which exhibits antifungal activity albeit, low potency due to its poor uptake by fungal cells. The novel strategy is based on conjugates of FMDP with Hydrophobic nanocarriers other than oligopeptides, stable in serum, ensuring efficient internalization in fungal cells and release of FMDP inside the cells.



CO-PI: Dr. Rajendra Prasad
AIB, AUH



PI: Dr. Dmitry Knorre
Moscow State University, Moscow

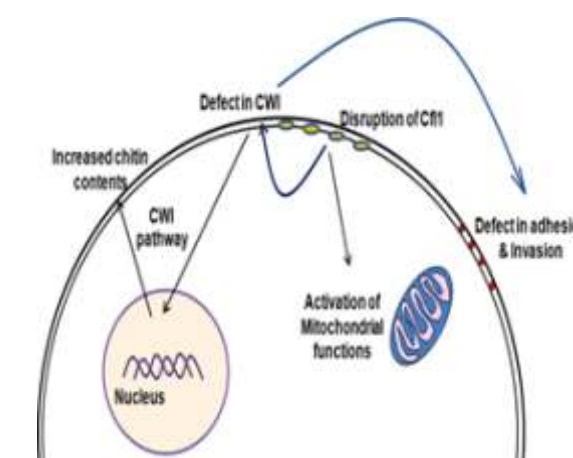
Unraveling the links between bioenergetics constraints, cell wall integrity, and multidrug resistance in fungi

Funding Agency: DST (Indo-Russian)

Amount: 24 Lakhs

SUMMARY

It is proposed to evaluate the metabolic and bioenergetics constraints of yeast cells with activated multiple drug resistance by employing both pathogenic and non-pathogenic yeasts as model. We suggest that the cells with up regulated pleiotropic drug resistance (PDR) pumps can face a significant energy deficit under certain conditions. Indeed, the activity of ABC-transporter pumps requires ATP hydrolysis. At the same time, molecules with high hydrophobicity can quickly return to the cells after extrusion. Thus, under energy-limiting conditions the activity of the PDR pumps can be deleterious to the cells. Therefore, we plan to study a trade-off between the bioenergetics and drug-resistance efficiency in the cells. The main goal of our project is to find the boundaries (extent) of this trade-off and, if possible, to find the ways to suppress the growth of fungal cells with up regulated multidrug resistance mechanism by taking advantage of high energy cost of such resistance. As far as mild deterioration of mitochondrial functioning can activate PDR-genes and cell wall (CW) integrity pathway, we also plan to study the regulatory link between mitochondrial dysfunction, MDR and CW-integrity pathway.





CO-PI: Dr. Rajendra Prasad
AIB, AUH



CO- PI:
Alok Mondal (JNU, New Delhi)

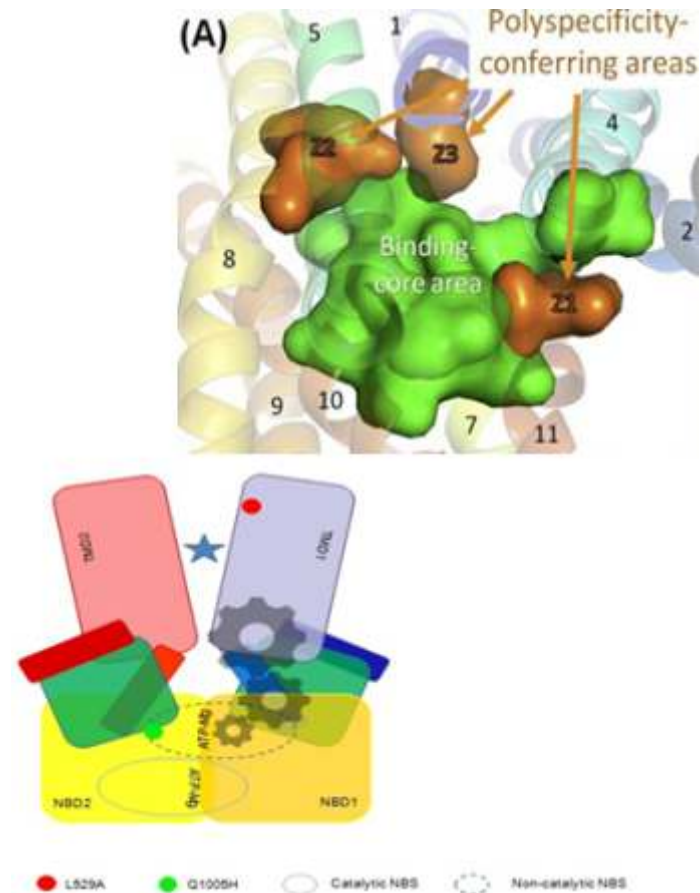
Insight Into The Mechanism Of Drug Transport
Mediated By Multidrug Transporters Of Candida

Funding Agency: DST (INDO-POLAND)

Amount: 74.72 Lakhs

SUMMARY

Both CDR1 & MDR 1 are major multidrug transporter involved in clinical drug resistance. The exposure of Candida Cells to antifungal therapy resulting over expression of their encoding genes, leading to reduced drug efflux and multidrug resistance population in the current project, the structure and function of these efflux pumps protein will be determined to understand the basic mechanism of drug export to develop novel inhibitor, which could block the extrusion to re-sensitize the cells.



PI:
Rakesh Bhatnagar,
BHU/JNU, New Delhi



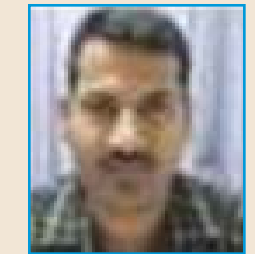
CO-PI:
Dr. Rajendra Prasad
AIB, AUH



CO- PI:
Bikul Das, IIT,
Guwahti



CO- PI:
Dr. Sanjukta Patra



CO- PI:
Dr. Shankar Prasad Kanujia

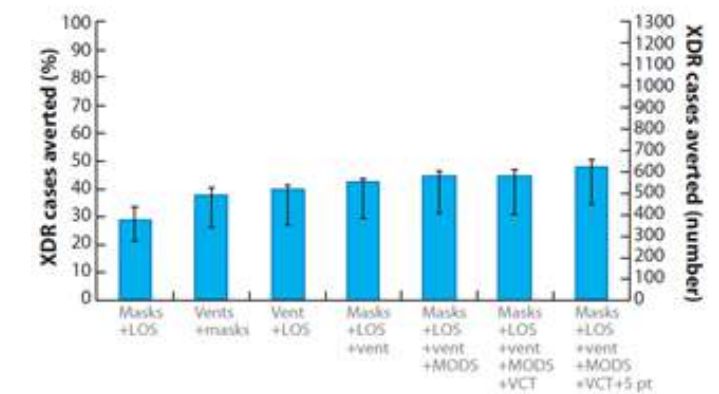
Study Of In-Depth Genetic Heterogeneity With Respect To Resistome And
Compensatory Adaption Of MDR Mtb Clinical Strains Inside BM-Mesenchymal
Stem Cells Circulating In The North-East Region

Funding Agency: DST

Amount: 3.98 Cr.

SUMMARY

Tuberculosis remains a major health concern in Northeastern (NE) region. In depth analysis of M. tuberculosis (Mtb) strains prevalent in NE region could provide vital information towards its diagnosis and prognosis. We have found presence of dormant Mtb in the sputum samples and bone marrow mesenchymal stem cells (BM-MSCs) in the NE region patients. In this proposal, we aim to perform whole genome sequencing studies on Mtb from sputum samples and BM-MSCs to discover novel mutations in Mtb strains prevalent in the region as well as to explore stem cell niche for MDR Mtb. Using these datasets, we will carry out resistome identification, characterization and drug screening for novel downstream targets involved in drug resistance, and compensatory mutations of Mtb strains identified in the NE region for therapeutic application. This study will provide novel therapeutic insights for MDR-Mtb in NE and the role of BM-MSCs in MDR evolution and novel ways





CO-PI: Dr. Rajendra Prasad
AIB, AUH



CO- PI: Dr. Alok Kumar Mondal,
SLS, JNU



CO- PI: Dr. Ravi Datta Sharma,
AIB, AUH

Alternate Splicing In Clinical Drug Resistance In Pathogenic Candida

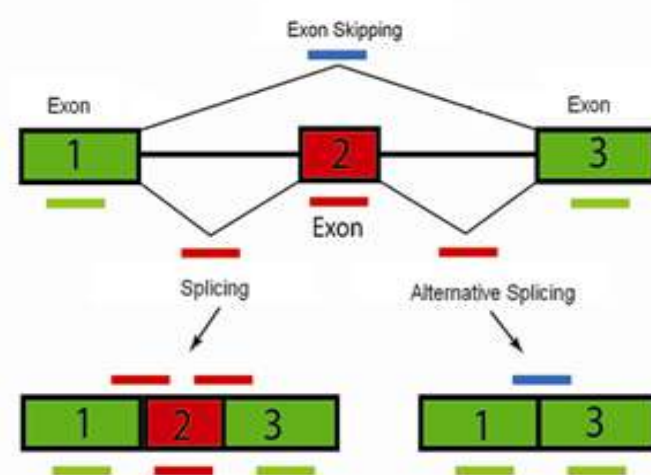
Funding Agency: DBT

Amount: 35 Lakhs

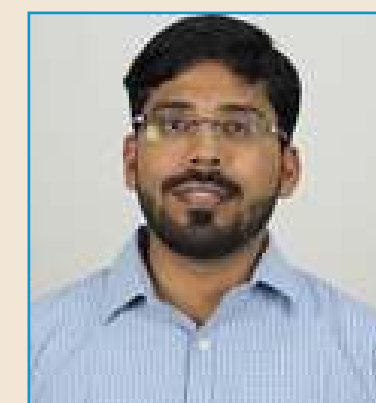
SUMMARY

The emerging new species of *Candida*, the limited available arsenals of antifungals and emergence of multidrug resistance (MDR), has limited our strategies in combating fungal infections. While in majority of the cases, the target alteration, overexpression of target genes and restrictions of entry and extrusion of drugs are common strategies adopted by the pathogen, there are several recent reports suggesting yet host of novel strategies employed by the pathogen to develop drug tolerance. The drug efflux mediated by major drug transporters is among the predominant factors which contribute to MDR in *Candida albicans*. Others and we have shown that the resistance of the human fungal pathogen *C. albicans* to azole antifungals is often caused by increased expression of genes encoding these multidrug efflux pumps. Considering the multifacial nature of drug emergence and transcriptional regulation of several genes

associated with it, the present project focuses on to explore the role of alternate splicing in the development of drug tolerance. Notably, *C. albicans* genome posses approximately 4% genes that contain introns and in most of the cases, a single intron is present in a gene. Whether alternate gene splicing has a role in the development of drug tolerance in *C. albicans* is worth exploring.



CO-PI: Dr. Rajendra Prasad
AIB, AUH



CO- PI: Dr. Atanu Banerjee
AIB, AUH



CO- PI: Dr. Ashutosh Singh
Lucknow University

A Mass Spectrometric Approach to Unravel the Landscape of Sphingolipids as Major Signaling Determinants of Drug Resistance and Virulence in Emerging Human Fungal Pathogen *Candida auris*

Funding Agency: DBT

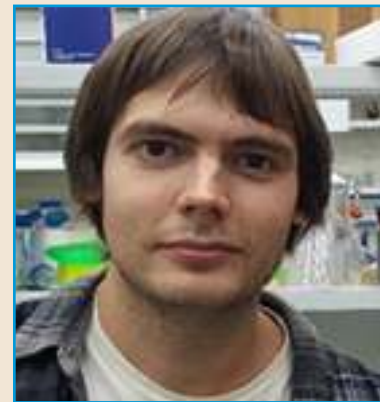
Amount: 83.36 Lakhs

SUMMARY

Considering high appearance of drug resistance displayed by *Candida auris*, it is vitally important to probe into alternate strategies that could be employed by this newly emerged pathogenic yeast. In this regard, lipids and particularly sphingolipids (SLs) stand out good candidates demanding closer look. SL biosynthetic intermediates act as signal cues impacting drug susceptibility and various cellular functions such as virulence. SLs being structurally different and hence, novel drug development targets. Based on our preliminary observation of higher susceptibility of *C. auris* against SLs metabolic inhibitors, we posit to discover distinct drug resistant signatures of this important class of lipids. For this, we will not only perform high throughput analysis of SLs in resistant isolates but also of genetically disrupted generated mutants of SLs pathway. Together, we will be able to discover novel strategies governing drug resistance and virulence



PI: Dr. Amit K. Pandey
AIB, AUH



CO-PI: Dr. Marat Pavlyukov
Russia



CO- PI: Dr. Faruq Mohammed,
IGIB, India

Unraveling the molecular mechanism of lncRNAs involvement in Glioblastoma

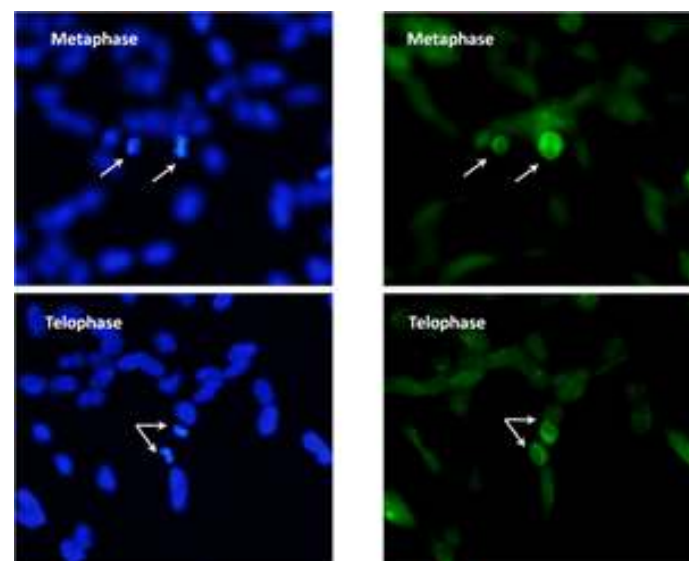
Funding Agency: DST-RSF, Indo-Russia

Amount: 1.4 Cr

SUMMARY

It has become clear in post-genomic era that non-coding RNAs comprise significant part of genome coding space. These RNAs can be broadly divided into two large groups based on their length. Both short and long non-coding RNAs can be detected, sometimes in significant amounts, in different tissues inside and outside of normal and tumor cells. Genomic and functional studies revealed that short RNAs microRNAs or miRs, serve as diverse and mobile regulators of key cellular processes. Moreover, some miRs can be secreted outside of cells as part of extracellular vesicles and transferred to target cells to exchange information between different cells.

Long non-coding RNAs (lncRNAs) are less characterized despite the fact they are also involved in key cellular functions. There are few lncRNAs with attributed functions, but it is clear that, similar to miR, lncRNA are involved in regulation of cell proliferation, migration and other important functions, such as communication between cells



Detection of lncRNA in human glioblastoma stem cells using FISH. (A) FISH staining (green) of lncRNA in two glioblastoma cell lines (PN-84; MES-83), (B) lncRNA visualization in interphase and mitotic (shown with arrows) cells.



AMITY BUSINESS SCHOOL

INTRODUCTION



Amity Business School (ABS) under the Faculty of Management Studies and Behavioral Sciences is a part of Amity University Haryana, Gurugram, which has been established under Haryana Act 10 of 2010 on April 26, 2010. The institute is accredited by Accreditation Service for International Colleges (ASIC), UK; an international body for educational standards assessment, UK and Accreditation Council for Business Schools and Programs (ACBSP), USA, a prestigious international accreditation body of USA, and a global premier destination in the field of business management.

The Institute provides students an ambience to learn, grow and mature into leaders capable of shouldering responsibilities of future. ABS has carved out a niche by presenting itself as a professionally-managed, well-equipped and value-driven management institute. With a proven capability to continuously upgrade its knowledge base, it emphasizes on bridging the gap between the knowledge imparted in classrooms and employable skills with necessary competence that the corporate sector seeks and desires. The unique teaching pedagogy fosters the spirit of innovation and leadership which emphasizes on developing competence among the students through acquisition of specialized knowledge and skills. With the help of business simulation tools, the

students get a comprehensive immersion experience in competitive and complex world of business and the opportunity to experience managing a complete business. Besides this, the students are required to undertake projects that require close interaction with the industry.. The institute offers Under Graduate, Post Graduate and Doctoral programmes in various functional areas of business and management.

The faculty comprises a team of specialists and professionals, each excelling in their respective area of specialization such as Strategic Management, Leadership Excellence, Performance Management and Compensation, Operation Research, Business Research, Economics, Human Resources Management, Accounting for Management, Financial Management, Security Analysis and Portfolio Management, Business Law, Marketing Management, Brand Management, E-Commerce, Information Technology, Business Analytics, Operations, Supply Chain Management, International Economics, Labour Economics, Public Finance, Health Economics, Public Financial Administration Econometrics and Statistics for Economics. Eminent experts from the industry are also invited regularly to visit Amity Business School as visiting faculty or distinguished guests to interact with students which further supplement faculty inputs.

ABS has become synonymous with talent, commitment & wisdom and focuses on developing a new cadre of professionals with a global outlook. It is at ABS that future managers develop a global perspective on social, political, economic and legal environment, as it prevails across the world. Constant interaction with eminent experts from the industry helps its students to develop their expertise in dealing with various issues effectively.

LEADERSHIP & FACULTY



Prof (Dr) Vikas Madhukar
Dy. Pro Vice Chancellor
Dean FMS
Director Amity Business School

The Institution is headed by Prof (Dr) Vikas Madhukar. He possesses about 20 years of experience in teaching, training, and academic administration at leadership position. He looks after the overall academic administration of the institute which includes academic scheduling & curriculum management, faculty and staff management, culture building, Resource mobilization & management, industry interaction, pedagogic innovation, support to faculty, encourage research and team work, accreditation and ranking, statutory compliance, training and maintain discipline and harmony among the faculty, staff, and students.

The Faculty at ABS is highly competent in their respective field and many research contributions in reputed National and International Journals. The existing faculty strength is Nineteen.

FACULTY

- Prof. (Dr.) Vikas Madhukar, Professor
- Dr Bhavana Adhikari, Professor
- Prof. (Dr.) Hemant Sharma, Professor
- Prof. (Dr.) Ashutosh Kumar, Professor
- Prof. (Dr.) A.M Jose, Professor
- Dr Rumki Bandopadhyay, Associate Professor
- Dr Tanushree Purohit, Associate Professor
- Dr. Ranjana Kothari, Associate Professor
- Dr. Ajay Kumar Pandey, Associate Professor
- Dr Saba Jafri, Assistant Professor
- Dr Niti Chatterji, Assistant Professor
- Dr Savita Maan, Assistant Professor
- Dr. Pooja Jaiswal, Assistant Professor
- Dr. Vani Aggarwal, Assistant Professor
- Dr Faraz Ahmad, Assistant Professor
- Mr. Ankit Dhamija, Assistant Professor
- Ms. Geeta Ravish, Assistant Professor
- Ms. Jyoti Koul, Assistant Professor



University Performance, Intellectual capital, Human capital, Organizational capital, Relational capital

Dr. Niti Chatterji

Research Interest

My area of research has been higher education with the objective of establishing a relationship between intellectual capital and university performance. Higher education is becoming immensely concurrent with globalization due to the rise of knowledge economies across the world and has special implications for developing economies like India. As creators and disseminators of knowledge, universities, have huge potential in contributing towards knowledge economy. This became the ground for my research work.

The research has tried to bring out the contribution of university intellectual capital on “Intellectual imperatives” which is a theoretical construct adopted directly from the report issued by FICCI (Federation of Indian Chambers of Commerce & Industry) Higher Education Committee in the year 2013, National Knowledge Commission 2009 and the official document of the 12th five year plan

The research has proposed a model using which scholars, practitioners and policy makers in the education sector can strategize around intellectual capital and its three components namely human, organizational and relational capital help realize Vision 2030 for the country’s higher education sector.

It will appeal to the practitioners and planners of the higher education sector who are concerned with the future of higher education since the framework of the study is based on a futuristic report. Also the study will appeal to an international audience since research, innovation and higher education is a phenomenally growing sector globally, especially the developing countries and our study directly stems from a federal policy document which talks of the same factors: research, innovation and excellence. The model proposed by this study will find acceptance and acceptability in countries where the higher education sector is being driven by these two pillars of research and excellence.

Publications

1. Intellectual Capital and Intellectual Imperatives of Higher Education Sector: An emerging economy perspective. International Journal of Learning & Intellectual Capital. 2020. Scopus Indexed, ABDC(C) indexed. 2020. Paper accepted and under production. Impact factor:1.3
2. Is University performance embedded in university-industry collaboration, marketization and information disclosure? Evidence from India.” Journal of marketing for Higher Education, 2020. ABDC(B) indexed. Impact factor: 2.75



AMITY MEDICAL SCHOOL

DIRECTORATE OF RESEARCH & PUBLICATION

INTRODUCTION

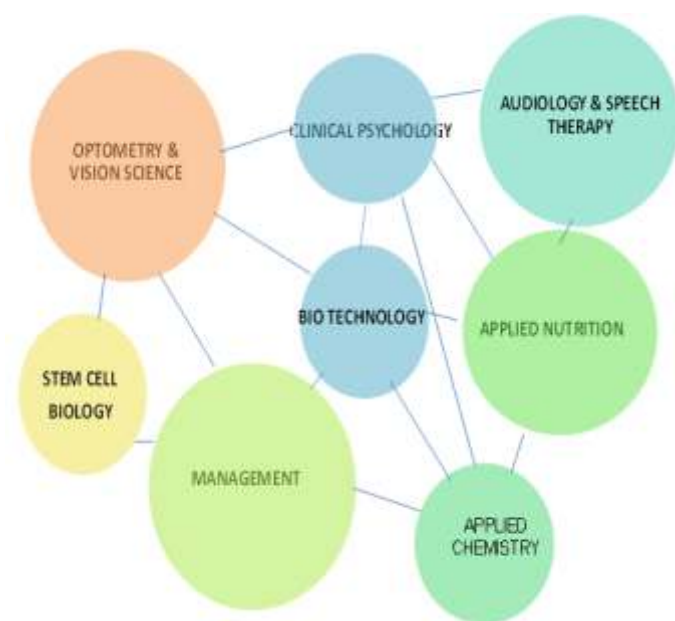
Amity Medical School was established in 2011 with the aim to fill the huge gap between availability and requirement of trained manpower in medical and allied health sectors in India and thereby contributing significantly towards achieving the global aim of 'Health for All' by 2020.

Over the years it has made significant contributions in providing highly trained manpower to various hospitals, eye clinics, dietetics depts, pathology laboratories and rehabilitation centres all over the country and abroad.

The School is continuously striving for excellence to improve the standards through quality education, research and capacity development of health professionals. Amity Medical School is committed to innovative learning, and creating social impact in all spheres of our activities.

CURRENT RESEARCH

Amity Medical School is working on various health issues related to eye, ears, dietary and other metabolic disorders. The eye screening camps are organized every week to check the prevalence of eye disorders among the local population around our Campus. The Audiology and Speech Language Pathology department organizes camps and lectures for NGO's in Gurgaon which are solely dedicated to children having speech and hearing disorders. The Dietetics and Nutrition department is working constantly on the development of new food products which can be patented and are useful for the society and food industries.



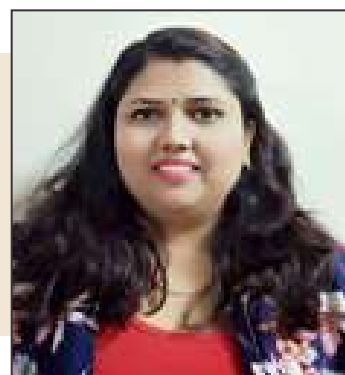
RESEARCH HIGHLIGHTS

Amity Medical School is contributing towards in areas of Biochemistry, Dietetics and Applied Nutrition and Health Management. Recently a clinical trial of Baked Chips made from Gymnema Sylvestre and Bitter gourd was conducted. The Diabetic Patients were fed the baked chips for six weeks which brought down Blood glucose levels and Body Mass Index significantly. The Medical School is working on quality parameters like LEAN management and application of Industry 4.0 in healthcare sector (Health 4.0). There are Nine patents filed by Dr Luxita Sharma, Dept of Dietetics and Applied Nutrition, Four of them are published. Dr Luxita Sharma has delivered international lecture at MCM College, Dubai and have many international recognitions. The faculty has bagged National and International Awards in their respective domains. AMS has recently signed an International MoU with Management and Science University, Malaysia. There are MoU's with Dr Lal Pathlabs and with hospitals like Fortis, Medanta- The Medicity, Rockland and many more.



FACULTY

- Dr Luxita Sharma, PhD; Associate Professor and Head, Amity Medical School and Dept of Dietetics and Applied Nutrition
- Richa Singh, MSc DAN; UGC-NET, Assistant Professor
- Apoorva Tandon, MSc DAN; UGC-NET, Assistant Professor
- Deepika Dhawan, UGC-NET, MSc DAN; Assistant Professor
- Deepika Pal, UGC-NET, MSc DAN; Assistant Professor
- Dr Arushi Mishra, Assistant Professor
- Mr. Gaurav Bhardwaj, MOPTOM; Assistant Professor
- Mr. Phani Krishna, MOPTOM; Assistant Professor
- Sunanda Sarkhel, Assistant Professor
- Md. Masihuzzaman, Assistant Professor
- Vijay Kumar, MASLP; Assistant Professor
- Mr. Neelesh Bennet, Assistant Professor
- Ms. Meghavi Sarin, Assistant Professor
- Mr. Jeetendra Kumar Saini, Assistant Professor
- Ms. Sheema Charoo, Assistant Professor
- Dr. Vikram Singh, MSc MLT, Clinical Biochem Assistant Professor
- Mr. Rajeev Jha, MSc CI Microbio & Immunology; Assistant Professor
- Mr. Meenakshi, MSc CI Microbiology; Assistant Professor
- Dr. Girija Kumari, Assistant Professor



Food and Nutrition – Clinical Nutrition, Food Product development, Food Science, Food Chemistry, Metabolic Disorders

Dr Luxita Sharma

Research Interest and Summary of Research

My Research areas include the development of Novel Food Products which are low in cost and are beneficial for society and community. These food products are also applicable to manage diseases like Obesity, Micro & Macro Nutrient deficiencies, Diabetes Mellitus, Bone Disorders, Cardiovascular Disorders and many more. The Food Products are nutritionally rich and are proven to manage many ailments.



Fig. 1 BAKED CHIPS DEVELOPED FROM BITTERGOURD, MOONG DAL FLOUR AND GYMNEMA SYLVESTRE (ASCLEPIADACEAE) for DIABETES MELLITUS

Publications

1. Dr Luxita Sharma; Development of Low Calorie Snack with Oats and Chia Seeds for all Age Groups; International Journal of Research in Social Sciences; Vol. 9 Issue 1, January

2019,ISSN: 2249-2496 Impact Factor: 7.081; pp-317-332; UGC APPROVED

2. Dr Luxita Sharma; Acceptability studies of Protein rich Ladoos developed from Pulses and Nuts;November 2018, Volume 5, Issue 4 www.ijrar.org (E-ISSN 2348-1269, P- ISSN 2349-5138);pp684-697;IF-5.75
3. Dr LuxitaSharma ; Baked Chips Developed from Bitter Gourd, Moong Dal Flour and GymnemaSylvestre(Asclepiadaceae) Reduce Blood Glucose Levels in Diabetes Mellitus; Interventions in Obesity and Diabetes; Crimson Publishers;ISSN 2578-0263;December 10, 2018;pp-1-4, IF-.75
4. Dr LuxitaSharma ; Nutritional composition of a food product developed with combination of pulse and cereal family;International Journal of Physiology, Nutrition and Physical Education January - 2019; 4(1): 139-143; if - 5.48;ISSN: 2456-0057;PP-18-23
5. Dr LuxitaSharma ; Acceptability studies of a baked product made without sugar and oil; IJRAR; January 2019, Volume 06, Issue 1 www.ijrar.org (E-ISSN 2348-1269, P- ISSN 2349-5138);IF- 5.75;
6. Richa singh;Dr LuxitaSharma; Nutrigenomics: A combination of nutrition and genomics: A

new concept;International Journal of Physiology, Nutrition and Physical Education 2019; 4(1): 417-421;IF- 5.48

7. Dr LuxitaSharma ,CharuDashora; A cure to the ailments - Spice of indian kitchen (curcumin); IJRAR September 2018, Volume 5, Issue 3 www.ijrar.org (E-ISSN 2348-1269, P- ISSN 2349-5138);pp-223-231
8. Dr LuxitaSharma , Meghna Chandra , Dr Puneeta Ajmera ; Health benefits of lavender (Lavandula angustifolia); International Journal of Physiology, Nutrition and Physical Education 2019
9. UGC approved; 2456-0057; IF 5.48' PP-1274-1277.
10. Dr LuxitaSharma,Ekta Tanwar , Dr Puneeta Ajmera; Therapeutic Benefits of Phyllanthus Amarus to cure Ailments: International Journal of Research and Analytical Reviews: UGC approved:E-ISSN 2348-1269P- ISSN 2349-5138; Pg.no.265-275, IF-5.75
11. Dr LuxitaSharma , Ananya Rajput , Dr Puneeta Ajmera:A Magical Herb - Ginkgo Biloba: International Journal of Research and Analytical Reviews: E-ISSN 2348-1269. P- ISSN 2349-5138: UGC approved: Pg.no.240-247: IF- 5.75
12. Dr LuxitaSharma ,Sumati Kalani , Dr Puneeta Ajmera: Parsley-benefits & side effects on health : International Journal of Physiology, Nutrition and Physical Education 2019 : UGC approved : 2456-0057: Pg.no.1236-1242: IF- 5.48
13. Dr Luxita Sharma: High Protein and Low Calorie Food Product developed from Oats, Nuts and Oilseeds : International Journal of Research in Social Sciences: UGC approved:ISSN: 2249-2496:IF- 7.081 : Pg.no. 491-504

14. Dr Luxita Sharma: Acceptability studies of a protein supplement developed from Pulses and cereals: Asian Journal of Research in Chemistry and Pharmaceutical Sciences: UGC approved: ISSN: 2349 – 7106: IF-3.01: 253-262
15. SharmaLuxita* and AjmeraPuneeta :Organoleptic and Physicochemical Properties of Tarts Developed from Quinoa, Chickpea and Oats Flour and Their Ranking by Topsis Method : Current Research in Nutrition and Food ScienceISSN: 2347-467X, Vol. 07, No. (2) 2019, Pg. 457-468: SCOPUS INDEXED
16. Luxita Sharma, Deepika Dhawan, Sushmita Kumari: Development And Quality Evaluation Of Germinated Bengal Gram (Cicer Arietinum) Pickle: International Journal of Scientific & Technology Research;Volume 8, Issue 09, September 2019: ISSN 2277-8616: SCOPUS INDEXED, 1689-1691
17. Luxita Sharma, Yozna Rana, Puneeta Ajmera: Therapeutic Benefits of Anethum GraveloensLinn (dill) to Cure Ailments: Asian Journal of Research in Chemistry and Pharmaceutical Sciences. 7(2), 2019, 774-780.ISSN: 2349 – 7106
18. Luxita Sharma. Correlation Among The Nutritional, Mental And Physiological Factors Affecting The Health And Lifestyle Of Geriatrics Population.International journal of scientific & technology research.2019; 8(10): 2936-2948: Scopus Indexed
19. Luxita Sharma, Shelly Garg, Dr Akanksha Yadav : Functional And Sensory Properties Of Papads Developed With Semolina And Chia Seeds: International Journal of Scientific & Technology Research, Volume 9, Issue 01, JANUARY 2020 ISSN 2277-8616:pp-3607-3612: Scopus Indexed

20. Dr Luxita Sharma : Acceptability Studies Of A Gluten Free DRINK Developed From Amranthus Viridis And Sesamum Indicum: International Journal of Scientific & Technology Research, volume 9, ISSUE 04, APRIL 2020 ISSN 2277-8616, 522-526: Scopus Indexed

21. Dr Luxita Sharma : Dietary management to build adaptive immunity against COVID19 : Journal of PeerScientist. 2020: 2(2):2581-7221, pg e100016

22. Dr Luxita Sharma : : Luxita Sharma (2020) Immunomodulatory effect and supportive role of traditional herbs, spices and nutrients in management of COVID-19, Journal of PeerScientist 3(2): e1000026.2581-7221:pg 1-8:Sept 9, 2020

23. Luxita Sharma : Management Against COVID-19 through Nutritional Supplementation to build Adaptive Immunity - A Systematic Review: International Journal of Pharmaceutical Sciences and Research; Vol. 11(9): 4114-4122. E-ISSN: 0975-8232; P-ISSN: 2320-5148: IF- 1.230: Web of Science: [http://dx.doi.org/10.13040/IJPSR.0975-8232.11\(9\).4114-22](http://dx.doi.org/10.13040/IJPSR.0975-8232.11(9).4114-22) : DOI - 10.13040/IJPSR.0975-8232.11(9).4114-22: Sept 2020

24. Shelly Garg, Luxita Sharma : Effect of Fibre Supplementation on Body Weight of Obese Adults: A Systematic review and Meta-Analysis of Double-blind RCTs: Bulletin of Environment, Pharmacology and Life Sciences Bull. Env. Pharmacol. Life Sci., Vol 9[10] September 2020 : 32-41 ©2020 Academy for Environment and Life Sciences, India Online ISSN 2277-1808 Journal's URL: <http://www.bepls.com> CODEN: BEPLAD Global Impact Factor 0.876 Universal Impact Factor 0.9804 : Jan 2021

25. Shelly Garg, Luxita Sharma, Hardik Dalal: Role of diet and Salvia miltiorrhiza to manage osteoporosis: Indo Global Journal of Pharmaceutical Sciences: (e-ISSN 2249-1023; CODEN: IGJPAI; NLM ID:101610675): vol. 10 issue 3; Impact factor - .650: Accepted Jan 2021

26. Akanksha Yadav, Luxita Sharma, Priyanka Singh and Priyanka Batra : "Nutritional Composition and Sensory Attributes of Gluten Free Brownie Enriched with Kidney Beans and Functional Ingredients": Annals of Biology: AGRI BIO PUBLISHER: ISSN - 0979-0153: Accepted Scopus: IF- 2.035

27. Akanksha Yadav, Luxita Sharma: "Nutritional and organoleptic properties of oat milk dessert enriched with paneer and standardized milk ": Asian Journal of Dairy and Food Research" ; Agricultural Research Communication : Accepted UGC approved : Online ISSN: 0976-0563, 0971-4456: IF- 3.88 : 5.75 (NAAS)

Book Chapters

1. Nutritional Composition and Organoleptic Properties of High Iron and Fibre Noodles for Women developed from Psyllium Husk and Pennisetum Glaucom-Women Empowerment - 978-81-939562-3-6, Sahaj Prakashan, pp-68-76
2. Nutritional Recommendations for individual affected by Corona Virus Disease 2019- ISBN - 9798559002873: Immunomodulatory effect and supportive role of traditional herbs, spices and nutrients in management of COVID-19. Pp-13-38
3. Nutritional Recommendations for individual affected by Corona Virus Disease 2019- ISBN - 9798559002873: Dietary management to build adaptive immunity against COVID19. Pp-31-47

Books

- Understanding the World of Obesity (Educreation Publishers), ISBN: 978-1-5457-1250-4: By Dr Luxita Sharma
- Exclusive food product researches (Educreation Publishers), ISBN: 978-1-5457-1337-2: By Dr Luxita Sharma
- Hospital Support Services (Vikas Publishing House), ISBN : 9789353386108 : By Dr Luxita Sharma & Dr Bhavana Adhikari
- Food and Nutrition in Unusual Diseases (Educreation Publishing) - ISBN - 9789353731410 - By Dr Luxita Sharma
- Clinical Studies and Diet Plans for Common Diseases (IK international) ISBN-10: 9386768712 : ISBN-13: 978-9386768711 - By Dr Luxita Sharma
- Role of functional foods in managing diseases - a food science perspective (Inkart Publishing) - ISBN - 9789390307210- By Dr Luxita Sharma

- 1) Clinical Studies and Diet Plans for Common Diseases - (WILEY & IK Publishers)-Second Edition - ISBN 978-93-89-872-78-1- Dr Luxita Sharma
- 2) Superfoods and Holistic Wellbeing - A collection of Happy Recipes -(Scholar's Press UK) ISBN 978-613-8-94315-0 by Prof(Dr) Padmakali Banerjee and Dr Luxita Sharma
- 3) A Self Help Guide to Nutrition, Wellbeing and Happiness - Amazon - ISBN 979-8709262553 & ASIN- B08WLX37TH by Prof(Dr) Padmakali Banerjee and Dr Luxita Sharma (Amazon Publishing) pp- 1-208 (paperback) : pp- 1-252 (e-book)

Patents

- 1) A Method of preparing Apple Sugar by Dr Luxita

Sharma and Maj.Gen.(Dr) Mahavir Singh (Application No. 201711039060), Published in Indian Journal of Patents in June 2019

- 2) Probiotic bread spread and its method thereof. by Dr Luxita Sharma and Maj.Gen.(Dr) Mahavir Singh and Pankhuri Pandey (Application No. 201911010648) Published sept 2020
- 3) A method of preparation of Colocasia Esculenta Leaves Aqueous Extract by Dr Luxita Sharma and Zarrin Ashraf, Maj.Gen.(Dr) Mahavir Singh (Application No. 201911014026)
- 4) A method of preparation of Natural Antacid from Musa balbisiana and Citrus limetta by Dr Luxita Sharma, Barbie Dutta and Maj.Gen.(Dr) Mahavir Singh (201911024111)-CAP
- 5) "A method of preparation of A Fermented Protein rich Beverage ": Dr Luxita Sharma, Hardik dalal and Shelly garg: Patent Application No. 201911034021 filed in India on 23/08/2019-CAP
- 6) A fibre rich ketchup using lotus stem: Dr Luxita Sharma, Hardik dalal and Shelly garg - 21/10/2019 - App no - 201911042621-CAP
- 7) A method of preparation of a low calorie and calcium rich plant based mayonnaise:)Luxita Sharma, Zarrin Ashraf - Application no. 202011009069: 2 March 2020 -CAP
- 8) Protein rich chunks from horsegram, barnyard millet and whey to strengthen immunity and method thereof" :Luxita Sharma, Suyasha Gupta and Dr Satish Sardana - Application no: 202011052761: 3 dec 2020



Language Processing, Aphasiology, Cognitive Neuroscience, Cochlear Implant

Dr Vijay Kumar

Research Interest and Summary of Research

My research interests include assessment and intervention of persons with acquired neurogenic communication disorders, Psycholinguistics based linguistic analysis, language processing in children and adults, investigation of cognitive processes specially working memory and attention in persons with communication disorders, and language outcomes measures in children with Cochlear implant.

Recently we published a research paper highlighting language outcomes in children with cochlear implant. We observed that upto 18 months of cochlear implant usage can enhance language level upto to the level of children with normal hearing in those children who were implanted within two years of chronological age. Language gain in cochlear implant was such uniform irrespective of the demographic variability such as educational and financial level of the parents

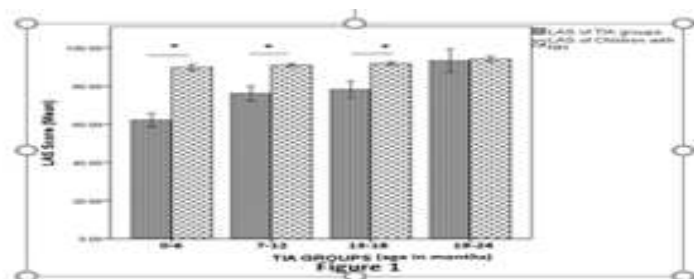


Fig. 1 Bar graph reflecting Language Ability Score across Normal Hearing, Cochlear Implant and Time of Implant Activation groups across gender.



Fig. 2 The flowchart used for managing patients with Acute Febrile Illness/Influenza Like Infection (ILI) symptoms

Publication

1. Diagnostic comparison of biochemical profile in patients with covid-19, dengue, and Acute Febrile Illness: Implication for patient management. Himanshu Bansal, Vijay Kumar, Rachna Mehta. *Clinical Epidemiology and Global Health.* (2021) 157760. (Impact factor 2.14)
2. Enhancement of Processing Capabilities of Hippocampus Lobe: A P300 Based Event Related Potential Study. Neelesh Benet, Rajalaxmi Krishna, Vijay Kumar. *Journal of*

3. Impact of more than three years of Carnatic music training on the working memory: an ERP study. Neelesh Benet, Rajalakshmi Krishna, Vijay Kumar. *Hearing, Balance and Communication,* doi.org/10.1080/21695717 (2021).1943782. (Impact factor 0.4)
4. Adaptation and validation of receptive expressive emergent Language Test-3: Evidence from Hindi speaking children with cochlear implant. Vijay Kumar, Rachna Mehta. *International journal of pediatric otorhinolaryngology* 132, (2020) 109891 (Impact factor 1.58)
5. Receptive and Expressive Language in Hindi Speaking Children with Postcochlear Implantation at 6-Month Intervals. Vijay Kumar, Rachna Mehta. *International Archives of Otorhinolaryngology* (2020) 156878. (Impact factor 1.23)
6. Role of the acoustic parameters of voice in forensic investigation: A community based exploratory study. Divya Rawat, Shreya Mahesh, Leena Kumari, Vijay Kumar. *Journal Forensic Medicine and Toxicology* 37 (2), (2020) 55-60. (Impact factor 0.1)
7. Methodology of skeletal age estimation and sex determination with ossification centers of the sternum: An exploratory study. Vaishnavi Chaturvedi, Leena Kumari, Nirmal Virmani, Rakesh Dube, Vijay Kumar, Anupuma Raina. *International Journal of Medical Toxicology and Legal Medicine* 23 (3-4), (2020) 217-221. (Impact factor 0.32)
8. Effect of dental caries on human individualization based on Multiplex STR Typing including Amelogenin marker study. Leena Kumari, Tirathdas Dogra, Rakesh Dube, Audiology & Otology (2021) 25 (3). (Impact factor 1.16)

9. Edimiological study on nature of asphyxial death across age range and gender in semi-urban region of Haryana: An exploratory cohort study. Rakesh More, Vijay Kumar, Tirathdas Dogra, Leena Kumari. *Journal of Forensic Medicine and Toxicology* 37 (2), (2020) 46-51. (Impact factor 0.1)
10. Effect of extreme heat on DNA obtained from tooth of burnt corpses. Leena Kumari, Tirathdas Dogra, Bimalkishore Mohapatra, Kamal Chauhan, Rakesh Dube, Vijay Kumar. *Journal of Forensic Medicine & Toxicology* 37 (2), (2020) 61-66. (Impact factor 0.1)
11. Comparison across grinding and broaching methods of DNA extraction from dental pulp. Leena Kumari, Tirathdas Dogra, Rakesh Dube, Vijay Kumar, Bimalkishore Mohapatra, Kamal Chauhan. *International Journal of Allied Medical Science and Clinical Research* 8 (3) (2020) 505-514.
12. Awareness of ototoxicity among medical doctors in assam. Writisha Bora, Himanshu Kumar Sanju, Vijay Kumar, Parth Borah. *Otolaryngology Open Journal* 6 (1), (2020) 1-4.

Book Chapters

- Vijay Kumar, Himanshu Bansal, Rachna Mehta. (2021) *Laser Speckle Imaging for Cerebral Ischemia and Reperfusion Injury.* In: Singh A.K., and Tripathi A.K. (eds) *Models and Techniques in Stroke Biology.* Springer Nature, Singapore, pp 85-95. ISSN 978-981-33-6679-4. https://doi.org/10.1007/978-981-33-6679-4_6



AMITY INSTITUTE OF PHARMACY

INTRODUCTION

Amity institute of Pharmacy (AIP) is an institution of Amity University, Gurugram, being developed as an institute of high repute with specialization in the field of Pharmaceutical sciences with emphasis in the field of Natural products, Drug design, Novel drug delivery systems and Pharmaceutical technology. The four-year B. Pharm course offered by Amity institute of Pharmacy is designed to meet the requirements of Pharmaceutical industry, which gives more impetus for skill development. One of the main objectives of AIP is to develop human resources for the growing Indian pharmaceutical industry and to develop globally competent pharmacists for health care sector.

CURRENT RESEARCH

The mission of the AIP is to establish a global research centre for innovative drug discovery, drug design, novel drug delivery system, herbal drug research and development. AIP aims to nurture globally competent pharmacists to cater the healthcare needs of the society. In addition to teaching, faculty members conduct collaborative research projects with other institutions of repute. Many serve on editorial boards for scientific journals and maintain collaborative ties with scientists worldwide.

FACULTY

- Satish Sardana, PhD; Professor
- Rupali Sharma, Ph.D; Associate Professor
- Rakesh Yadav, Ph.D; Associate Professor
- Arun Mittal; Ph.D. Associate Professor
- Kishna Ram Senwar, Ph.D; Assistant Professor
- Arun Kumar, Ph.D; Assistant Professor
- Asim Kumar, Ph.D; Assistant Professor
- Samridhi Lal, Ph.D; Assistant Professor
- Anjali Dhillon, Assistant Professor
- Ashish Kumar, Assistant Professor

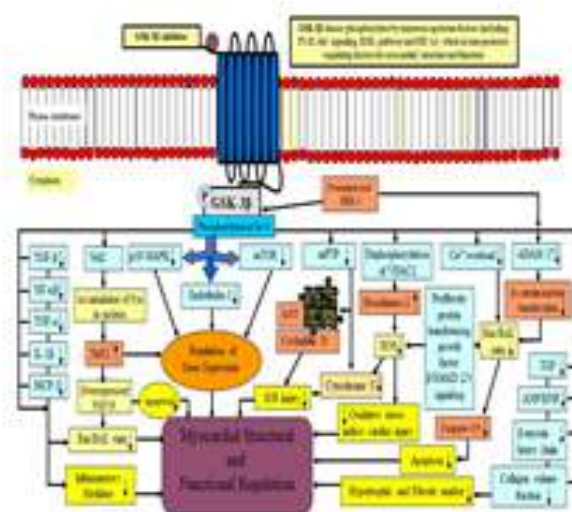


Diabetes Mellitus, Obesity, Vascular Endothelial, Dysfunction, Myocardial Infarction, Cellular signalling, Wound Healing and Bio-informatics

Dr Arun Kumar

I have started my research work with Diabetes mellitus and studied about the responsible molecular signalling as well as the associated complication. The literature review suggests the significant participation of downregulated PI3K/Akt signalling pathway in diabetic condition which is responsible for various vascular complication. During post-graduation my research concerned with the diabetes and associated vascular complication, we have evaluated the therapeutic role of Dipyridamole against diabetes associated vascular endothelial dysfunction and renal damage (DOI:10.1016/j.ijcard.2014.01.053). For a long time, evidence has pointed to the stochastic action of ROS but demonstration of the devoted roles of ROS has soared in both physiology and pathology. We have done an extensive literature research and conclude the overall impact of ROS as “double-edged swords, with protective and toxic capabilities” in various pathophysiological pathways (doi.org/10.1039/C5RA07927F). We have continued our research in same thrust area where we explored the effect of metallic nano-particle and physical exercise against different animal models of cardiovascular toxicity including diabetes, Isoproterenol and Ischemia-reperfusion induced cardio-toxicity. These studies were later published in RSC Advance, Pharmacological Reports and Microvascular

Research respectively (doi.org/10.1039/C6RA03890E; doi: 10.1016/j.pharep.2018.02.023 and doi: 10.1016/j.mvr.2018.06.003).



Research respectively (doi.org/10.1039/C6RA03890E; doi: 10.1016/j.pharep.2018.02.023 and doi: 10.1016/j.mvr.2018.06.003).

During the core research, we have also participated in various interdisciplinary research work including synthesis and evaluation of different nano-formulation, pharmacological and toxicological assessment of various unexplored and synthesized materials. We have synthesized the hydrothermal nanocomposites and evaluate for its biocompatible nature. This study was reported in Journal of Material Chemistry B

(doi.org/10.1039/C6TB01150K). Moreover, electrochemical preparation of highly crystalline and well exfoliated nitrogen doped graphene nanosheets from carbon nanosheets for the development of mighty platforms in the field of modern biosensing and other biological applications were evaluated for their biocompatibility and safety study against various biological system. This study has published by Scientific Reports (doi.org/10.1038/s41598-017-00616-8).

Instead of the toxicological assessments, we also formulated the different nano-formulation and explore the therapeutic role of these formulation against different pathological disorders including alcohol induced hepatic and cardio-renal toxicity. This study was later published with RSC Advances (doi.org/10.1039/C7RA04866A). Currently I am working on herbal nano-formulation and biomaterials for the acceleration of wound healing. Some recent study has already published in ‘Nanomedicine: Nanotechnology, Biology, and Medicine’ (doi.org/10.1016/j.nano.2018.08.013) and Materials Horizons (DOI: 10.1039/C8MH01298A). Moreover, based on my previous reports I am also working on temporal dynamics of pre- and post-myocardial infarcted tissue with concomitant preconditioning management, proteomics and genomics study to detect an early biomarker for assessment of myocardial infarction (Received ICMR grant under EMR Scheme).

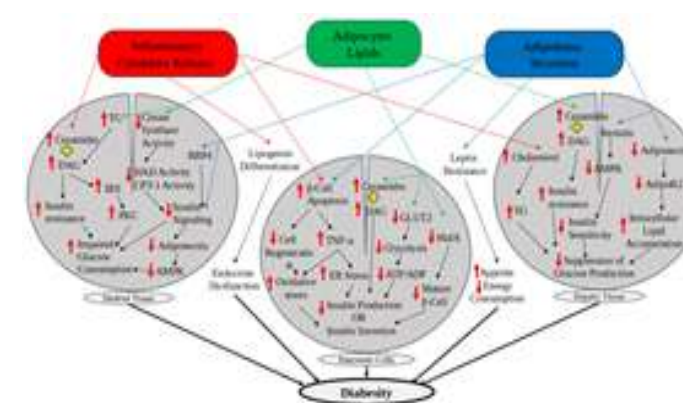


Figure 1: Diverse signaling cascade of inflammatory cytokines release, adipocytes cells and adipokines secretion represents the possible molecular pathological transduction involved in diabetes. AdipoR2, adiponectin receptor 2; AMPK, AMP-activated protein kinase; CPT-1, carnitine palmitoyltransferase 1; DAG represents diacylglycerol; ER stress represents endoplasmic reticulum stress; GLUT2 represents facilitated glucose transporter, member 2 (SLC2A2); HAD represents β -hydroxyacyl dehydrogenase; IRS1 represents insulin receptor substrate 1; MafA represents pancreatic beta-cell-specific transcriptional activator MafA; PKC represents protein kinase C; RBP4 represents retinol binding protein 4; TG represents triglyceride and TNF α represents tumor necrosis factor alpha.

Figure 2: Systematic arrangement portray the GSK-3 β phosphorylation mediated amelioration of various possible pathological events including hypertrophy, cardiomyocytes proliferation, apoptosis of cardiac cell and heart failure. ADAM17, ADAM Metallopeptidase Domain 17; ANP, Atrial natriuretic peptide; ANT, Adenine nucleotide translocator; BNP, B-type natriuretic peptide; CypD, Cyclophilin D; DKK-3, Dickkopf WNT Signaling Pathway Inhibitor 3; FGF19, Fibroblast growth factor 19; H/R injury, Hypoxia/reoxygenation injury; IL-1 β , Interleukin-1 β ; MCP-1, Monocyte chemoattractant protein-1; mTOR, Mammalian target of rapamycin; NF- κ B, Nuclear factor kappa-light-chain-enhancer of activated B cells; Nrf2, Nuclear factor erythroid-2-related factor 2; p38 MAPK, p38 mitogen-activated protein kinases; ROS, Reactive oxygen species; TGF β , Transforming growth factor beta; TGF- β , Transforming growth factor beta; TNF- α , Tumor necrosis factor alpha; VDAC2, Voltage-dependent anion-selective channel protein 2.

Publications

1. Chigurupatia S, Alharbia NR, Sharma AK, Alhowail A, Vardharajula VR, Vijayabalan S, Das S, Fathema K, Aminah E. Pharmacological and pharmacognostical valuation of *Canna indica* leaves extract by quantifying safety profile and neuroprotective potential. *Saudi Journal of Biological Sciences*. <https://doi.org/10.1016/j.sjbs.2021.05.072>. Impact Factor 4.2.
2. Deeba F, Kumar A, Mukharjee M, Sharma M, Sharma AK*. Targeting Endocannabinoid system in Diabetes: Fact or Fiction? *Drug Discovery Today*. 2021; S1359-6446(21)00158-6. Impact factor 7.85.
3. Mandal B, Madan S, Ahmad S, Sharma AK, Ansari MHR. Antiurolithic efficacy of a phenolic rich ethyl acetate fraction of the aerial parts of *Aerva lanata* (Linn) Juss. ex Schult. in ethylene glycol induced urolithic rats. *Journal of Pharmacy and Pharmacology*, 2021. <https://doi.org/10.1093/jpp/rgaa071>. Impact Factor 3.8.
4. Malhotra B, Kulkarni GT, Dhiman N, Sharma AK, Kharkwal H. Recent advances on *Berberis aristata* emphasizing berberine alkaloid including phytochemistry, pharmacology and drug delivery system. *Journal of Herbal Medicine*, 2021. doi.org/10.1016/j.hermed.2021.100433. Impact Factor 3.03.
5. Sharma S, Deep A, Sharma AK*. Current Treatment for Cervical Cancer: An Update. *Anticancer Agents Med Chem*. 2020; 20(15):1768-1779. doi: 10.2174/1871520620666200224093301. Impact Factor 2.6.
6. Sharma AK*, Bhatia S, Al-Harrasi A, Nandave M, Hagar H. Crosstalk between GSK-3 β -actuated molecular cascades and myocardial physiology. *Heart Fail Rev*. 2020. doi:10.1007/s10741-020-09961-9. Impact factor 5.2.
7. Sharma AK*, Thanikachalam PV, Bhatia S. The Signaling Interplay of GSK-3 β in Myocardial Disorders. *Drug Discovery Today*. doi.org/10.1016/j.drudis.2020.01.017. Impact factor 7.85.
8. Deep A, Verma M, Marwaha RK, Sharma AK, Kumari B. Development, Characterization and Anticancer Evaluation of Silver Nanoparticles from *Dalbergia sissoo* Leaf Extracts. *Current Cancer Therapy Reviews*. 2020; 16(2), 145-151. doi.org/10.2174/1573394715666190820150651. Impact factor 0.3.
9. Deep A, Rani N, Kumar A, Nandal R, Sharma PC, Sharma AK. Prospective of Natural Gum Nanoparticulate Against Cardiovascular Disorders. *Current Chemical Biology*. 2019; 13(3), 197-211. doi.org/10.2174/2212796813666190328194825. Impact factor 1.3.
10. Sharma AK*, Sharma G*, Saha M*, Kumar A*, Aeri V, Katare DP. Temporal dynamics of pre and post myocardial infarcted tissue with concomitant preconditioning of aerobic exercise in chronic diabetic rats. *Life Sciences*. doi.org/10.1016/j.lfs.2019.03.077. Impact factor 5.03.
11. Sharma AK, Taneja G, Kumar A, Sahu M, Sharma G, Kumar A, Sardana S, Deep A. Insulin analogs: Glimpse on contemporary facts and future prospective. *Life Sciences*, 2019, doi.org/10.1016/j.lfs.2019.01.011. Impact factor 5.03.
12. Singh A, Bhattacharya R, Shakeel A, Sharma AK, Jeevanandham S, Kumar A, Chattopadhyay S, Bohidar HB, Ghosh S, Chakrabarti S, Rajput SK, Mukherjee M. Hydrogel Nanotube with Ice Helix as Exotic Nanostructure for Diabetic

Wound Healing. *Materials Horizons*, 2019, DOI: 10.1039/C9MH90006C. Impact factor 14.3.

Book Chapters

1. Sharma A.K., Mandal B., Madan S., Rajput S.K. (2020) Challenges and Opportunities in Standardization of Homeopathic Drugs and Dilutions. In: Sen S., Chakraborty R. (eds) *Herbal Medicine in India*. Springer, Singapore. https://doi.org/10.1007/978-981-13-7248-3_36

Patents

1. Patent Application No.201911002174
Title: Animal Ventilator
Inventors: Dr. Arun Kumar
2. Patent Application No. 201911010651
Title: Anti-pollution Eye Makeup
Inventors: Dr. Arun Kumar
3. Patent Application No. 201911024112
Title: Add-on Device for toilet hygiene
Inventors: Dr. Arun Kumar
4. Patent Application No. 201911024114
Title: Anti-hair growth nanocrystal formulation
Inventors: Dr. Arun Kumar
5. Patent Application No. 201911034018
Title: Automated chimney fire extinguisher
Inventors: Dr. Arun Kumar
6. Patent Application No. 201911042077
Title: A system and method for bed mattress cover
Inventors: Dr. Arun Kumar
7. Patent Application No. 202011000845
Title: A Thermosensitive marking pen
Inventors: Dr. Arun Kumar
8. Patent Application No. 202011006457
Title: An Add on device and its method to recycle the household water wastage
Inventors: Dr. Arun Kumar
9. Patent Application No. 202011020872
Title: 'A Breast Feeding Device To Help With Hypogalactia'

- Inventors: Dr. Arun Kumar
10. Patent Application No. 202011032587
Title: Autonomic novel nano-formulation for long haul disinfection
Inventors: Dr. Arun Kumar
 11. Patent Application No. 202011049782
Title: A face mask having ventilator attachment inlet
Inventors: Dr. Arun Kumar
 12. Patent Application No. 202011055226
Title: A multilayer liner with enhanced capacity to absorb cervix discharge
Inventors: Dr. Arun Kumar

Research Project (Sanctioned)

Title: Identification of biomarker candidate for early diagnosis of myocardial reperfusion injury and reoccurrence centralizing GSK3 β using metanalysis
Principle Investigator: Dr. Arun Kumar
Funding Agency: ICMR
Scheme: Extramural Research Programme
Budget Approved: 29,00,000/-
Duration: 3 Years
Amount received: 13,58,160/- for 1st year (01-04-2021 to 31-03-2022)



AMITY SCHOOL OF EARTH AND ENVIRONMENTAL SCIENCES

INTRODUCTION

Amity School of Earth and Environmental Sciences (ASEES) is committed to provide world class education in the field of Earth and Environment sciences and disseminate environment awareness. The school runs one undergraduate program (B.Sc. (H) Earth Science), one post graduate program (M.Sc. Environmental Science) and Ph.D (Environmental Sciences). Besides these two courses the school also teaches Environmental Studies (EVS) to the other schools and departments at Amity University, Haryana.

RESEARCH HIGHLIGHTS

ASEES is enriched with the group of researchers working in the various field of Earth and Environmental Sciences such as Geological investigation, GIS / Remote Sensing, Water pollution, Air pollution, Soil pollution, Noise pollution, Remediation technology, Environmental microbiology, River biogeochemistry etc.

CURRENT RESEARCH

- Presently doctoral researchers at ASEES are working on following research areas:
- Bioprocess Optimization and Development of Digester to Produce Methane Enriched Biogas and Fertilizer from Waste Biomass.
- microbial community of FACE bacteria on cultured and uncultured bacteria and characterization of Bacterial community for synthesis of useful biomaterials
- Isolation and characterization of bio-surfactant producing microbes".
- Applications of satellite data and products for monitoring and prediction of thunderstorms and tropical cyclones".
- Use of modified rice husk to remove metal ions from waste water

FACULTY

- Prof. I.S Thakur, Director
- Dr. Chandra Prakash Kaushik, Professor
- Dr. Kushagra Rajendra, Associate Professor
- Dr. Shaili Srivastava, Associate Professor
- Dr. Parveen Kumar, Assistant Professor,
- Dr. Shruti Dutta, Assistant Professor
- Dr. Deepika Pandey, Assistant Professor
- Dr. Puja Singh, Assistant Professor
- Dr. Sudeep Shukla, Assistant Professor
- Dr. Neelam Verma, Assistant Professor
- Aakriti Verma, Teaching Associate



New Connect

Environmental Microbiology & Biotechnology,
Toxicology, Microbial Ecology

Dr Indu Shekhar Thakur

Research Interest

Research interest are in area of bioremediation, biovalorization and detoxification of natural and organic compounds by culturable, non-culturable (metagenomic approach) and developed bacterial consortium by genetic breeding, characterized genes and proteins, proteomics, genomics, transcriptomic analysis for Green House Gases sequestration for biomass, enzymes, biodiesel, bioflocculant, bioplastic, biomaterials. Biocomposite materials synthesized by enzymes adsorbed on calcite of CO₂ sequestering bacteria for chromate, arsenite, heavy metals removal. Degradation of pentachlorophenol in tannery, lignin in pulp and paper mill including lignin

valorisation for biochemicals, melanoidin in distillery, dioxin-like compounds, ecoestrogens, emerging contaminants in solid sludge, landfill leachates, pesticides in agriculture field, and recovery of nitrogen and phosphorus in waste water performed. Persistence of phthalates, risk assessment and characterization carried out. Lignocellulose valorisation by bacteria and fungi for colour removal, biopulp, bioethanol, biobleaching and chemicals. Environmental microbiome characterized for structural and functional genomic analysis for Green House Gases sequestration for biomaterials and removal of contaminants and pollutants in waste water and soil

BIOGENIC
Bacterial species present in sludge either assimilate lipids from the wastewater or synthesize them de novo from other carbon sources, and store them intracellularly as neutral lipids which can be converted into fatty acid methyl esters (FAMES).

COST EFFECTIVE
In situ transesterification which combines the lipid extraction and fuel conversion steps into a single step can greatly reduce the cost of biodiesel production so as to make biodiesel compete in the market.

The study of biodiesel production and its optimization from municipal sludge is reported from our laboratory and its feasibility for future large-scale commercialization is tested in 250 liter bioreactor.

1. Bacteria growing in fermenter, 2. Sewage sludge from JNU STP amended with bacteria in a 200L reactor, 3. Dried and crushed Amended sludge solids 4. Transesterification using Methanol, 5. Recovery of Methanol 6. Hexane purification of biodiesel, 7. Hexane recovery, 8. Biodiesel obtained 9. Generator successfully tested using 1% to 5% Biodiesel blend

Publications

- Rathour, R., Gupta, J., Singh, R. and Thakur, I.S. 2020. Integrated approach of whole-genome analysis, toxicological evaluation and life cycle assessment for pyrene biodegradation by a psychrophilic strain, *Shewanella* sp. ISTPL2. *Environmental Pollution*. 10.1016/j.envpol.2020.116176. Impact Factor-6.792.
- Morya, R., Sharma, A., Kumar, M., Tyagi, B., Singh, S.S. and Thakur, I.S. 2020. Polyhydroxyalkanoate synthesis and characterization: A proteogenomic and process optimization study for biovalorization of industrial lignin. *Bioresource Technology*, doi.org/10.1016/j.biortech.2020.124439. Impact Factor-7.539.
- Gupta, B., Mishra, A. and Thakur, I.S. 2020. Fabrication of calcite based biocomposites for catalytic removal of heavy metals from electroplating industrial effluent. *Environmental Technology & Innovation*. Impact Factor-3.356.
- Das, M.T., Kumar, S.S., Ghosh, P., Shah, G., Malyan, S.K., Bajar, S., Thakur, I.S. Singh, L. 2020. Remediation strategies for mitigation of phthalate pollution: Challenges and future perspectives. *J. Hazardous Material*. https://doi.org/10.1016/j.jhazmat.2020.124496. Impact factor-9.038.
- Morya, R., Salvachua, D. and Thakur, I.S. 2020. *Burkholderia*: an untapped, promising bacterial genus for the conversion of aromatic compounds. *Trends Biotechnology* 38, 963-975. https:// doi.org/ 10.1016/j.tibtech.2020.02.008. Impact Factor- 14.474
- Gupta, J., Rathour, R., Dupont, C.L., Kaul, D. and Thakur, I.S. 2020. Genomic Insights into waste valorized extracellular polymeric substances (EPS) produced by *Bacillus* sp. ISTL8. *Environmental Research*, 192, doi.org/10.1016/j.envres.2020.110277 Impact Factor-5.715
- Swati, Kumari, M., Gosh, P. and Thakur, I.S. 2020. Evaluation of a biosurfactant producing bacterial strain *Pseudomonas* sp. ISTPY2 for efficient pyrene degradation and landfill soil bioremediation through soil microcosm and proteomic studies *Bioresource Technology Reports*. doi.org/10.1016/j.biteb.2020.100607
- Thakur, I.S. and Roy, D. 2020. Environmental DNA and RNA as records of human exposome, including biotic/abiotic exposures and its implications in the assessment of the role of environment in chronic diseases. *International Journal of Molecular Sciences* 21, 4879, doi.org/10.3390/ijms21144879. Impact Factor-4.556
- Rathour, R., Gupta, J., Tyagi, B. and Thakur, I.S. 2020. Production and characterization of psychrophilic α -amylase from a psychrophilic bacterium, *Shewanella* sp. ISTPL2. *Amylase* 4 (1), 1-10.
- Kapoor, R., Ghosh, P., Tyagi, B., Vijay, V.K., Vijay, V., Thakur, I.S., Kamyab, H., Duc, N.D., Kumar, A. 2020. Advances in biogas valorization and utilization systems: A comprehensive review. *Journal of Cleaner Production* 273, 123052 doi.org/10.1016/j.jclepro.2020.123052. Impact Factor-7.246.
- Rathour, R., Gupta, J., Mishra, A., Rajeev, A.C., Dupont, C.L. and Thakur, I.S. 2020. A comparative metagenomic study reveals microbial diversity and their role in the biogeochemical cycling of Pangong lake. *Science of The Total Environment*. Impact Factor- 5.727. https://doi.org/10.1016/j.scitotenv.2020.139074

11. Tyagi, B., Gupta, B. and Thakur, I.S. 2020. Biosorption of Cr (VI) from aqueous solution by extracellular polymeric substances (EPS) produced by *Parapedobacter* sp. ISTM3 strain isolated from Mawsmi cave, Meghalaya, India. *Environmental Research*, 191, doi.org/10.1016/j.envres.2020.110064. Impact Factor- 5.715
 12. Jairo Ramos, J., Yoo, C., Felty, Q., Gong, Z., Liuzzi, J.P. Poppiti, R., Thakur, I.S., Goel, R., Vaid, A.K., Komotar, R.J., Ehtesham, N.Z., Hasnain, S.E. and Roy, D. 2020. Sensitivity to differential NRF1 gene signatures contributes to breast cancer disparities. *Journal of Cancer Research and Clinical Oncology* https://doi.org/10.1007/s00432-020-03320-9, 2020. Impact factor: 3.295
 13. Gupta, B., Puri, S., Thakur, I.S. and Kaur, J. 2020. Enhanced pyrene degradation by a biosurfactant producing *Acinetobacter baumannii* BJ5: Growth kinetics, toxicity and substrate inhibition studies. *Environmental Technology and Innovation*.doi.org/10.1016/j.eti.2020.100804. Impact Factor- 3.356.
 14. Kumar, M., Rathour, R., Singh, R., Sun, Y., Pandey, A., Gnansounou, E., Line, K., Tsang, D. and Thakur, I.S. 2020. Bacterial polyhydroxyalkanoates: Opportunities, challenges, and prospects. *Journal of Cleaner Production*. Impact Factor- 7.246. doi.org/10.1016/j.jclepro.2020.121500
 15. Kumar, V. and Thakur, I.S. 2020.Extraction of lipids and production of biodiesel from secondary tannery sludge by in situ transesterification. *Bioresource Technology Report* 11,https://doi.org/10.1016/j.biteb.2020.100446.CiteScore: 1.7.
 16. Kumar, V. and Thakur, I.S. 2020.Biodiesel production from transesterification of *Serratia* sp. ISTD04 lipids using immobilised lipase on biocomposite materials of biomineralized products of carbon dioxide sequestering bacterium. *Bioresource Technology* 307, 123193. doi.org/10.1016/j.biortech.2020.123193Impact Factor- 7. 539.
 17. Mishra, A., Gupta, B, Kumar, N., Singh, R., Verma, A. andThakur, I.S. 2020. Synthesis of calcite-based bio-composite biochar for enhanced biosorption and detoxification of chromium Cr (VI) by *Zhihengliuella* sp. ISTPL4. *Bioresource Technology*.https://doi.org/10.1016/j.biortech.2020.123262Impact Factor- 7. 539.
 18. Sahoo, H., Senapati, D., Thakur, I.S. and Naik, U.C. 2020. Integrated bacteria-algal bioreactor for removal of toxic metals in acid mine drainage from iron ore mines. *Bioresource Technology Reports*. 1 0 0 4 2 2 . https://doi.org/10.1016/j.biteb.2020.100422. Cite Score: 1.7
 19. Kumar, M., Suna, Y., Rathour, R., Pandey, A., Thakur, I.S. and Tsanga, D. 2020. Algae as potential feedstock for the production of biofuels and value-added products: Opportunities and challenges. *Science of The Total Environment*. Impact Factor- 6.551 2oi.org/10.1016/j.scitotenv.2020.137116
 20. Kumar, M., Gnansounou, E. and Thakur, I.S. 2020.Synthesis of bioactive material by sol-gel process utilizing polymorphic calcium carbonate precipitate and their direct and indirect in-vitro cytotoxicity analysis. *Environmental Technology & Innovation*. 18, 100647https://doi.org/10.1016/j.eti.2020.100647. Impact Factor- 3.356.
 21. Kumari, M., Ghosh, P., Swati and Thakur, I.S. 2020. Development of artificial consortia of microalgae and bacteria for efficient biodegradation and detoxification of lindane. *Bioresource Technology Reports* 10, 1000415 (In press). https://doi.org/10.1016/j.biteb.2020.100415.Cite Score: 1.7
- Book Chapters**
1. Morya, R., Tyagi, B., Sharma, A. and Thakur, I.S. 2020. Production and applications of polyphosphate: opportunities and challenges. In book *Biodegradable polymers and composites - process engineering to commercialization* edited by Binod, P., Sindhu, R. and Pandey, A.K. Publisher, Elsevier, United States.(In press).
 2. Kumar, V., Thakur, I.S., Saxena, G. and Shah, M.P. 2020. Metagenomics in remediation of contaminated site and environmental restoration. In book: *Emerging Technologies in Environmental Bioremediation*, eds. Shah, M.P., Rodriguez-Couto, S. and SevincSengo R. S. Publisher: Elsevier, United States, ISBN: 9 7 8 - 0 - 1 2 - 8 1 9 8 6 0 - 5 , D O I : https://doi.org/10.1016/B978-0-12-819860-5.00008-0
 3. Kumar, V., Chandra, R., Thakur, I.S., Saxena, G. and Shah, M.P. 2020. Recent Advances in Physicochemical and Biological Treatment Approaches for Distillery Wastewater.In book: *Combined Application of Physico-Chemical & Microbiological Processes for Industrial Effluent Treatment Plant*,Publisher: Springer Nature Singapore, .DOI: 10.1007/978-981-15-0497-6_6
 4. Saxena, G., Thakur, I.S., Kumar, V. and Shah, M.P. 2020. Electrobioremediation of Contaminants: Concepts, Mechanisms, Applications, and Challenges. In book: *Combined Application of Physico-Chemical & Microbiological Processes for Industrial Effluent Treatment Plant*Publisher: Springer Nature, Singapore. DOI: 10.1007/978-981-15-0497-6_14
 5. Kumar, V., Thakur, I.S., Shah, M.P. 2020. Bioremediation approaches for treatment of pulp and paper industry wastewater: Recent advances and challenges. In *Maulin P. Shah (Ed.), Microbial Bioremediation & Biodegradation*. Springer Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-15-1812-6_1
 6. Gupta, J., Rathour, R., Medhi, K., Tyagi, B. and Thakur, I.S. 2020. Microbial-Derived Natural Bioproducts for a Sustainable Environment: A Bioprospective for Waste to Wealth in Refining Biomass Residues for Sustainable Energy and Bioproducts eds. Gnansounou, E., Praveenkumar, R., Raman, J.K. and Gurunathan, B. P. ELSEVIER | Langford Lane, Oxford OX5 1GB, United Kingdom, DOI: 10.1016/B978-0-12-818996-2.00003-X
 7. Thakur, I.S., Gupta, J.andGhosh, P. 2020. Biological degradation and detoxification of toxic contaminants in leachate: An environment friendly perspective in the book *Bioremediation Technology of Hazardous Waste Management* eds Pathak, B. et al. CRC Press/Taylor and Francis Group.DOI: 10.1201/9780429296031-2
 8. Mishra, A, Kumar, M., Medhi, K. and Thakur, I.S. 2020. Biomass energy with carbon capture and storage (BECCS) to contribute in the book *Current Developments in Biotechnology and bioengineering: sustainable bioresources for emerging bioeconomy* eds. Katakai, R., Pandey, A. Pant, D. and Khanal, S. ELSEVIER | Langford lane, Oxford OX5 1GB, United Kingdom.
 9. Kumar, M., Rathour, R., Gupta, J., Pandey, A., Gnansounou, E. and Thakur, I.S 2020.Bacterial production of fatty acid and biodiesel: opportunity and challengesin *Refining biomass residues for sustainable energy and bioproducts* eds.Gnansounou, E.,Jegannathan, K.R., Gurunathan, B. and kumar, P. ELSEVIER | Langford Lane, Oxford OX5 1GB, United Kingdom. DOI: 10.1016/B978-0-12-818996-2.00002-8



Waste water Treatment, Biofuel formation by microbes, Heavy metal remediation, PAH degradation, solid waste management

Dr. Shaili Srivastava

Research Interest

Wastewater Treatment, Biofuel formation by microbes, Heavy metal remediation, PAH degradation, solid waste management

Publications

1. Enhanced recovery of polyhydroxyalkanoates from secondary wastewater sludge of sewage treatment plant: Analysis and process parameters optimization, V Kumar, S Srivastava, IS Thakur, Bioresource Technology Reports, 100783
2. Environmental microbiology and biotechnology: volume 2: bioenergy and environmental health, A Singh, S Srivastava, D Rathore, Springer
3. Recent Advances in Wastewater Sludge Valorization, A Gupta, M Kumar, S Srivastava, Bio-valorization of Waste: Trends and Perspectives, 225-247
4. Sequestration of Carbon Dioxide by Microorganism and Production of Value Added Product, RK Bharti, S Srivastava, IS Thakur, Environmental Microbiology and Biotechnology, 235-249
5. Algal Biofuel: A Sustainable Approach for Fuel

of Future Generation, N Maheshwari, A Mishra, IS Thakur, S Srivastava, Environmental Microbiology and Biotechnology, 3-29

6. Development of Modern Tools for Environmental Monitoring of Pathogens and Toxicant, S Purwar, S Srivastava, Environmental Microbiology and Biotechnology, 185-210
7. DNA damage signalling as an anti-cancer barrier in gastric intestinal metaplasia, V Krishnan, DXE Lim, PM Hoang, S Srivastava, J Matsuo, KK Huang, ..., Gut 69 (10), 1738-1749
8. Environmental Microbiology and Biotechnology: Volume 1: Biovalorization of Solid Wastes and Wastewater Treatment, A Singh, S Srivastava, D Rathore, D Pant, Springer Nature
9. Biological fixation of carbon dioxide and biodiesel production using microalgae isolated from sewage waste water, N Maheshwari, PK Krishna, IS Thakur, S Srivastava, Environmental Science and Pollution Research 27 (22), 27319-27329
10. Engineering CAR-T cells for next-generation cancer therapy, M Hong, JD Clubb, YY Chen, Cancer Cell

11. Perspectives of Environmental Microbiology and Biotechnology, A Singh, D Rathore, D Pant, S Srivastava, Environmental Microbiology and Biotechnology, 1-16
12. Hepatorenal protective action of *Spirulina platensis* against beryllium induced hepatorenal dysfunction and histopathological alterations in rats, S Raghuvanshi, ND Agrawal, P Rawat, S Srivastava, S Shukla, NISCAIR-CSIR, India
13. dbI: A NEW TRANSFORMING GENE ISOLATED FROM A HUMAN DIFFUSE B-CELL LYMPHOMA, A Eva, S Srivastava, G Vecchio, D Ron, S Ironick, S Aaronson, Human Tumor Markers, 83-92
14. Laboratory of Cellular and Molecular Biology, National Institutes of Health, A Eva, S Srivastava, G Vecchio, D Ron, S Tronick, S Aaronson, Human Tumor Markers: Biology and Clinical Applications. Proceedings of the...
15. Cloning, expression and characterization of β - and γ carbonic anhydrase from *Bacillus* sp. SS105 for biomimetic sequestration of CO₂, N Maheshwari, M Kumar, IS Thakur, S Srivastava, International journal of biological macromolecules 131, 445-452
16. Integration of Electrical Micro-Image Log, Advance 3D Acoustic Anisotropy and Fracture Stability Analysis—A Complete Solution for Basement Reservoir, A Nandi, S Sarkar, C Chatterjee, S Das, S Pattanaik, C Majumder, ...International Petroleum Technology Conference
17. An integer programming approach for mesh generation for polycrystals using the EBSD map, S Srivastava, V Sundararaghavan, AIAA Scitech 2019 Forum, 0966
18. Biodegradation of polycyclic aromatic hydrocarbons (PAHs): A sustainable approach,

S Srivastava, M Kumar, Sustainable Green Technologies for Environmental Management, 111-139

Book

1. Environmental Microbiology and Biotechnology - Volume 1: Biovalorization of Solid Waste and Wastewaters (Edited book), Published on 15 September 2020, publisher Springer Nature Singapore Pte Ltd., ISBN No. 978-981-15-6020-0
2. Environmental Microbiology and Biotechnology - Volume 2: Bioenergy and Environmental Health (Edited book), published on December 2020, publisher Springer Nature Singapore Pte Ltd., ISBN No. 978-981-15-7492-4.

Book Chapters

1. Chapter "Algal Biofuel: A Sustainable Approach for Fuel of Future Generation by, N Maheshwari, A Mishra, IS Thakur, S Srivastava (2020). In Book: Environmental Microbiology and Biotechnology, Volume 2: Bioenergy and Environmental Health (Edited book), publishing on December 2020, publisher Springer Nature Singapore Pte Ltd., ISBN No. 978-981-15-7492-4
2. Chapter "Development of Modern tools for Environmental Monitoring of Pathogens and Toxicant. Purwar, S and Srivastava, S. 2020. In Book: Environmental Microbiology and Biotechnology - Volume 2 Bioenergy and Environmental Health: Springer Nature Singapore (Edited book), publishing on December 2020, publisher Springer Nature Singapore Pte Ltd., ISBN No. 978-981-15-7492-4.
3. Chapter "Sequestration of Carbon dioxide by

microorganism and production of value added product. Bharti, R.K., Srivastava, S., Thakur, I.S. In book: Environmental Microbiology and Biotechnology - Volume 2 Bioenergy and Environmental Health: (Edited book), publishing on December 2020, publisher Springer Nature Singapore Pte Ltd., ISBN No. 978-981-15-7492-4

4. Chapter "Perspectives of Environmental Microbiology and Bio-technology. Singh, A., Rathore, D., Pant, D., Srivastava, S. Environmental Microbiology and Biotechnology - Volume 1: Biovalorization of Solid Waste and Wastewaters (Edited book), Published on 15 September 2020, publisher Springer Nature Singapore Pte Ltd., ISBN No. 978-981-15-6020-0.



**AMITY CENTRE FOR OCEAN-ATMOSPHERIC
SCIENCE AND TECHNOLOGY (ACOST)**

INTRODUCTION

With the growing population and increased urbanization, land-use, land-cover, and density of industries have increased many-fold in the last decades, and as a result, the pollution level is on the rise. Moreover, the Indian subcontinent is one of the highly populated regions in the world, where more than one billion people (about one-sixth of the world's population) live, and are exposed to enormous pollution produced by various natural and anthropogenic sources. The increase in pollution level, consequently an increase in aerosol or aerotulates (tiny particles of solid, liquid and gaseous particles, suspended in the atmosphere or Particulate Matter (PM)) loading, has direct impact on health, energy, water and climate. Thus, atmospheric aerosol is an important governing factor and driving force in many environmental aspects. Recognizing this ubiquitous role of aerosols in the Environmental Pollution, Earth- Atmosphere Radiation Balance, Air-Sea Interaction, Hydrology, Energy and Health, a new initiative of "Amity Centre for Ocean-Atmospheric Science and Technology (ACOAST)" has been launched on 03 June 2014 at AUH. This Centre was envisioned by Hon'ble Founder President Dr. Ashok K. Chauhan; Hon'ble Chancellor Dr. Aseem Chauhan; President of Amity Science, Technology and Innovation Foundation, and Director General for Amity Directorate of Science and Innovation Dr. W. Selvamurthy; mentored by Prof. Dr. S.K. Dube, Former VC, AUR and Prof. Dr. P.B. Sharma, VC, AUH; spearheaded and supported by Prof. Dr. Padmakali Banerjee, Pro-VC, and Maj. Gen. B.S. Suhag, Deputy VC. It conducts inter-disciplinary teaching and research to better understand the complex science of air quality, monsoonal weather, climate impacts on our planet Earth. Following the visits and suggestions of Dr. Srikanth S. Nadadur, Program Director, National Institute of Health Sciences, US A and Dr. Kirk R. Smith, Professor of Global Environmental Health, University of California, Berkeley, USA, to whom AUH awarded Honorary Professorship, another initiative, namely, "Amity Centre for Environmental Science and Health (ACESH)" has been implemented at AUH in October 2015.

CURRENT RESEARCH

- Air Pollution Studies Over Rural Station Using AQMS, NASA-AERONET, Nephelometer and Aethalometer
- Ground-based and Satellite Remote Sensing
- Detection and Transport of Dust
- Ground/ River Water Pollution
- Mitigation of Air Pollution
- Investigations of Stubble Burning Activities, Inter-State and Trans-boundary Pollution Transport
- Development of Pollution Forecast or Air Quality Early Warning System at AUH, Gurugram
- Cohort studies connecting Environmental and Human Health vis-a-vis Climate Change
- Lower and Upper Atmosphere Coupling Studies
- High-altitude and Polar Science Studies
- Significant association found between Particulate Matter (dust level), ARI and URI.

SPECIALIZED RESEARCH FACILITIES

State-of-the-Art Laboratory Support

- > Climate Research Laboratory (CRL)
- > Solar Radiometry Laboratory (SRL)
- > Air Quality Monitoring and Diagnosis Laboratory (AQMDL)



CRL



Parameters
 Particulate Matter (PM)
 PM₁₀ (µg/m³)
 PM_{2.5} (µg/m³)
 SO₂ (ppb)
 NO₂ (ppb)
 CO (ppm)
 O₃ (ppb)
 Temperature (°C)
 Humidity (%)
 Wind Speed (m/s)
 Wind Direction (°)
 Rainfall (mm)



NASA-Aeronet
(Global Network Site)



Polar Nephelometer



New-Generation
7-Beam Aethalometer

List of Faculties with Designation

- Prof. (Dr.) P.C.S Devara, Director, Professor and Head, ACOAST/ACESH, AUH
- Dr. Abul Amir Khan, Head, ACAPC, Assistant Professor, ACOAST
- Dr. Amrit Kumar, Assistant Professor-II, ACOAST/ACESH, AUH
- Dr. Amitabh Tripathi, Assistant Professor-II, ACOAST/ACESH, AUH
- Dr. P.P. Das (Assistant Professor-I, ACOAST/ACESH, AUH)

LIST OF NON-TEACHING STAFF/ TECHNICAL STAFF

1. Mr. Shubhansh Tiwari (Research Associate, ACOAST/ACESH, AUH)

2. Mr. Deepanshu (Peon, ACOAST/ACESH, AUH)

ONGOING RESEARCH GRANTS & AMOUNT

No. of Consortium Projects (Ongoing): 05 (Rs. 7 Crores); (International: 02 & National: 03)

No. of Funded Projects (Under Review): 04 (Rs. 6.5 Crores); (International: 02 & National: 02 (Rs. 6.5 Crores))

Total number of publication (2020): 10 (including one textbook publication)

Number of Awards & Honors: 02

1. Eminent Scientist Award and lifetime Achievement Award



Aerosol Science, Active and Passive Remote Sensing, Aerosol-Cloud-Precipitation-Climate Interactions, Environmental Pollution and Human Health Connections, Interface between Atmosphere, Geosphere, Biosphere, Cryosphere and Polar Science

Prof. Dr. P.C.S. Devara

Designation: Director & Professor, CoE in Amity Centre for Ocean-Atmospheric Science and Technology (ACOAST) & Amity Centre for Environmental Science and Health (ACESH)

Research Interest

Research interests include (i) To enlarge the scope of the on-going two-year M. Tech. Program “Atmospheric Technology and Climate Management (ATCM)” and other Allied Programs, (ii) To develop Air Pollution Monitoring, Control, Modelling and Forecast Techniques, (iii) Environmental and Human Health: Cohort Studies, (iv) Aerosol-Cloud-Radiation-Precipitation-Climate Interactions, (v) Atmosphere-Biosphere-Cryosphere Interlace, and Polar Science Studies.

As a part of the above Centres, a Multi-Disciplinary and Multi-Institutional Climate Research Laboratory (CRL) facility in collaboration with Aryabhata Research Institute and Observational Sciences (ARIES), Nainital; An Air Quality Monitoring-Diagnosis Station (AQMS) (National Network station); MICROTUPS-II Multi-Spectral Solar Radiometer and Ozone Monitor; and a Next-Generation Aethalometer in collaboration with Indian Institute of Tropical Meteorology (IITM), Pune; a NASA-AERONET Sun-sky Radiometer (International Network Station) in collaboration with NASA-GSFC, USA and a Polar Wavelength Integrating Nephelometer in collaboration with

Ecotech Pvt. Ltd., Australia, have been established.

The academic and research activities carried out, so far, include

- A Workshop on “Role of Aerosols in Air Quality, Weather and Climate” in 2015
- A series of Air Quality experiments during the “Odd-Even Scheme”, implemented by the Delhi Government
- An Indo-US Symposium on “Air Quality and Health Issues: The Global Experiences” in 2016
- Air Quality studies during Dust Storms, Festivals/Celebrations, Crop-Residue Burning Events during 2014-2021
- Ladakh Expedition of Air and Water Pollution” in 2019 and 2021
- An Intl. Symposium on “Air Pollution – Causes, Mitigation and Strategic Planning” in 2019.
- Special observations of “Air Pollution during Pre-, During and Post-COVID-19 Outbreaks”.

Publications

1. Sonbawne, S.M., P.C.S. Devara and B.D. Priyanka, 2021: Multisite characterization of

concurrent black carbon and biomass burning around COVID-19 lockdown period, *Urban Climate*, Volume 39, September 2021, 100929 Impact Factor: 6.16).

2. Srivastava, A.K., P.D. Bhojar, V.P. Kanwade, P.C.S. Devara, A. Thomas and V.K. Soni (2021): Improved air quality during COVID-19 at an urban Megacity over the Indo-Gangetic Basin: From stringent to relaxed lockdown phases, *Urban Climate*, 36, 100791 (Impact Factor: 6.16).
3. Devara, P.C.S., A. Kumar, P.B. Sharma, Padmakali Banerjee, A.A. Khan, S.M. Sonbawne, S. Tiwari, A. Tripathi and G. Beig (2021): Multi-Sensor Study of the Impact of Air Pollution on COVID-19, *Journal of Infectious Diseases & Research (JIDR)*, 4(1): 157-168, ISSN: 2688-6537.
4. Devara, P.C.S., K. Vijayakumar and P. D. Safai (2020): Multispectral nephelometer characterization of urban aerosols, *Measurement*, 154, 107471 (Impact Factor: 3.364).
5. Vijayakumar, K., P.C.S. Devara, S.M. Sonbawne, M.G. David, B.N. Holben, S.V.B. Rao and C.J. Shankar (2020): Solar radiometer sensing of multi-year aerosol features over a tropical urban station: direct-Sun and inversion products, *Atmos. Meas. Tech.*, 13, 5569–5593, 2020 <https://doi.org/10.5194/amt-13-5569-2020> (Impact Factor: 3.65).
6. Devara, P.C.S., Kumar, A., Sharma, P.B., Banerjee, P., Khan, A.A., Tripathi, A., Tiwari, S and Beig, G. (2020): Influence of Air Pollution on Coronavirus (COVID-19): Some Evidences from Studies at AUH, Gurugram, India, *Open Research Communication in the Social Science Research Network (SSRN)*, USA, <https://dx.doi.org/10.2139/ssrn.3588060>

7. Chatterjee, A., Devara, P.C.S., Balasubramanian, R. and Daniel A. J. (2019): Aerosol Climate Connection (AC3) Special Issue: An Overview. *Aerosol and Air Quality Research*, 19, 1-4, ISSN: 1680-8584 print / 2071-1409 online, doi: 10.4209/aaqr.2018.11.0435 (Impact Factor: 2.59).
8. Dumka, U.C., D.G. Kaskaotis, P.C.S. Devara, R. Kumar, S. Tiwari, E. Gerasopoulos and N. Mihalopoulos (2019): Year-long variability of the fossil fuel and wood burning black carbon components at a rural site in southern Delhi outskirts, *Atmospheric Research*, 216, 11-25 (Impact Factor: 4.976).
9. Devara, P.C.S., K. Vijayakumar, S.M. Sonbawne, D.M. Giles, B.N. Holben, S.V.B. Rao and C.K. Jayasankar (2019): Study of aerosols over Indian subcontinent during El Nino and La Nina events: Inferring land-air-sea interactions, *International Journal of Environmental Sciences & Natural Resources*, 16(5), 1-10 (Impact Factor: 0.594).

Book Chapters

Abul Amir Khan, Naresh Chandra Pant, Rajesh Joshi and Panuganti C.S. Devara, 2021: Chemical and Isotopic Variability of Bhagirathi River Water (Upper Ganga), Uttarakhand, India

Sonbawne, S.M., P.C.S. Devara, P.R.C. Rahul and K.K. Dani, 2021: Transient Variations in En Route Southern Indian Ocean Aerosols, Antarctic Ozone Climate and its Relationship with HOx and NOx. In: Book titled "Understanding Antarctic Environment: An Integrated Approach from Climate Change Perspective", Taylor and Francis (In Press).

Sonbawne, S.M., P.C.S. Devara, G.S. Meena, S.K. Saha, G. Pandithurai and P.D. Safai, 2021: Multiyear Measurements of Black Carbon Aerosols and Solar Radiation over Himadri, Ny-Ålesund:

Effects on Arctic Climate. In: Textbook titled "Understanding Arctic Environment: An Integrated Approach from Climate Change Perspective", Taylor and Francis (In Press).

Awards/Honors

1. BEST RESEARCH AWARD, International Research Awards on New Science Inventions (NESIN Awards), ScienceFather, February 2021.
2. LIFETIME ACHIEVEMENT AWARD, International Scientist Awards on Engineering, Science and Medicine, VDGGOOD, December 2020
3. EMINENT SCIENTIST AWARD, World Environment Summit, ESDA 2020.
4. SCIENTIFIC ADVISOR, M/s Clean Technology Equipment Pty Ltd., Australia, 2019
5. SCIENCE RESEARCH REVIEW AWARD, Environmental Pollution, Elsevier, 2019
6. SCIENCE RESEARCH REVIEW AWARD, Atmospheric Environment, Elsevier, 2020
7. SCIENCE RESEARCH REVIEW AWARD, Atmospheric Research, Elsevier, 2021



AMITY CENTER FOR NANOTECHNOLOGY

INTRODUCTION

The Amity Centre for Nanotechnology was established at the Amity University Haryana, campus to accomplish the goal of enhancing advanced research in the areas of Nanoscience and Nanotechnology. The leading area of research includes nanomaterials, nanocomposites, nanoelectronics, nanofabrication, nanobiotechnology, ferrites for microwave applications, high frequency applications, radar absorbing materials, water purification, DNA biosensors, nanosensors, diamond synthesis, metamaterials, agricultural applications of nanomaterials, renewable energy. ACNT research is mainly focused on application based research such as different translational aspects of Nanotechnology viz. 3D printing and fabrication technology, Agriculture applications, Nanosensor development & synthesis of diamonds etc. In addition to research, the centre also aims to conduct training and awareness programmes, workshops national and international conferences on recent trends and developments of Nanoscience on various themes of national and international interests. The institute offers Ph. D. degrees programs in Nanotechnology.

CURRENT RESEARCH

ACNT focus research area is to fabricate nano devices and to explore new and advanced materials and nanomaterials for advanced electronic, spintronic, valleytronics, optoelectronic, energy device technologies, biotechnology, environmental technology and defense technology. Major areas of research:

- Synthesis and characterization of nanomaterials for 3-D printing and fabrication technology
- Development of hydroelectric cell
- Nanomaterials for agriculture applications
- Development of point of care diagnostic devices using biosensors
- Synthesis of diamond at atmospheric pressure

RESEARCH HIGHLIGHTS

Five R&D projects have also been submitted to different funding agencies and also filed patents on different nanotechnology aspects. Centre has facilities for nanomaterials synthesis, electrochemical characterization and Molecular Biology techniques etc.

RESEARCH FACILITIES

Research facilities include 3D Printer, Hydraulic press, Potentiostat/Galvanostat with Impedance Analyzer, Picoammeter, Deep Freezer, Electrophoretic Assembly, Vacuum Oven, Thermal Evaporator, Furnace, Digital storage Oscilloscope, Pushing Tester and Bending Tester.

FACULTY

Dr. Atul Thakur, PhD, Professor (Director)

Dr. Ankur Kaushal, PhD, Associate Professor

Dr. Brijesh Kumar, PhD, Associate Professor

Dr. Lucky Krishnia, PhD, Assistant Professor



Prof. Atul Thakur

Nanomaterials, nanocomposites, nanoelectronics, nanofabrication, nanobiotechnology, ferrites for microwave applications, high frequency applications, radar absorbing materials, water purification, metamaterials, agricultural applications of nanomaterials, renewable energy

Research Interest

Prof Thankur research is focused on application of Nanomaterials, nanocomposites, nanoelectronics, nanofabrication, nanobiotechnology, ferrites for microwave applications, high frequency applications, radar absorbing materials, water purification, metamaterials, agricultural applications of nanomaterials, renewable energy

Publications

1. Development of tungsten doped Ni-Zn nanoferrites with fast response and recovery time for hydrogen gas sensing application, A Pathania, P Thakur, AV Trukhanov, SV Trukhanov, LV Panina, U Lüders, .Results in Physics 15, 102531, 2019
2. Recent advances in synthesis, characterization, and applications of nanoparticles for contaminated water treatment- A review PinkiPunia, Manish Kumar Bharti, Sonia Chalia, Rakesh Dhar, Blaise Ravelo, Preeti Thakur, Atul Thakur. Ceramics International Volume 47, Issue 2, 15 January 2021, Pages 1526-1550.
3. Synthesis of barium ferrite nanoparticles using rhizome extract of Acorus Calamus: Characterization and its efficacy against

different plant phytopathogenic fungi. Atul Thakur, Nidhi Sharma, Manpreet Bhatti, Monica Sharma, Alex V. Trukhanovde, Serge V.Trukhanovde, Larissa V.Paninad, Ksenia A.Astapovich, PreetiThakur. Nanostructures and nanoobjects. Volume 24, October 2020, 100599.

4. Influence of Bismuth Doping on Structural, Electrical and Dielectric Properties of Ni-Zn Nanoferrites. Shilpa Taneja, Deepika Chahar, Preeti Thakur, Atul Thakur*. Journal of Alloys and Compounds, 2020, 157760.
5. Remarkable Resistivity and Improved Dielectric Properties of Co-Zn Nanoferrites for High Frequency Applications. (2020) Chahar D, Taneja S, Thakur P*, Thakur A. Journal of Alloys and Compounds 843: 155681. Impact Factor: 4.650
6. Low leakage current density and improved dielectric behavior of BiFexO3 nano-ceramics. Chandel S, Thakur P*, Thakur A. Journal of Alloys and Compounds, Volume 845, 2020, 156287,
7. A review on MnZn ferrites: Synthesis, characterization and applications. Preeti Thakur*, Chahar D, Taneja S, Bhalla N, Thakur A. Ceramics International, 2020, 46 15740-15763.

8. Innovative Theory of Low-Pass NGD Via-Hole-Ground Circuit. Wan F, Liu B, Thakur P*, Thakur A. IEEE Access, vol. 8, pp. 130172-130182, 2020, doi:10.1109/ACCESS.2020.3009286..
9. OIO-Shape PCB Trace Negative Group-Delay Analysis. (2020) Wan F, Liu B, Thakur P*, Thakur A. IEEE Access 8:97707 – 97717.
10. Manganese Zinc Ferrites: a Short Review on Synthesis and Characterization. (2020) Thakur P, Taneja S, Sindhu D, Lüders U, Sharma A, Ravelo B, Thakur A. Journal of Superconductivity and Novel Magnetism 33: 1569–1584. Impact Factor: 1.244.
11. Negative group delay experimentation with tee connector and cable structures. (2020) Thakur P*, Thakur A, Preeti Thakur P*, Thakur A, Ravelo B. Eur. Phys. J. Appl. Phys. (EPJAP) (Accepted for publication).
12. Magnetodielectric substrate effect on bandpass Li-circuit NGD performance. (2020) Ajay K, Preeti Thakur P*, Thakur A, Prasad M.S., Nhogo S, Ravelo B. IEEE Explore
13. Colorimetric sensing approaches of surface modified gold and silver nanoparticles for detection of residual pesticides: A Review. (2020) R Singh, P Thakur, A Thakur, H Kumar, P Chawla, J V. Rohit, R Kaushik. International Journal of Environmental Analytical Chemistry, 1-17.
14. Potential of Magnetic Nanoferrites in Removal of Heavy Metals from Contaminated Water: Mini Review (2020) Bharti M. K, Gupta S & Chalia S, Garg I, Thakur P, & Thakur A. Journal of Superconductivity and Novel Magnetism doi10.1007/s10948-020-05657-1.
15. Colorimetric assay for visual determination of imidacloprid in water and fruit samples using asparagine modified gold nanoparticles, R Singh, N Kumar, R Mehra, A Walia, H Kumar, K Sharma, A Thakur Journal of the Iranian Chemical Society, 1-9
16. Effect of Lanthanum Doping on Microstructural, Dielectric and Magnetic Properties of Mn_{0.4}Zn_{0.6}Cd_{0.2}LaxFe_{1.8-x}O₄ (0.0 ≤ x ≤ 0.4), PTAT Manish Kumar Bharti, Sonia Chalia, Journal of Superconductivity and Novel Magnetism 2021 (<https://doi.org/10...>)
17. Low-loss Characteristics and Sustained Magneto-dielectric Behaviour of Cobalt Ferrite Nanoparticles over 1-6 GHz Frequency Range, AT Manish Kumar Bharti, Sonia Chalia, Preeti Thakur, Glemarie C. Hermosa, An ... Ceramics International
18. Design and Test of Innovative Three Couplers-Based Bandpass Negative Group Delay Active Circuit F Wan, T Gu, S Lalléchère, P Thakur, A Thakura, W Rahajandraibe, IEEE Design & Test
19. Nanoferrites heterogeneous catalysts for biodiesel production from soybean and canola oil: a review, MK Bharti, S Chalia, P Thakur, SN Sridhara, A Thakur, PB Sharma Environmental Chemistry Letters, 1-20
20. Dielectric resonator negative group delay circuit, T Gu, F Wan, P Thakur, A Thakur, S Lalléchère, W Rahajandraibe, ... Radio Science 56 (4), 1-13.
21. Recent Advances on Synthesis, Characterization and High Frequency Applications of Ni-Zn Ferrite Nanoparticles, AT Preeti Thakur, Shilpa Taneja, Deepika Chahar, Blaise Ravelo Journal of Magnetism and Magnetic Materials
22. Colorimetric sensing approaches based on silver nanoparticles aggregation for determination of toxic metal ions in water sample: A review, RKNK Rajat Singh, Rahul Mehra, Ankita Walia, Simmy Gupta, Prince Chawla, Harish ... International Journal of Environmental Analytical Chemistry, 1-16

Patents

1. A Method for Preparing Nano-Composite Antimicrobial Polymers For Manufacturing Respirator Mask, 202011031429, 22.07.2020
2. Dr. Atul Thakur, Dr. Preeti Thakur, Deepika, Pritam Babu Sharma, A method for cobalt substituted zinc ferrite assisted photocatalytic degradation of methylene blue, 202011018761, 01.05.2020
3. Dr. Atul Thakur, Dr. Preeti Thakur, Shilpa Taneja, A Method For Synthesis Of Bismuth Doped Ni-Zn Ferrites, 202011017917, 27.04.2020



Nanomaterials, Nanocomposites, Nanobiotechnology, Electrochemical nanosensors for Disease diagnosis, Lateral flow assays

Dr. Ankur Kaushal

Research interest

My research group focuses upon development of portable electrochemical point of care devices for instant detection of different infectious diseases and zoonotic infections like Rheumatic heart

disease, Scrub typhus, Celiac disease, Leptospirosis & food borne pathogens etc. We have developed mobile operated portable electrochemical platform for the diagnosis of Scrub typhus.

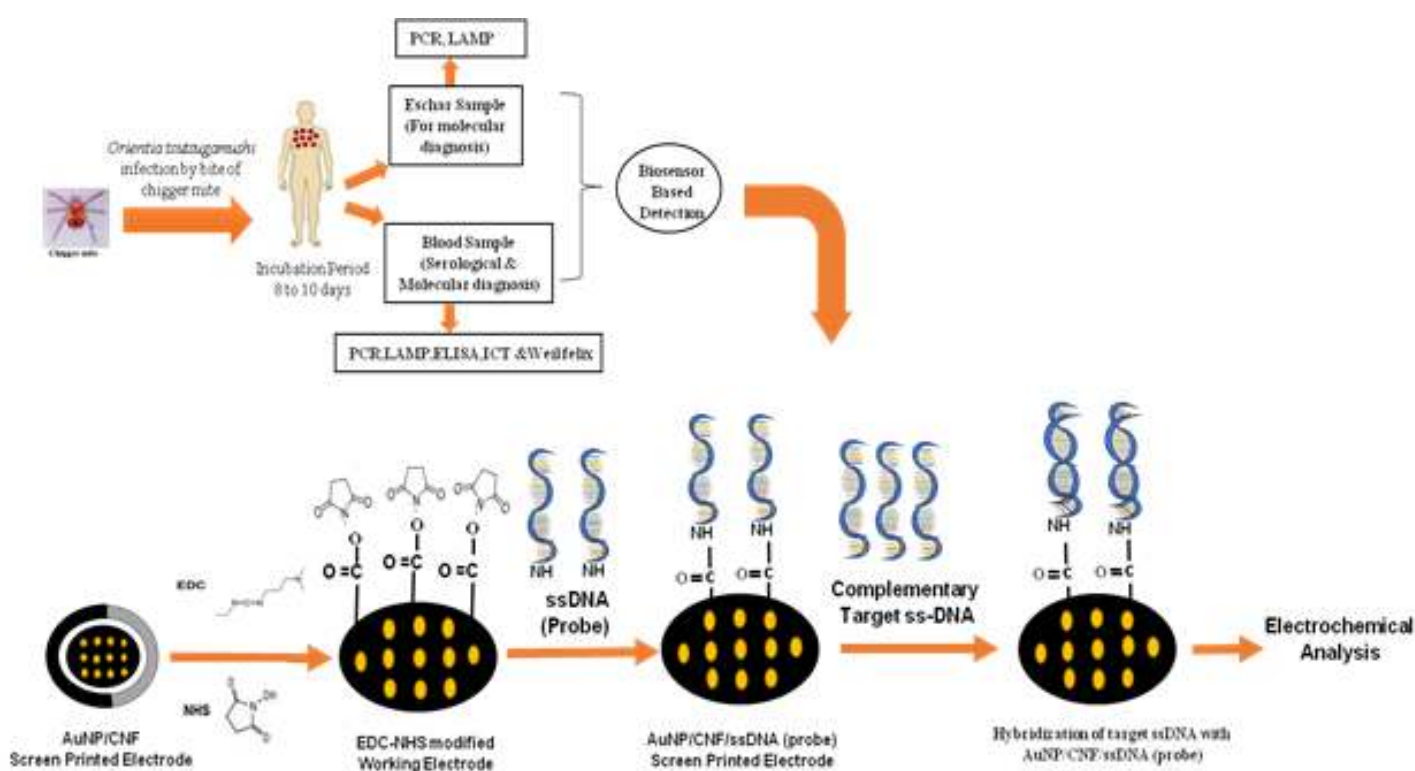
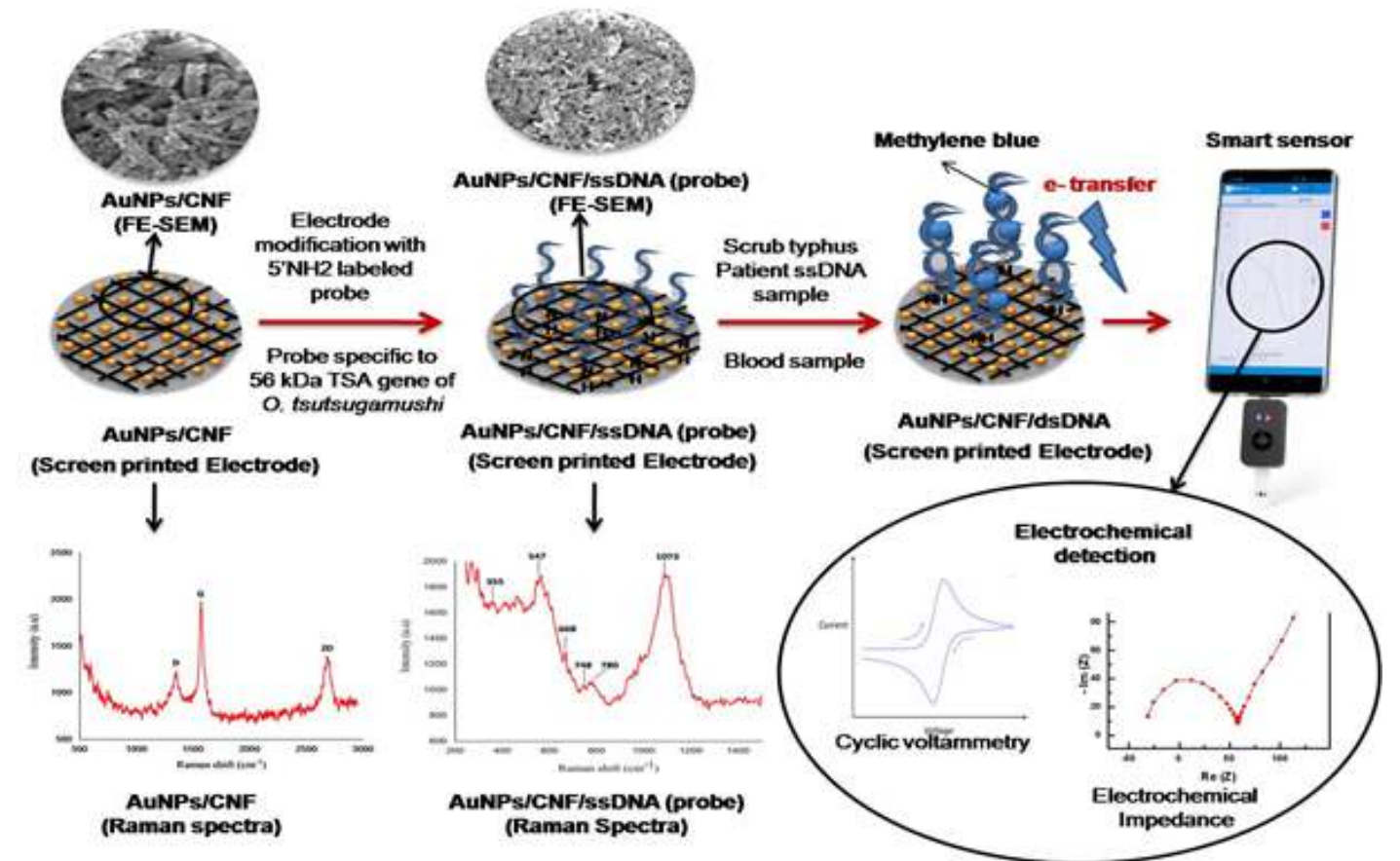


Fig.: Schematic representation of Electrochemical DNA chip fabrication process along with types of specimen collection and available methods for detection of scrub typhus



Publications

1. Singhal C, Bruno J, Kaushal A, Sharma T. (2021) Recent Advances and a Roadmap to Aptamer-Based Sensors for Bloodstream Infections. ACS Applied Bio Materials. <https://doi.org/10.1021/acsbm.0c01358>
2. Kumar H, Chen BH, Kuca K, Nepovimova E, Kaushal A, Nagraik R, Kumar D (2020) Understanding of Colistin Usage in Food Animals and Available Detection Techniques: A Review. Animals 10 (10), 1892 (Impact Factor: 2.32)
3. Nagraik R, Kaushal A, Gupta S. (2020) Leptospirosis: A systemic review. Journal of Microbiology Biotechnology Food Science. 9 (6), 1099-1109
4. Kala D, Gupta S, Thakur A, Kaushal A*. (2020) Diagnosis of Scrub Typhus: Recent Advancements and Challenges. 3 Biotech. 10, 396 (Impact Factor: 1.79)
5. Kala D, Sharma T, Gupta S, Thakur A, Kaushal A*. (2020) AuNPs/CNF-modified DNA biosensor for early and quick detection of *O. tsutsugamushi* in patients suffering from scrub typhus 3 Biotech. 10, 446 (Impact Factor: 1.79)
6. Saini K, Kaushal A, Gupta S, Kumar D. (2020) PlcA based nanofabricated electrochemical DNA biosensor for the detection of *Listeria monocytogenes*. 3 Biotech. 10 (7), 1-10 (Impact Factor: 1.79)
7. Kumar H, Kuča K, Bhatia SK, Saini S, Kaushal A, Verma V, Bhatta TC, Kumar D (2020) Applications of Nanotechnology in Biosensor-

- Based Detection of Foodborne Pathogens. *Sensors*. 20 (7), 1966. (Impact Factor: 3.27)
8. Verma V, Goyal M, Kala D, Gupta S, Kumar D, Kaushal A (2020) Recent advances in the diagnosis of leptospirosis. *Frontiers in Bioscience, Landmark*. 25 (9), 1655-1681. (Impact Factor: 2.74)
 9. Nagraik R, Kaushal A, Gupta S, Sethi S, Sharma A, Kumar D (2020) Nanofabricated versatile electrochemical sensor for *Leptospira interrogans* detection. *Journal of Bioscience and Bioengineering*. 129 (4), 141-146 (Impact Factor: 2.36)
 10. Graphene Oxide Nanoparticles Modified Paper Electrode as a Biosensing Platform for Detection of the *htrA* Gene of *O. tsutsugamushi*, KA Kala D, Sharma T K, Gupta S, Thakur A, *Sensors* 21, 4366
 11. Nanohybrid electrochemical enzyme sensor for xanthine determination in fish samples, NK Sharma, A Kaushal, S Thakur, N Thakur, D Kumar, TC Bhalla, *3 Biotech* 11 (5), 1-7
 12. Miniaturized devices for point-of-care testing/miniaturization and integration with microfluidic systems, KD Kaushal A, Seth A, *Biosensor Based Advanced Cancer Diagnostics*, 373-381
 13. Integrated Low-cost Biosensor for Rapid and Point-Of-Care Cancer Diagnosis, KD Kaushal A, *Biosensor Based Advanced Cancer Diagnostics*, 383-391
 14. *Leptospira interrogans* Outer Membrane Protein-Based Nanohybrid Sensor for the Diagnosis of Leptospirosis, V Verma, D Kala, S Gupta, H Kumar, A Kaushal, K Kuča, N Cruz-Martins, ...*Sensors* 21 (7), 2552
 15. Recent Advances and a Roadmap to Aptamer-Based Sensors for Bloodstream Infections, TKS Chaitali Singhal, John G. Bruno, Ankur Kaushal, *ACS Applied Bio Materials* 593, 113574



AWARDS & RECOGNITIONS



Dr. Padmakali Banerjee Dr. Abul Amir Khan Dr. Amitabh Tripathi Dr. Shivpoojan Kori



Dr. Brijesh Kumar Dr. Satish Sardana Dr. PCS Devara Dr. SMP Khurana



Dr. Monica Vats Dr. Sushma Gandhi Mr. Rakesh Kr. Chaudhary Dr. Umesh Chandra



Dr. Suniti Sood Dr. Shikha Bhardwaj Dr. Naveen BP Dr. Khushboo Tripathi



Dr. Anirban Das Dr. Gurvinder Singh Dr. Luxita Sharma Dr. Deep Suhag



Dr. Munidra Ruwali Dr. Ravi Datta Sharma Dr. Deepika Dhamija Dr. Tanushri Purohit

SN	DEPARTMENT	NAME AND DESIGNATION OF THE FACULTY MEMBERS/ SCIENTISTS	AWARDS/ RECOGNITIONS/ FELLOWSHIP OF PROFESSIONAL ACADEMIES/ ASSOCIATIONS
2019			
1	ACOAST	Prof. Dr. Panuganti C.S. Devara Director, Professor and Head	MEMBER, Organizing Committee, International Symposium on "Air Pollution - Causes, Mitigation and Strategic Planning" at AUH, Gurugram
2	ACOAST	Prof. Dr. Panuganti C.S. Devara Director, Professor and Head	Round-trip Travel and Registration Fee Award by the Organizers and Logistics Support by AUH, Gurgaon to participate as a Member, International Member in the International SKYNET Workshop held at MoES, New Delhi during 13-15 February 2019.
3	ACOAST	Prof. Dr. Panuganti C.S. Devara Director, Professor and Head	Round-trip International Travel Award by the Organizers and Logistics Support by AUH, Gurgaon to participate as an Advisor in the EU's Project "Stratospheric Climate Change (StratoClim)".
4	ACOAST	Dr. Abul Amir Khan, Assistant Professor	Life Member of Environment and Social Development Association (ESDA)
5	ACOAST	Dr. Amitabh Tripathi, Assistant Professor	Life member of "Environment and Social Development Association (ESDA)" (L-353)
6	ASAS	Dr. Shivpoojan Kori, Assistant Professor	"Best faculty award (Male)" by International academic and research excellence awards (IARE-2019).

7	AINT	Dr. Brijesh Kumar Associate Prof. & Head-	Visiting Professor at School of Advanced Materials Science & Engineering, Sungkyunkwan University (A University of SAMSUNG Group) S. Korea.
8	AIP	Dr. Satish Sardana, Professor	Nirali's Pharma Recognition Award
9	ABS	Prof. Padmakali Banerjee	Received Certificate of Appreciation Award From International Conference on capacity Building in higher education institutions (ICBHE-2019) for contributions as a special speaker of plenary sessions
10	ABS	Prof. Padmakali Banerjee	Received Certificate of Appreciation Award From International Conference on capacity Building in higher education institutions (ICBHE-2019) for presenting the paper titled Effectiveness of a communication model Comtel for building capacity in Indian education sector
11	AIB	Prof.(Dr.) S.M. Paul Khurana	Honor for Excellence Award, ISMPP 40th Annual conference & national Symposium, Awards if Honour for Excellence
12	ASAS	Dr. Monica Vats	Received Certificate of Appreciation Award From National Conference on Recent Trends and Advancements in Chemical Science (RTACS-2019), Delhi University
13	ASCO	Prof. Dr. Sushma Gandhi	Excellence in Creative Arts & Journalism - Lifetime Achievement Award, Philosophique Poetica & Grand Productions, Canada
14	ASFA	Mr. Rakesh Kumar Chaudhary	National Poster Design competition on World Malaria Day, National, Navi Mumbai Municipal Corporation. Maharashtra

15	ASFA	Mr. Rakesh Kumar Chaudhary	Digital Painting Merit Certificate, National, Prafulla Dahanukar Art Foundation.
16	ASFA	Mr. Rakesh Kumar Chaudhary	Digital Painting Online Awards, International, Europe and Art in 21. St.
17	ASFA	Dr. Umesh Chandra Nayak	International Dhauli Art Festival 2019, Dhauli Art College, Bhubaneswar, Odisha.
2020			
18	ASFDT	Ms.Suniti Sood, Assistant Professor	Dr. Sarvepalli Radhakrishnan Award
19	ASFDT	Dr.Shikha Bhardwaj, Assistant Professor	Dr. Sarvepalli Radhakrishnan Award
20	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	National Award for All India Logo making competition 2020 ,Organized by Kala Jeevan Samiti, Bhiwani, Haryana
21	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	National Level Online Art Competition Award on CORONA (COVID'19) in Digital Painting Category ,Sri Kalakshetra, Artists Welfare Association, Tirupati, Andhra Pradesh, India
22	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	First Prize - (Award) for A National Level Online Art Competition and Exhibition on CORONA (COVID'19) in Digital Painting Category ,Department of Fine Arts, Kurukshetra University, Kurukshetra, Haryana, India
23	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	International First award for best digital artwork in the gold category , organized by pollen art Hyderabad. On the occasion of World Oceans Day

24	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Appreciation certificate for Online International Art Competition and Exhibition on CORONA (COVID'19) in Digital Painting Category , Russia-India Cultural Exchange (RICE)
25	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	First Prize - (Award) for A National Level Online Art Competition and Exhibition on Prevention of CORONA (COVID'19) awareness in Digital Painting Category ,Organized by Sanskar Bharti Meerut, Uttar Pradesh, India.
26	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Appreciation certificate for organizing an event to corona awareness, Team for needy foundation,NGO, New Delhi
27	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	MYCOLORS All India Drawing and Painting Competition Award on CORONA (COVID'19) in Digital Painting Category ,Organized by Mycolors Institute of Visual Arts, Pune, Maharashtra
28	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	All India Online Art Exhibition Selection, Soul & Spirit Art Society, Haryana
29	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	special invitee in National E-Exhibition "Artist vision ", Drawing&Painting department of R. G. P. G College Meerut.
30	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Award for All Indian Art Competition & Online Exhibition, Sanskar Bharti Palwal & Paagalbaba.com, Haryana
31	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	First Award in Rangoli Competition, ALS, Amity Amity University Gurugram on the occasion Amifest

32	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	92nd Annual Exhibit of AIFACS with my selected drawing work. All India Fine Arts & Crafts Society, New Delhi
33	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	International Award for Prevent it logo design contest funded project on 'Risk Management and Prevention of Antibiotics Resistance at, recognizes Internationally Leading the Erasmus+ (European Union) & Chitkara University
34	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	National Award for 5th All India online art competition 2019 in digital art categories , 27 Art point, Jodhpur City, Rajasthan, India
35	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Achievement- Selected as Guest artist, Impressions-2020, R. G. [PG] College, Meerut {UP}
36	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Achievement- Selected as Colaborative artist by- THE CARTIST FESTIVAL 2020, CARTIST 4, ASHOK NAGAR, AJMER ROAD, JAIPUR ,RAJASTHAN ,INDIA
37	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Achievement- Selected as Guest artist, Love Revolution International Art Exhibition, Art Novelty Gallery, Institute of Art & Craft, Manipur
38	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Achievement- Selected as Guest artist,AGONY 2020,Aligarh, Uttar Pradesh, India
39	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Online International Art Relay Award recieve, organized by- Russian-Indian Culture Exchange.

40	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	Selected Digital Art Work for Online Exhibition by Chandigarh Lalit kala Akademy- Celebrating 150 Birth anniversary
41	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	International award -for "Mask-O-Philia International Mask Drawing/Painting Workshop & Competition" Organized by Dept. of Fine Arts, Chitkara School of Art & Design, Chitkara University, Punjab,India
42	ASFA	Mr. Rakesh Kumar Chaudhary Assistant Professor	First Prize - (Gold Award) for A National Level Online Art Competition and Exhibition entitled "MY MONALISA" in Digital Painting Category Organized by Uchaan Foundation, New Delhi, India
43	ASET	Dr. Naveen B P, Assistant Professor	Sir M Visvesvaraya Award 2020
44	ASET	Dr Khushboo Tripathi, Professor	Young Researcher Award 2020 (will be published online in the month of December,2020, soft copy of award, professional membership, reviewer is already received)
45	ACOAST	Prof. Dr. Panuganti C.S. Devara Director, Professor and Head	LIFETIME ACHIEVEMENT AWARD in 'International Scientist Awards 2020 on Engineering, Science and Medicine' Category.
46	ACOAST	Prof. Dr. Panuganti C.S. Devara Director, Professor and Head	EMINENT SCIENTIST AWARD, ESDA
47	ACOAST	Prof. Dr. Panuganti C.S. Devara Director, Professor and Head	Patron Member & Life Member, Environment and Social Development Association (ESDA)

48	ASAS	Dr. Anirban Das Associate Professor	Membership: Royal Society of Chemistry (RSC), UK
49	ASAS	Dr. Anirban Das Associate Professor	Teachers Associateship for Research Excellence (TARE) Award of SERB Rs 19.8 Lakh Grant
50	ASAS	Dr. Gurvinder Singh Bumbrah, Assistant Professor	3 rd Position in Technical Session of National Colloquium for the Sustainable Development of Forensic Science, All India Forensic Science Meet-2020 at S.G.T.B. Khalsa College, University of Delhi
51	ASAS	Dr. Gurvinder Singh Bumbrah, Assistant Professor	1 st Position in Technical Session of Forensic Science Conclave "Kriminalistika: Unravelling The Mystery" National Conference at Department of Anthropology, University of Delhi.
52	AMS	Dr Luxita Sharma , Associate Professor and Head	Contributuion towards Education Community-Kites Krafts education awards under Asian education awards
53	AMS	Dr Luxita Sharma , Associate Professor and Head	Life Member of IAPEN - The Indian Association of Enteral and Parenteral Nutrition
54	AIB	Dr. Deepa Suhag, Assistant Professor-II	Lifetime member of INSA
55	AIB	Dr. Munindra Ruwali, Assistant Professor	Young Scientist Award (Third Place) at 6th International Conference on Translational approaches in Clinical, Environmental & Biotechnological Research: "GenoPro-2019" from October 11-12, 2019 at Invertis University
56	AIB	Dr. Munindra Ruwali, Assistant Professor	Young Scientist Award in Virtual "International Conference on Basic and Translational Cancer

			Research: Novel Ideas and Approaches (ICBT-2020)
57	AIB	Dr. Munindra Ruwali, Assistant Professor	Teachers Associateship for Research Excellence (TARE), SERB
58	AIB	Dr. Ravi Datta Sharma, Assistant Professor	PhD fellowship, University of Navarra, Spain
59	ACC	Dr. Deepika Dhamija, Assistant Professor	Best paper Award, International Conference on Artificial Intelligence and Computer Science
60	ASET	Dr. Mahesh Kumar, Assistant Professor	Best Research Paper Award in AMIET Conference-2020, CONTROL STRATEGY FOR BACK-TO-BACK VSC OF DFIG IN THE WIND POWER GENERATION FOR SMART MICROGRIDS
61	ASET	Dr. Naveen B P, Assistant Professor	Senior Educator and Scholar Award, Significant Contribution to Teaching and Scholarly activities in the field of Civil Engineering, NFED
2021			
62	AMS	Dr. Luxita Sharma, Associate Professor	AWARD - Excellence in Outstanding accomplishment, IAPEN - Indian association of Parenteral and Enteral Nutrition
63	ACOAST	Prof. Dr. P.C.S. Devara, Professor	Best Research Award, The Award was presented by ScienceFather, Scifax company (Reg. No. 130116), Approved and Registered by Ministry of Corporate Affairs (MCA), Govt. of India.
64	ASFA	Mr. Rakesh Kumar Chaudhary, Assistant Professor	Art Award, Art freaksglobal People's Choice Art Award-2021

65	ABS	Dr. Tanushri Purohit, Assistant Professor	Best Paper award among 415 papers from 20 countries, Paper on "Women Entrepreneurship and Community Development: An Indian Perspective" has been selected as Best Paper at Two-day IIHSG International Conference 2021
66	ACC	Dr. Deepika Dhamija, Assistant Professor	Women Researcher Award, VDGOD, Technology Factory, International Scientist Award 2021 On Engineering, Science and Medicine
67	ASFA	Mr. Rakesh Kumar Chaudhary, Assistant Professor	Top 10 Place in International Art Competition and Exhibition, The Artdom Group, Maharashtra
68	AMS	Dr. Luxita Sharma, Associate Professor	National Nutrition Icon Award, Mahanagar Global Achievers Award Session 5
69	ASET/ECE	Dr. Neeraj Gupta, Assistant Professor	Best paper Award, Amity University Gwalior
70	ASFA	Mr. Vinod Chachere, Assistant Professor	International Fine Art Exhibition 2021, Eastern Foundation of Art & Culture
71	ASFA	Mr. Abhijit Kumar Mohanty, Rakesh Kumar Chaudhary	Selection for International Art Exhibition, Olympia virtual art exhibition, Tokyo Olympic, Japan
72	ASFA	Mr. Rakesh Kumar Chaudhary, Assistant Professor	Selection for International Art Exhibition, Olympia virtual art exhibition, Tokyo Olympic, Japan Isparta Municipality and International Island Country Artists, 1st Culture and Art Festival.
73	AIB	Ms. Manisha Dagar, Ph.D Student	The Herbert Tabor Award, The Journal of Biological Chemistry presents the JBC Herbert Tabor Early Career Investigator Award



Dr Amit Kumar Pandey
 Amity institute of Biotechnology
 Impact Factor - 15.7



Seminars in Cancer Biology xxx (xxxx) xxx



A comprehensive review of the multifaceted role of the microbiota in human pancreatic carcinoma

Gouri Pandya^{a,1}, Anuradha Kirtonia^{a,1}, Aishwarya Singh^{a,1}, Arul Goel^b, Chakrabhavi Dhananjaya Mohan^c, Kanchugarakoppal S Rangappa^d, Amit Kumar Pandey^e, Sonia Kapoor^a, Simran Tandon^a, Gautam Sethi^{f,*,*}, Manoj Garg^{a,*}

^a Amity Institute of Molecular Medicine and Stem Cell Research (AIMMCCR), Amity University, Uttar Pradesh, Noida, 201313, India
^b La Canada High School, La Canada Flintridge, CA 91011, USA
^c Department of Studies in Molecular Biology, University of Mysore, Manasagangoori, Mysore 570006, India
^d Institution of Excellence, Vijnana Bhavan, University of Mysore, Manasagangoori, Mysore 570006, India
^e Amity Institute of Biotechnology, Amity University Haryana, Manesar, Haryana 122413, India
^f Department of Pharmacology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore 117600, Singapore

ARTICLE INFO

Keywords:
 Microbiota
 Pancreatic ductal adenocarcinoma
 Drug metabolism
 Immunotherapy
 Fecal microbial transplantation

ABSTRACT

Pancreatic carcinoma is associated with one of the worst clinical outcomes throughout the globe because of its aggressive, metastatic, and drug-resistant nature. During the past decade, several studies have shown that oral, gut, and tumor microbiota play a critical role in the modulation of metabolism and immune responses. Growing pieces of evidence have proved beyond a doubt that the microbiota has a unique ability to influence the tumor microenvironment as well as the metabolism of chemotherapeutic agents or drugs. Given this, microbiota, known as the ecological community of microorganisms, stands to be an avenue of quality research. In this review, we provide detailed and critical information on the role of oral, gut, and pancreatic microbiota disruptions in the development of pancreatic carcinoma. Moreover, we comprehensively discuss the different types of microbiota, their potential role, and mechanism associated with pancreatic carcinoma. The microbiome provides the unique opportunity to enhance the effectiveness of chemotherapeutic agents and immunotherapies for pancreatic cancer by maintaining the right type of microbiota and holds a promising future to enhance the clinical outcomes of patients with pancreatic carcinoma.



Dr Amit Kumar Pandey
Amity institute of Biotechnology
Impact Factor - 15.7



Dr. Ravi Dutta Sharma
Amity institute of Biotechnology
Impact Factor - 13.11

Contents lists available at ScienceDirect

Seminars in Cancer Biology

journal homepage: www.elsevier.com/locate/semcancer

Review

Repurposing of drugs: An attractive pharmacological strategy for cancer therapeutics

Anuradha Kirtonia^{a,e}, Kavita Gala^{b,e}, Stina George Fernandes^{b,e}, Gouri Pandya^{a,e}, Amit Kumar Pandey^c, Gautam Sethi^d, Ekta Khattar^{b,*}, Manoj Garg^{a,*}

^a Amity Institute of Molecular Medicine and Stem cell Research (AIMMSCR), Amity University Uttar Pradesh, Noida, 201313, India
^b Sunandam Divan School of Science, SVKM's NMIMS (Deemed to be University), Vile Parle West, Mumbai, 400056, India
^c Amity Institute of Biotechnology, Amity University Haryana, Manesar, Haryana, 122413, India
^d Department of Pharmacology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, 117600, Singapore
^e Equal contribution

ARTICLE INFO

Keywords:
Cancer
Drug repurposing/repositioning
Antidiabetic
Antibiotic
Antifungal
Anti-inflammatory
Antipsychotic
PDE inhibitors
Metformin
Aspirin

ABSTRACT

Human malignancies are one of the major health-related issues throughout the world and anticipated to rise in the future. The development of novel drugs/agents requires a huge amount of cost and time that represents a major challenge for drug discovery. In the last three decades, the number of FDA approved drugs has dropped down and this led to increasing interest in drug repositioning or repurposing. The present review focuses on recent concepts and therapeutic opportunities for the utilization of antidiabetics, antibiotics, antifungal, anti-inflammatory, antipsychotic, PDE inhibitors and estrogen receptor antagonist, Antabuse, antiparasitic and cardiovascular agents/drugs as an alternative approach against human malignancies. The repurposing of approved non-cancerous drugs is an effective strategy to develop new therapeutic options for the treatment of cancer patients at an affordable cost in clinics. In the current scenario, most of the countries throughout the globe are unable to meet the medical needs of cancer patients because of the high cost of the available cancerous drugs. Some of these drugs displayed potential anti-cancer activity in preclinical and clinical studies by regulating several key molecular mechanisms and oncogenic pathways in human malignancies. The emerging pieces of evidence indicate that repurposing of drugs is crucial to the faster and cheaper discovery of anti-cancerous drugs.

RESEARCH ARTICLE | MICROBIOLOGY

VapBC22 toxin-antitoxin system from *Mycobacterium tuberculosis* is required for pathogenesis and modulation of host immune response

Sakshi Agarwal¹, Arun Sharma^{1,*}, Rania Bouzeyen^{2,*}, Amar Deep³, Harsh Sharma⁴, Kiran K. Mangalaparthy⁵
 + See all authors and affiliations

Science Advances 03 Jun 2020:
Vol. 6, no. 23, eaba6944
DOI: 10.1126/sciadv.aba6944

Article

Figures & Data

Info & Metrics

eLetters

PDF

Abstract

Virulence-associated protein B and C toxin-antitoxin (TA) systems are widespread in prokaryotes, but their precise role in physiology is poorly understood. We have functionally characterized the VapBC22 TA system from *Mycobacterium tuberculosis*. Transcriptome analysis revealed that overexpression of VapC22 toxin in *M. tuberculosis* results in reduced levels of metabolic enzymes and increased levels of ribosomal proteins. Proteomics studies showed reduced expression of virulence-associated proteins and increased levels of cognate antitoxin, VapB22 in the $\Delta vapC22$ mutant strain. Furthermore, both the $\Delta vapC22$ mutant and VapB22 overexpression strains of *M. tuberculosis* were susceptible to killing upon exposure to oxidative stress and showed attenuated growth in guinea pigs and mice. Host transcriptome analysis suggests upregulation of the transcripts involved in innate immune responses and tissue remodeling in mice infected with the $\Delta vapC22$ mutant strain. Together, we demonstrate that the VapBC22 TA system belongs to a key regulatory network and is essential for *M. tuberculosis* pathogenesis.



Dr. Ravi Dutta Sharma &
Ujjaini Das Gupta
Amity institute of Biotechnology
Impact Factor – 12.9



Dr. Rajendra Prasad &
Dr. AmreshPrakas
Amity institute of Biotechnology
Impact Factor – 11.6

Angewandte
International Edition **Chemie**



A Journal of the
German
Chemical Society

Research Article

Bile Acid Tethered Docetaxel-Based Nanomicelles Mitigate Tumor Progression through Epigenetic Changes

Vedagopuram Sreekanth, Animesh Kar, Sandeep Kumar, Sanjay Pal, Poonam Yadav, Yamini Sharma, Varsha Komalla, Harsh Sharma, Radhey Shyam, Ravi Datta Sharma, Arnab Mukhopadhyay, Sagar Sengupta, Ujjaini Dasgupta ✉, Avinash Bajaj ✉ ... See fewer authors ^

First published: 30 November 2020 | <https://doi.org/10.1002/anie.202015173> | Citations: 2

Read the full text >



Abstract

In this study, we describe the engineering of sub-100 nm nanomicelles (DTX-PC NMs) derived from phosphocholine derivative of docetaxel (DTX)-conjugated lithocholic acid (DTX-PC) and poly(ethylene glycol)-tethered lithocholic acid. Administration of DTX-PC NMs decelerate tumor progression and increase the mice survivability compared to Taxotere (DTX-TS), the FDA-approved formulation of DTX. Unlike DTX-TS, DTX-PC NMs do not cause any systemic toxicity and slow the decay rate of plasma DTX concentration in rodents and non-rodent species including non-human primates. We further demonstrate that DTX-PC NMs target demethylation of CpG islands of Sparc1 (a tumor suppressor gene) by suppressing DNA methyltransferase activity and increase the expression of Sparc1 that leads to tumor regression. Therefore, this unique system has the potential to improve the quality of life in cancer patients and can be translated as a next-generation chemotherapeutic.

> Brief Bioinform. 2021 Mar 22;22(2):1346-1360. doi: 10.1093/bib/bbaa378.

Identifying the natural polyphenol catechin as a multi-targeted agent against SARS-CoV-2 for the plausible therapy of COVID-19: an integrated computational approach

Chandra Bhushan Mishra ¹, Preeti Pandey ², Ravi Datta Sharma ³, Md Zubair Malik ⁴, Raj Kumar Mongre ¹, Andrew M Lynn ⁵, Rajendra Prasad ⁶, Raak Jeon ⁷, Amresh Prakash ⁷

Affiliations + expand

PMID: 33386025 PMID: PMC7799228 DOI: 10.1093/bib/bbaa378

Free PMC article

Abstract

The global pandemic crisis, coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has claimed the lives of millions of people across the world. Development and testing of anti-SARS-CoV-2 drugs or vaccines have not turned to be realistic within the timeframe needed to combat this pandemic. Here, we report a comprehensive computational approach to identify the multi-targeted drug molecules against the SARS-CoV-2 proteins, which are crucially involved in the viral-host interaction, replication of the virus inside the host, disease progression and transmission of coronavirus infection. Virtual screening of 75 FDA-approved potential antiviral drugs against the target proteins, spike (S) glycoprotein, human angiotensin-converting enzyme 2 (hACE2), 3-chymotrypsin-like cysteine protease (3CLpro), cathepsin L (CTSL), nucleocapsid protein, RNA-dependent RNA polymerase (RdRp) and non-structural protein 6 (NSP6), resulted in the selection of seven drugs which preferentially bind to the target proteins. Further, the molecular interactions determined by molecular dynamics simulation revealed that among the 75 drug molecules, catechin can effectively bind to 3CLpro, CTSL, RBD of S protein, NSP6 and nucleocapsid protein. It is more conveniently involved in key molecular interactions, showing binding free energy (ΔG_{bind}) in the range of -5.09 kcal/mol (CTSL) to -26.09 kcal/mol (NSP6). At the binding pocket, catechin is majorly stabilized by the hydrophobic interactions, displays ΔE_{vdW} values: -7.59 to -37.39 kcal/mol. Thus, the structural insights of better binding affinity and favorable molecular interaction of catechin toward multiple target proteins signify that catechin can be potentially explored as a multi-targeted agent against COVID-19.



Dr. Deepa Suhag
Amity institute of Biotechnology
Impact Factor – 9.0



Dr. Atul Thakur
Amity Center for Nanotechnology
Impact Factor – 9.0

ACS APPLIED MATERIALS
& INTERFACES

www.acsami.org

Research Article

Water-Templated, Polysaccharide-rich Bioartificial 3D Microarchitectures as Extra-Cellular Matrix Bioautomatons

Swati Kaushik, Sonu Gandhi, Mehak Chauhan, Shaohua Ma, Souvik Das, Deepa Ghosh, Aneesh Chandrasekharan, Md Bayazeed Alam, Avanish Singh Parmar, Alpana Sharma, T. R. Santhoshkumar, and Deepa Suhag*

Cite This: ACS Appl. Mater. Interfaces 2020, 12, 20921–20921

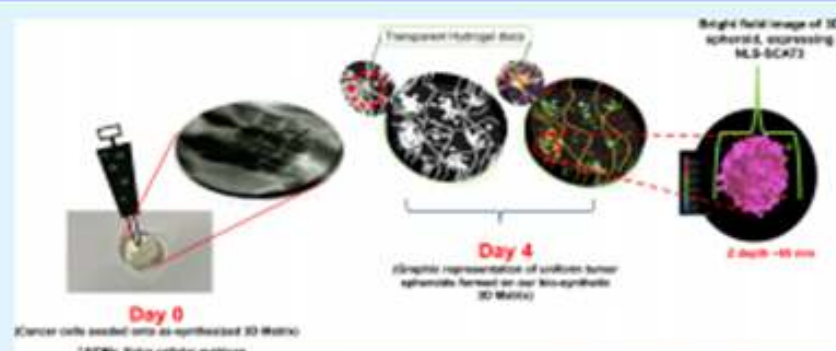
Read Online

ACCESS |

Metrics & More

Article Recommendations

Supporting Information



ABSTRACT: This is the first report of exploiting the “quasi-spherical” shape of water molecules for recapitulating a true human extracellular matrix (ECM). Herein, water behaved as a quasi-spherical porogen, for engineering polysaccharide-rich and chemically defined 3D-microarchitecture, with semi-interpenetrating networks (S-IPNs). Furthermore, their viscoelastic behavior along with a heterogeneous, fibroporous morphology, facilitated instructive, self-remodeling of the bioartificial scaffolds, thence effectively permitting and promoting the growth of 3D tumor spheroids of divergent origins. The hybrid composites displayed reproducible, uniform tumor spheroids with a Z-depth of $\sim 65 \pm 2 \mu\text{m}$ in case of human adenocarcinoma (DLD-1) and $\sim 54 \pm 3 \mu\text{m}$ for human glioblastoma cells (U-251) (vs. nonuniform spheroids, on Agarose matrix). Thereafter, their capacity for anticancer drug screening was examined using limited cancer drugs. The conflicting drug screening results for Etoposide’s reduced efficacy on glioblastoma cells cultured on our 3D matrix could be ascribed to decreased drug access and thus lower ingress. Nonetheless, adenocarcinoma’s resistance to Camptothecin was paralleled. Moreover, their potential for real-time, high-content, phenotypic precision oncology was affirmed by the exceptional transparency of the synthesized composite. Since this 3D microarchitecture typifies ECM bioautomaton, this matrix can also be wielded for precision oncology.

KEYWORDS: polysaccharide-hydrogels, three-dimensional spheroids, water templates, extracellular matrix biomimics, anticancer drug screening, real-time screening and transparency

Environmental Chemistry Letters

<https://doi.org/10.1007/s10311-021-01247-2>

REVIEW



Nanoferrites heterogeneous catalysts for biodiesel production from soybean and canola oil: a review

Manish Kumar Bharti¹ · Sonia Challa¹ · Preeti Thakur² · S. N. Sridhara³ · Atul Thakur⁴ · P. B. Sharma¹

Received: 24 March 2021 / Accepted: 23 April 2021

© The Author(s), under exclusive licence to Springer Nature Switzerland AG 2021

Abstract

Fossil fuel depletion and pollution are calling for alternative, renewable energies such as biofuels. Actual challenges include the design of efficient processes and catalysts to convert various feedstocks into biofuels. Here, we review nanoferrites heterogeneous catalysts to produce biodiesel from soybean and canola oil. For that, transesterification is the main synthesis route and offers simplicity, cost-effectiveness, better process control, and high conversion yield. Catalysis with nanoferrites and composites allow to obtain yields higher than 95% conversion with less than 5.0 wt.% of catalyst loading at 80 °C in 1–2 h. More than 90% conversion yields can be achieved with a moderate alcohol/oil molar ratio, i.e., between 12:1 to 16:1. Catalyst recovery is easy due to the magnetic properties of nanoferrite, which can be effectively reused up to 4 times with less than 10% loss of catalytic efficiency.

Keywords Renewable energy · Biodiesel · Transesterification · Catalysis · Heterogeneous catalysts · Nanoferrites



Dr. Supreet
Amity School of Applied Science
Impact Factor – 8.3



Recent advances on cadmium free quantum dots-liquid crystal nanocomposites

Supreet^a, Gautam Singh^{b,*}

^aDepartment of Physics, Amity School of Applied Sciences, Amity University Haryana 122413, India

^bDepartment of Applied Physics, Amity Institute of Applied Sciences, Amity University, Noida, Uttar Pradesh 201313, India

ARTICLE INFO

Article history:
Received 17 June 2020
Revised 4 September 2020
Accepted 19 September 2020

Keywords:
Liquid crystals
Quantum dots
Cd-free quantum dots
Electro-optical devices

ABSTRACT

Liquid crystal (LC) nanoscience has been witnessing a paradigm shift towards the dispersion of Cadmium (Cd) based quantum dots (QDs) into LCs to enhance their electro-optical properties and produce highly efficient tunable electro-optical devices. However, the severe toxicity of Cd based QDs impedes their technological impact on the LC based tunable electro-optical devices and hence demands for the usage of Cd-free QDs. Here, we present a critical review on recent accomplishments and insights in the Cd-free QDs doped LC nanocomposites. The investigations on these nanocomposites have clearly demonstrated that the core/shell structure QDs (CdS/ZnS, InP/ZnS and Co-ZnO/ZnO), ZnO and ZnS based QDs, Carbon Dots, and perovskite-quantum dots possess the strong potentials to greatly modulate the properties of LCs and hence could be used as alternative eco-friendly dopants. Moreover, the focus has been made on summarizing how the size and shape dependent optical and electronic properties of Cd-free QDs influence the electrical, electro-optical and photoluminescent properties of different types LCs (i.e. nematic, chiral nematic and ferroelectric). The overview on inclusive existing status, challenges, and future scope of Cd-free QDs-LC nanocomposites has also been discussed. The present review indicates that LC nanocomposites made of Cd-free QDs hold a great promise for their futuristic applications in various robust, low cost, tunable and sustainable electro-optical devices.

© 2020 Elsevier Ltd. All rights reserved.

1. Introduction

Liquid Crystal (LC) is an intermediate state of matter between a crystalline solid and an isotropic liquid (Fig. 1) [1]. They possess many of the mechanical properties of isotropic liquid such as high fluidity, formation, and coalescence of droplets, etc. and at the same time, exhibit large anisotropy in their optical, mechanical, electrical, and magnetic properties as in the crystalline solids. The characteristic feature of LCs is the presence of long-range orientational order in the arrangement of constituent molecules, and sometimes one or two dimensional quasi long-range translational (or positional) order. LCs exhibits a great variety of phases, which differ one from another by their structure and physical properties [2]. For display applications, LC materials with rod-shaped molecules are the most commonly used even till today. The molecules of LCs are typically rod-shaped organic moieties – (having length 25 Å approx.) and their ordering is a function of temperature. The LCs materials which show different LC phases (nematic

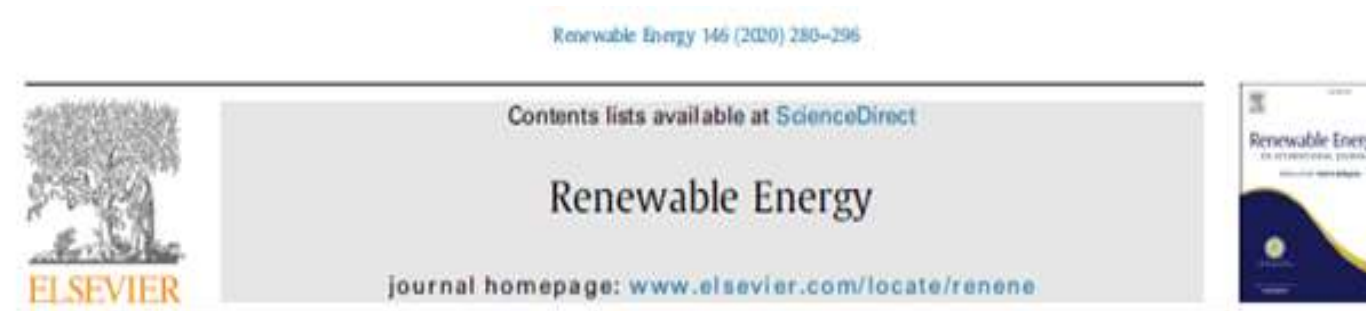
and smectic) on the variation in temperature are known as thermotropic LCs.

The nematic (N) phase, for example, is characterized by the long range orientational order of the constituent molecules i.e. all the molecules on the average oriented towards a common direction defined as director (\mathbf{n}). The molecular orientation (i.e. director \mathbf{n}) can be controlled with applied electric/magnetic/optical fields leading to the tunable electrical, electro-optical and optical properties of N phase. Most importantly, nematics are still the most commonly used LC phase in liquid crystal displays (LCDs), with many such devices using the twisted nematic geometry. The presence of chiral molecules in N phase causes a twist in the nematic structure and form a helical phase defined as a cholesteric LC or chiral nematic (N*) phase. Locally, the cholesteric LCs are very similar to the nematic LCs. They consist of quasi-nematic layers, whose individual directors are turned by a fixed angle on proceeding from one layer to the next. Although the nematic and cholesteric LCs are similar in their basic structures, the optical properties of the cholesterics are significantly different due to the strong twisting. In a certain spectral range, cholesteric LCs show a selective reflection of the circularly polarized light of the same handedness. The smectic phases, which are found at lower temperatures than the

* Corresponding author.
E-mail address: gsingh6@amity.edu (G. Singh).



Dr. S.N. Sridhara
Amity School of Engineering & Technology
Impact Factor – 8.0



Optimization and kinetic study of biodiesel production from *Hydnocarpus wightiana* oil and dairy waste scum using snail shell CaO nano catalyst

K.N. Krishnamurthy^{a,*}, S.N. Sridhara^b, C.S. Ananda Kumar^c

^aDepartment of Thermal Power Engineering, Centre for Post Graduate Studies, Vjvesvaraya Technological University, Mysuru, 570029, Karnataka, India

^bDepartment of Aerospace Engineering, Amity School of Engineering & Technology, Amity University, Haryana, India

^cDepartment of Nano Technology, Centre for Post Graduate Studies, Vjvesvaraya Technological University, Muddanahalli, 562101, Karnataka, India

ARTICLE INFO

Article history:
Received 3 January 2019
Received in revised form
27 May 2019
Accepted 28 June 2019
Available online 29 June 2019

Keywords:
Scum oil
Hydnocarpus wightiana oil
Calcium oxide
Nanoparticles
Kinetic study
RSM

ABSTRACT

The present study is an effort to optimize the production of biodiesel from dairy scum and *Hydnocarpus wightiana* oil using Snail shell CaO nanocatalyst for transesterification. Response surface methodology is used to optimize the reaction parameter that affects the transesterification process for the biodiesel yield. The CaO nanocatalyst was characterized by powder X-ray diffraction, Scanning Electron Microscopy, Energy-Dispersive X-ray Spectroscopy, Brunauer-Emmett-Teller, Fourier Transform Infrared Spectroscopy, Thermo Gravimetric/Differential Thermal Analysis and Atomic Force Microscopy. The maximum biodiesel yield for Scum Oil Methyl Ester and *Hydnocarpus wightiana* Oil Methyl Ester was (96.929%) and (98.933%) at the optimized condition: Methanol to oil molar ratio 12.7:1 and 12.4:1, catalyst dosage of 0.866 wt.% and 0.892 wt.%, reaction temperature 58.56°C and 61.6°C and reaction time 119.684 min and 145.154 min respectively. A comprehensive kinetic study for the transesterification reaction was performed at different temperatures (50–65°C) for the methanolysis of SO and HWO catalyzed by CaO nanoparticles. A pseudo-first order kinetic reaction was established and the activation energy (E_a) and frequency factor (A) for SO and HWO to be 67.21 kJ/mol-1 & 5.182 × 10⁸ min-1 & 73.15 kJ/mol-1 & 4.59 × 10⁹ min-1 respectively. Recovered CaO nanocatalyst is reused for 5 times with substantial loss in biodiesel yield.



Dr. Samridh Lal
Amity institute of Pharmacy
Impact Factor – 7.3



Dr. Arun Kumar
Amity institute of Pharmacy
Impact Factor – 7.3

Review > Drug Discov Today. 2021 Feb;26(2):532-541. doi: 10.1016/j.drudis.2020.10.029.

Epub 2020 Nov 4.

A therapeutic update on PARP inhibitors: implications in the treatment of glioma

Samridhi Lal¹, Timothy J Snape²

Affiliations – collapse

Affiliations

- 1 Amity Institute of Pharmacy, Amity University, Gurugram, 122413, Haryana, India. Electronic address: slal@ggn.amity.edu.
- 2 Leicester School of Pharmacy, De Montfort University, Leicester, LE1 9BH, UK.

PMID: 33157194 DOI: 10.1016/j.drudis.2020.10.029

Abstract

Central nervous system (CNS) cancers are among the most aggressive and devastating. Further, due to unavailability of neuro-oncologists and neurosurgeons, the specialized treatment options of CNS cancers are still not completely available in most parts of the world. Among various strategies of inducing death in cancer cells, inhibition of poly(ADP-ribose) polymerase (PARP) has emerged as a beneficial therapy when combined with other anticancer agents. In this review, we provide a detailed therapeutic update of PARP inhibitors that have shown clinical activity against glioma.

Copyright © 2020 Elsevier Ltd. All rights reserved.

Drug Discovery Today • Volume 25, Number 4 • April 2020

PERSPECTIVE



feature

The signaling interplay of GSK-3 β in myocardial disorders

Arun K. Sharma¹, asunpharma2013@gmail.com, akumar10@ggn.amity.edu, Punniyakoti V. Thanikachalam² and Saurabh Bhatia^{1,2*}

Glycogen synthase kinase-3 (GSK-3) regulates numerous signaling transductions and pathological states, from cell growth, inflammation, apoptosis, and heart failure to cancer. Recent studies have validated the feasibility of targeting GSK-3 β for its therapeutic potential to maintain myocardial homeostasis. Herein, we review the multifactorial roles of GSK-3 β in cardiac abnormalities, focusing primarily on recent investigations into myocardial survival. In addition, we discuss the cardioprotective potential of divergent GSK-3 β inhibitors. Finally, we also highlight crosstalk between the various mechanisms underlying abnormal myocardial functions in which GSK-3 β is involved.

Introduction

Glycogen synthase-3 (GSK-3) is a rate-limiting serine and threonine protein kinase with two paralogous genes, encoding GSK-3 α and GSK-3 β , characterized by individual spliced variants and kinase domains at their N and C-terminal sequences. Additionally, GSK-3 β 2 is a minor splice variant of GSK-3 β (as a 13-residue insert in the kinase domain). GSK-3 β 2 is commonly localized in neuronal cells, whereas the other isoforms (GSK-3 α and GSK-3 β) are expressed in numerous tissues [1]. GSK-3 β regulates a range of cellular processes by modulating various signaling cascades, including cell proliferation, apoptosis, and inflammation [1,2]. GSK-3 is constitutively active in resting cells, whereas active or upregulated GSK-3 β [i.e., overexpression of GSK-3 β mRNA or dephosphorylation of GSK-3 β] have been reported to induce myocardial injury through increased expression of Bax/Bcl-2 and caspase-3 in cardiomyocytes [3,4].

Conversely, phosphorylation of GSK-3 residues can modulate its substrate-binding potential [1]. Phosphorylation of GSK-3 β and α at tyrosine 216 and 279, respectively, increase the enzymatic activity of GSK-3. By contrast, phosphorylation of GSK-3 β and α at serine 9 and 21, respectively, inactivates GSK-3 by blocking its active site [1]. This switches GSK-3 between a phosphorylated and dephosphorylated state, making this a highly dynamic event that can impact various molecular pathways.

Myocardial diseases are prevalent worldwide and can be triggered by several risk factors, including diabetes, obesity, mitochondrial reactive oxygen species production, chronic pressure overload (cardiac remodeling), release of inflammatory cytokines, and ischemia-reperfusion (I/R) injury [5].

Furthermore, I/R injury leads to apoptosis, necrosis, and oxidative stress, further adding to cellular and tissue damage. Numerous recent

investigations have reported the cardioprotective potential of divergent GSK-3 β inhibitors, including SB216763, copper nanoparticles (NPs), adropin, rhein, resveratrol, sevoflurane, salivarnolic acid, and remifentanyl, against hypoxia-reperfusion-induced myocardial insult (Table 1) [5–12]. Moreover, myocardial hypertrophy, cardiac fibrosis, cardiomyopathy and parasympathetic dysfunction-induced myocardial damage was ameliorated by phosphorylation of GSK-3 β [13–15]. Consequently, there has been intense interest in developing a novel therapeutic strategy against cardiac diseases. Here, we summarize GSK-3 β -mediated molecular signaling in myocardial pathophysiology and highlight opportunities for new drug development.

Temporal and mechanistic transduction of GSK-3

The molecular cascades that are predicted to support kinase inhibition and result in the-



Dr. Ujjaini Das Gupta
Amity institute of Biotechnology
Impact Factor – 6.8

> *Nanoscale*. 2020 Sep 21;12(35):18463-18475. doi: 10.1039/d0nr01066a. Epub 2020 Sep 2.

Hydrogel-mediated delivery of celastrol and doxorubicin induces a synergistic effect on tumor regression via upregulation of ceramides

Nihal Medatwal¹, Mohammad Nafees Ansari, Sandeep Kumar, Sanjay Pal, Somesh Kumar Jha, Priyanka Verma, Kajal Rana, Ujjaini Dasgupta, Avinash Bajaj

Affiliations + expand

PMID: 32941570 DOI: 10.1039/d0nr01066a

Abstract

The release of anticancer drugs in systemic circulation and their associated toxicity are responsible for the poor efficacy of chemotherapy. Therefore, the identification of new chemotherapeutic combinations designed to be released near the tumor site in a sustained manner has the potential to enhance the efficacy and reduce the toxicity associated with chemotherapy. Here, we present the identification of a combination of doxorubicin, a DNA-binding topoisomerase inhibitor, with a naturally occurring triterpenoid, celastrol, that induces a synergistic effect on the apoptosis of colon cancer cells. Hydrogel-mediated sustained release of a combination of doxorubicin and celastrol in a murine tumor model abrogates tumor proliferation, and increases the median survival with enhanced apoptosis and concurrent reduction in proliferation. Sphingolipid profiling (LC-MS/MS) of treated tumors showed that the combination of celastrol and doxorubicin induces global changes in the expression of sphingolipids with an increase in levels of ceramides. We further demonstrate that this dual drug combination induces a significant increase in the expression of ceramide synthase 1, 4, and 6, thereby increasing the level of ceramides that contribute to the synergistic apoptotic effect. Therefore, hydrogel-mediated localized delivery of a combination of celastrol and doxorubicin provides a new therapeutic combination that induces a sphingolipid-mediated synergistic effect against colon cancer.



Dr. Ankush Vij
Amity School of Applied Science
Impact Factor – 6.6



Journal of Materials Chemistry C
Materials for optical, magnetic and electronic devices
Accepted Manuscript

This article can be cited before page numbers have been issued, to do this please use: M. Rao, M. Jain, P. Washibrida, S. Kumar, P. Rajput, G. Gupta, A. Vij and A. Thakur, *J Mater Chem C*, 2020, DOI: 10.1039/d0tc026754k.

This is an Accepted Manuscript, which has been through the Royal Society of Chemistry peer review process and has been accepted for publication.

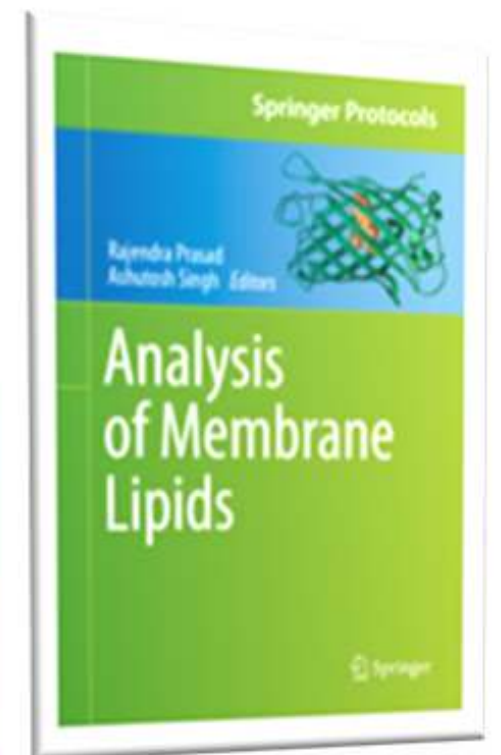
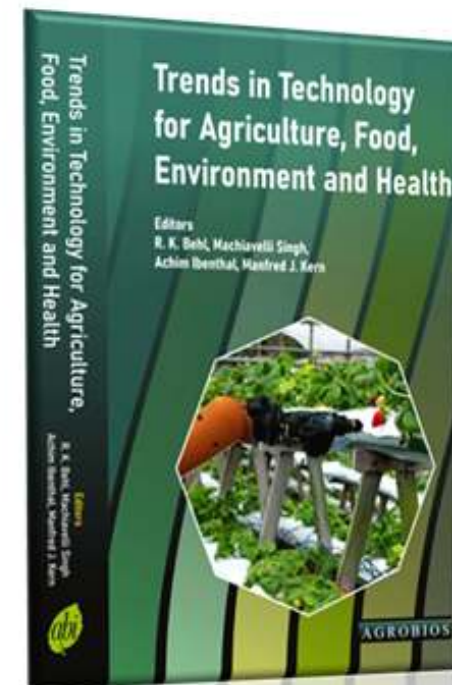
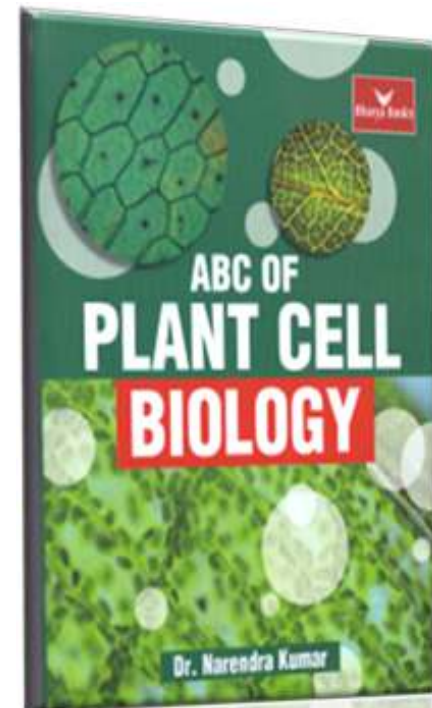
Accepted Manuscripts are published online shortly after acceptance, before technical editing, formatting and proof reading. Using this free service, authors can make their results available to the community, in citable form, before we publish the edited article. We will replace this Accepted Manuscript with the edited and formatted Advance Article as soon as it is available.

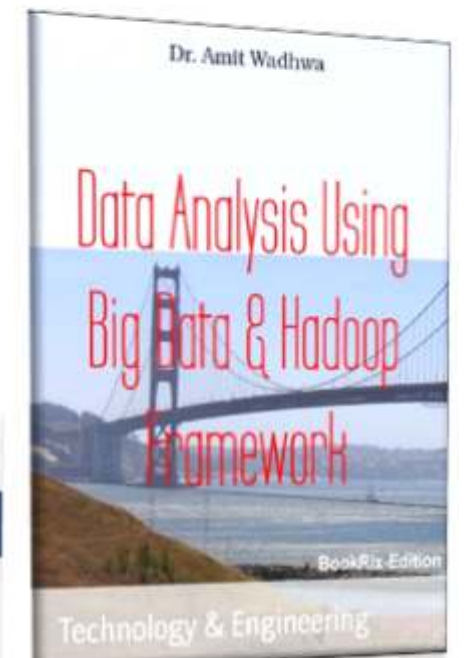
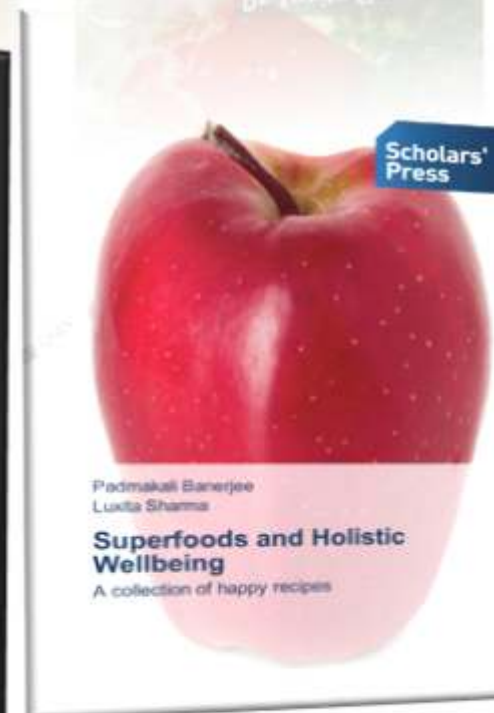
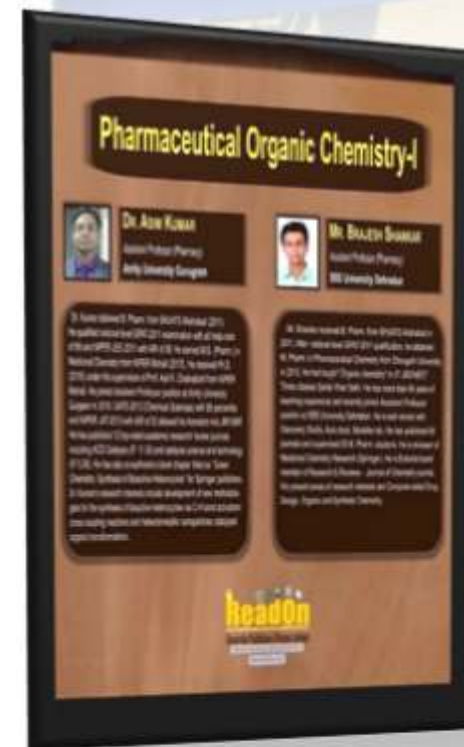
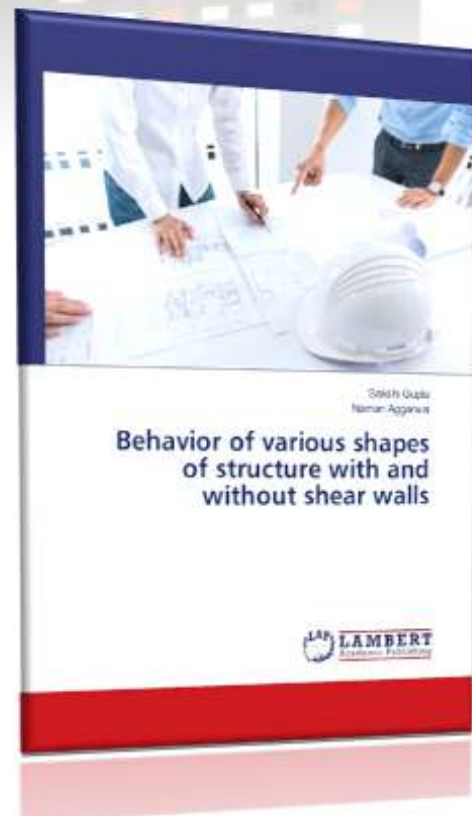
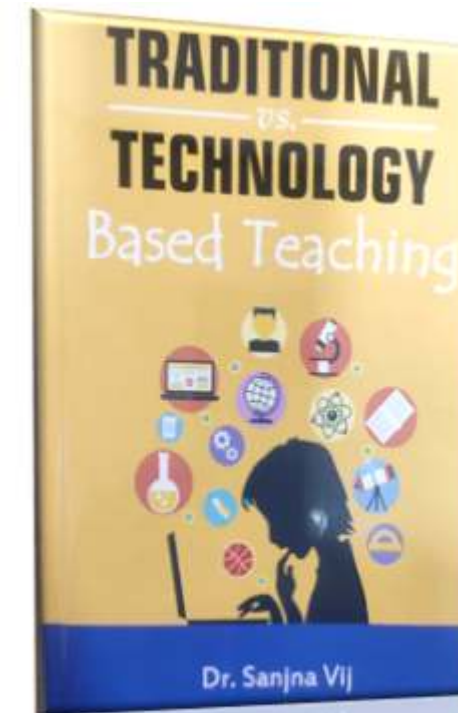
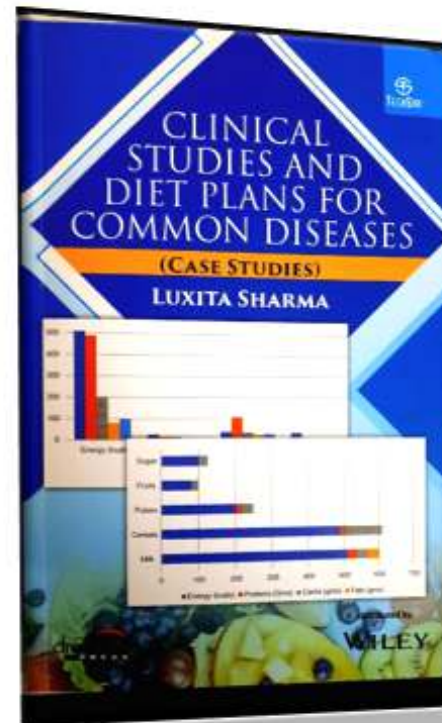
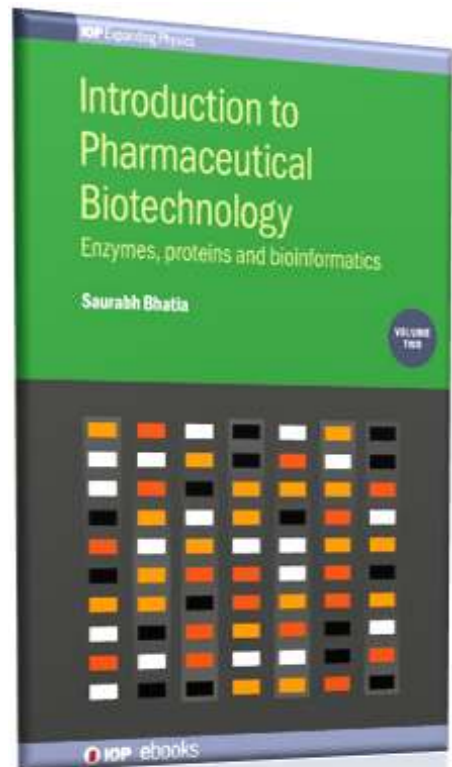
You can find more information about Accepted Manuscripts in the [Information for Authors](#).

Please note that technical editing may introduce minor changes to the text and/or graphics, which may alter content. The journal's standard [Terms & Conditions](#) and the [Ethical guidelines](#) still apply. In no event shall the Royal Society of Chemistry be held responsible for any errors or omissions in this Accepted Manuscript or any consequences arising from the use of any information it contains.



AUTHORED BOOKS







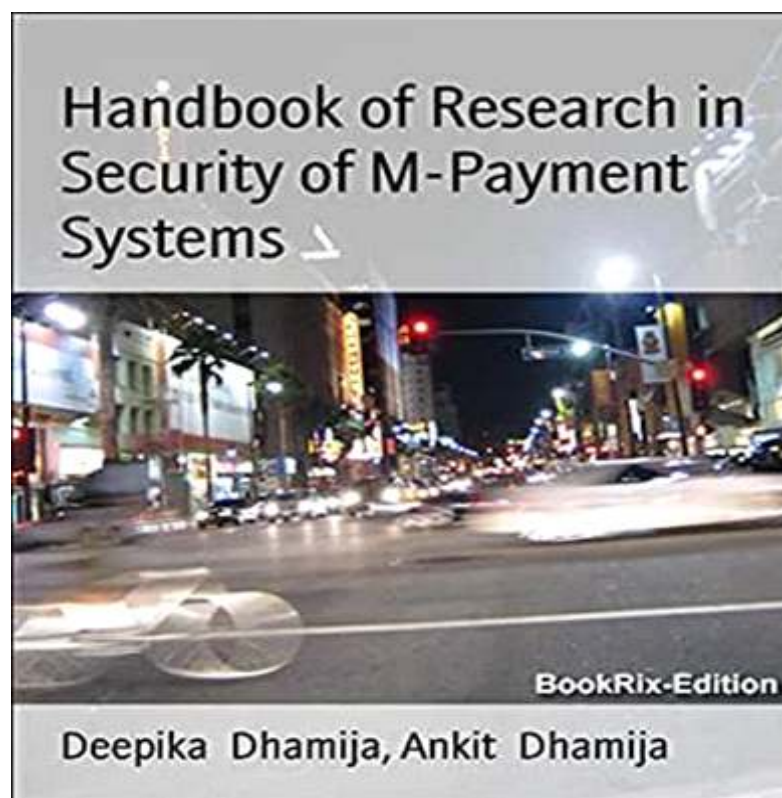
Handbook of Research in Security of M-Payment Systems(E-Book)

Deepika Dhamija

She has pursued Master of Computer Applications from Kurukshetra University, Kurukshetra She is a Ph.D. research Scholar at Computer Science Department at Sunrise University Alwar, Rajasthan. During her teaching experience of almost 12years, she has published various research papers in International and Referred Journals including Scopus Indexed Journals. She has also presented research articles at various national and international conferences

Short Description of Book

This book presents recent advancements in Mobile Payment Systems and their Security issues and prospects. It comprises of several chapters where in each of the chapter, novel techniques that enhances the security of mobile payment systems are discussed and presented. The readers of the book are going to get enriched with the knowledge about how the security of mobile payment systems can be enhanced.



Superfoods and Holistic Wellbeing- A Collection of Happy Recipes

**Padmakali Banerjee, Pro Vice Chancellor
Luxita Sharma, Associate Professor**

Padmakali Banerjee is a thought leader and a leadership coach. A doctorate from University of Delhi, she is the Fellow of the prestigious Somatic Inkblot Society (FSIS-US). Her current research interests include Optimism and wellbeing, curriculum design and leadership studies. A close associate of corporate functionaries her forte relates to mentoring, management consulting and leadership development extending to an array of industries like IT, Oil, FMCG, and Hospitality.

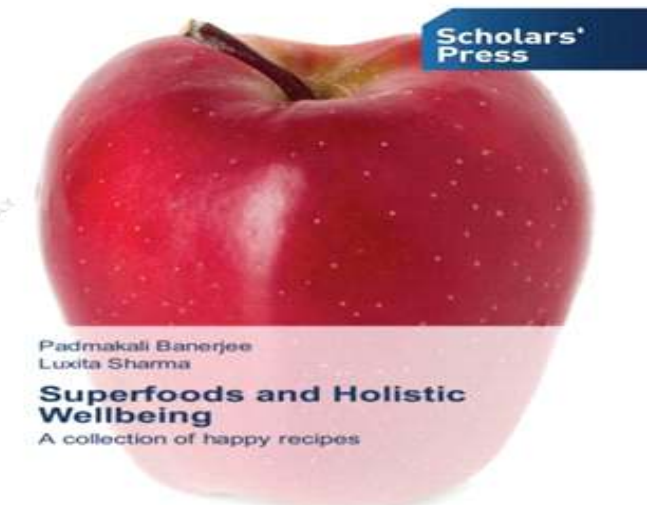
She heads Centre for BRICS Studies, a centre of excellence-practice, research and outreach. She spearheaded many innovative initiatives including the introduction of a flexible credit system, industry academic integration and internationalization.

She pioneered the skill development programme at the university. Her concepts and contributions on the Indian Skill development ecosystem have been widely recognized and acclaimed on both national and international platforms.]

She has received Award of Excellence from InSPA, the prestigious Indian School Psychology Association, for her contribution in the promotion of school psychology, Nov 14, 2019. Her book "The Power of Positivity - Optimism and the 7th Sense" published by SAGE is a popular choice globally.

Her research model PEROMA has been registered as a trademark for imparting, counseling, education and training schedule amongst the organization and general public to improve life and abilities. She has developed a psychometric test 'Optimism index', a tool to measure optimism quotient, popularly used by the corporate.

In her professional career, she has exhibited a passion for entrepreneurship by empowering youth and developing leaders in different walks of life. Her dream is to transform the world into a happier place to live in by instilling hope and optimism in today's youth.



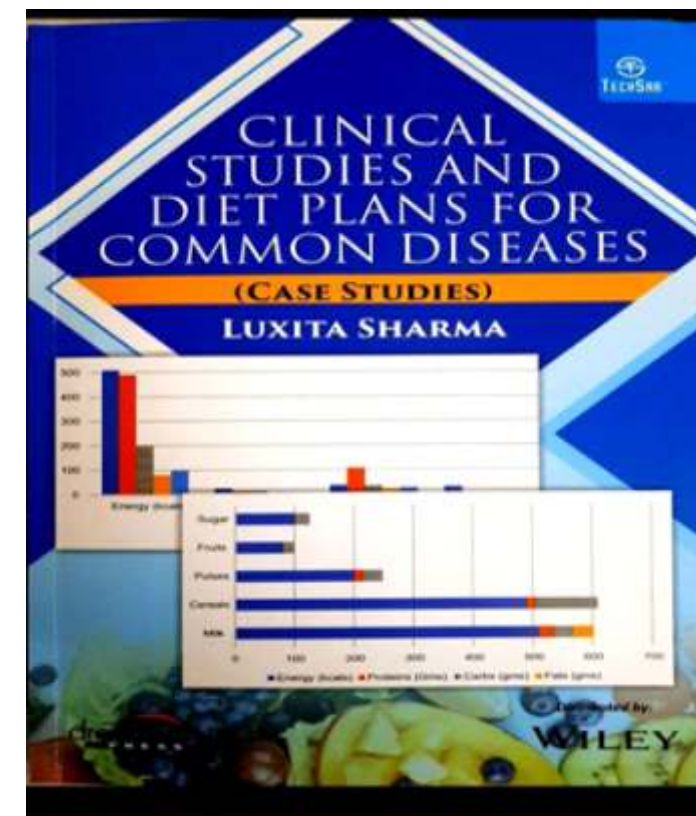
Short Description of Book

The Book- "Superfoods and Holistic Wellbeing" is a guide for the readers about preparation and consumption of food in a holistic healthy way. The Wellbeing is defined as to maintain the Physical, Mental, Emotional and Spiritual Health. This book has thirty five recipes full of nutrients. The preparation of these recipes is less time consuming. The recipes included are rich in vitamins, minerals, omega 3 fatty acids with many more nutrients. The Superfoods used in the preparation of recipes are apple, oats, papaya, spinach etc which are also called superfoods. Super Foods are full of nutrients and are very Important for our Holistic Well-Being.



Dr Luxita Sharma

Dr Luxita Sharma is Associate Professor and HOD, Department of Dietetics and Applied Nutrition, Amity University, Haryana. She has teaching and research experience of more than fifteen years. She is Ph.D in Food and Nutrition from Kurukshetra University, Kurukshetra. She has written Nine books and authored more than seventy Research papers. Her patents are published and she has bagged two National Awards and two International Awards



Clinical Studies and Diet Plans for Common Diseases: (Case Studies)

Short Description of Book

This book enlightens the readers about the practical aspects of Nutritional Science and its applicability for management of diseases. The case studies are elaborated in such a manner giving examples of rare and common combinations of two or three disorders that occur simultaneously in people and as the consequence the availability of food options is scarce. Such cases are a challenge for a nutritionist / dietician to handle and manage. This book will help the readers in such a manner that they can opt for food options available freely and seasonally. This book guides the readers to prepare and planning of combination diets.



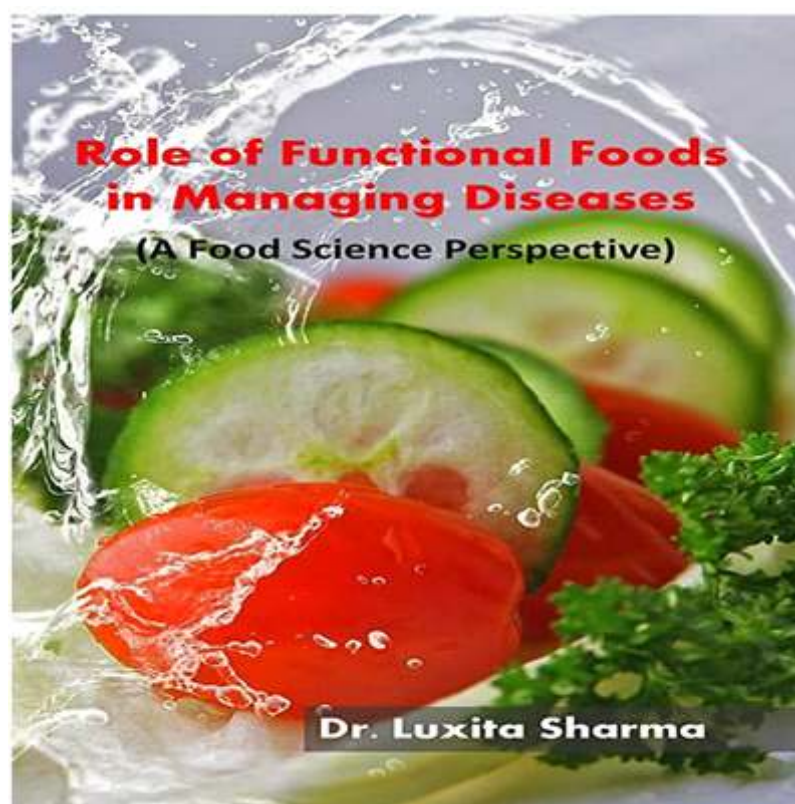
**Role of Functional Foods in Managing Diseases -
A Food Science Perspective**

Dr Luxita Sharma

Dr Luxita Sharma is Associate Professor and HOD, Department of Dietetics and Applied Nutrition, Amity University, Haryana. She has teaching and research experience of more than fifteen years. She is Ph.D. in Food and Nutrition from Kurukshetra University, Kurukshetra. She has written Nine books and authored more than seventy Research papers. Her patents are published and she has bagged two National Awards and two International Awards

Short Description of Book

The book "Role of Functional Foods in Managing Diseases"(A Food Science Perspective) is being written to impart knowledge on the benefits, chemistry and cultivation of all food groups. The functional foods are the group of foods that provides benefits to health beyond nutrition and nutrients. Functional Foods provide many additional benefits which are important to prevent and manage the existing disorders in Human body.



**Trends in Technology for Agriculture,
Food, Environment and Health**

Editors: Dr. (Prof.) RK Behl, Dr. Machiavelli Singh,
Dr. (Prof.) Achim Ibenenthal , Dr. (Prof.) ManfredJ. Kern

Dr. Machiavelli Singh

Dr. Machiavelli Singh is an Associate Professor, Amity Institute of Biotechnology (AIB); Adjunct Faculty, Amity Institute of Integrative Sciences & Health (AIISH).

Dr. Singh obtained his Masters (2001) and Doctoral (2010) degree in Biotechnology from Thapar University Patiala (TUP), he began his research career as UNDP fellow under ITSAP project at TIFAC-CORE from 2001 to 2004. He is qualified WIPO alumnus on IPR management systems and EyeTeach program from Brien Holden Vision Institute (BHVI) Australia and WHO Competency-Based Learning program 2020. Dr. Machiavelli's passion for research in Microbial Biotechnology developed special interests in Molecular Markers and Diagnostics, Bioprocess Plant Designing, Agro Ecosystem Management & IPR. He developed the molecular markers for novel microbial bio inoculants using ERIC-PCR technique, mass produced and studied the dynamics of soil microbial communities under diversified cropping patterns.

Currently he is observing insights of Plant-Microbe Interactions. He achieved an IEEE funded project under All India Young Engineers' Humanitarian Challenge He has 22 peer reviewed papers and nine book chapters to his credit along with four books. He is guiding one Ph.D. on molecular diagnostics.

His first edited International Book "Biotechnology – Progress and Prospects" published by Studium Press LLC USA, 2015.. He convened a national conference on "Contemporary Issues in Biotechnology in 2014" and coordinated two international meetings for IFSDAA 2017/18 in Germany. He is Joint Coordinator MGIRI – AUH activities for youth skilling programs on rural industrialisation. He is an active member of SSARM (India) and consistent worker for IFSDAA (Germany) towards its expansion and industry integration. He is onboard advisor and consultant to FloritechOrgano Industries India.

Book in Brief: Innovations coupled with entrepreneurs in Science and Technology are essentially needed for realizing the UN goals of the 2030 Agenda for Sustainable Development. For that matter, appropriate, affordable, simple and easy to use technologies should be generated for sustainable agriculture, safe food, environment protection and tangible health. Science, Technology, Innovations and Entrepreneurships can increase the efficiency, effectiveness, impact and complement the efforts of government and institutions for socio-economic and environmental benefits under climate change. Several innovations and green technologies, biotechnologies, agri-technologies developed and spread around the world over the last few decades, have helped improving crop growth and health, establishing enterprises in agriculture, food and feed processing, health/hygiene, infrastructure and civic amenities in rural and urban settings.

Digital technologies support almost free and fast flow of ideas, knowledge and data offering opportunities for collaborative and open approaches to innovation in Science, Technology, and Entrepreneurship for inclusive growth. This book contains thirty-seven papers contributed by luminaries in science and technology and young researchers from various countries. For systematic and comprehensive reading these papers have been resolved into five sections including two vision papers on plant-based meat alternatives and GM food and feed and thirty-five papers included in four sections namely Crop Improvement; Sustainability, Energy and Environment; Biologically Oriented Agriculture; Technology for Health Diagnostics. This book will serve the valuable purpose by inspiring the readers from among teachers, scientists, research scholars, students, NGO's, policy planners alike to enrich their knowledge pool.



Dr Narendra Kumar

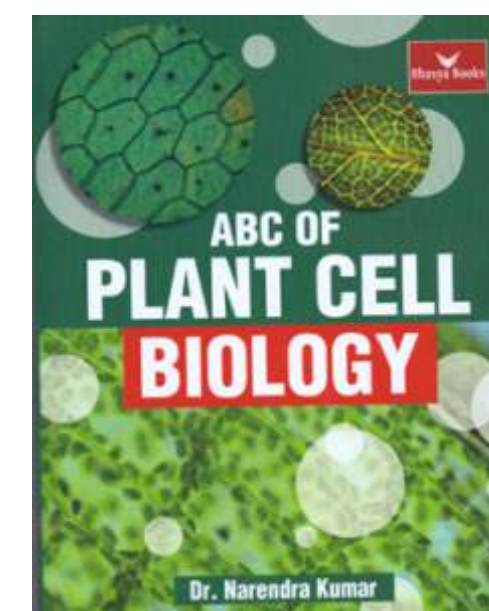
ABC OF PLANT CELL BIOLOGY

Dr. Narendra Kumar earned his Ph.D. in 2002 in Microbiology(Botany)from Gorakhpur University. Since then he is doing research and teaching UG/PG students. Presently working as an Associate Professor, Amity Institute of Biotechnology at Amity University-Haryana, Gurgaon(Manesar-122413). He has attended and presented a large number of papers in several National and International conferences and was the recipient of Young Scientist awards and also the Best Paper awards for his research work. So far he has published several papers to his credit in reputed Journals and also many articles/chapters in international books

Short Description of Book

The book is presented as a Text Book to deal with the most recent and relevant scientific advancements in the field of PLANT CELL BIOLOGY divided into twenty four chapters, because of the needs of the syllabi for students of PLANT CELL BIOLOGY

The chapters are written impeccably for providing up-to-date knowledge of the subject to the students. The text is presented in a manner that enhances the subject's readability and also makes it interesting. Many suggestions from the students & Faculty have been helpful to improve the final product





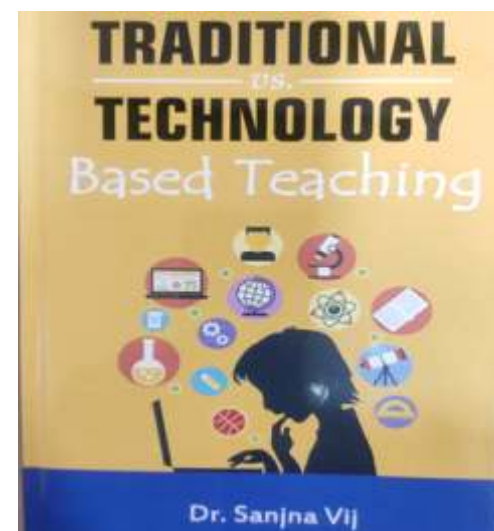
Traditional vs. Technology-Based Teaching

Dr. Sanjna Vij

Dr. Sanjna Vij has been in the field of education for more than 20 years and she is passionate educationalist who believes in imparting good quality education. She carries out her responsibilities as an educator in the true sense of the word, going beyond merely imparting knowledge in the classroom. She has experience of teaching and administrative at national and international level. She has done her Ph.D. in Education, M.A in Education, M.A in Sociology and B.Ed. She has done two weeks Refresher Course Funded by NUFFIC under The Netherlands Fellowship Program on the title "Training the Trainers in Executive Education". Currently she is working at Amity University Haryana. She has presented many papers and published many articles which are relevant to teaching -learning process. She has also organized many conferences, workshops, seminars, and FDP's. She has recorded many Video Lectures at SWAYAMPRAKHA, educational channels of Ministry of Human Resource Development (MHRD) Govt. of India

Traditional vs. Technology Based Teaching

Technological Based Teaching is best defined as the use of technology in the classroom or in some studies defined it as where education and technology meets. This brings a new type of interactivity between students and teachers into the classroom. The purpose of this study was to compare the teaching effectiveness of computer-assisted instruction (CAI) and computer -managed instructions (CMI) with the effectiveness of traditional instruction. The studies have shown how technology has helped the teacher in teaching and administration delivery. Technology based teaching not only help the students but also to educators who are shifting from traditional teaching to technology- based teaching.



**Ph.D. Degree Awarded
(Jan 2019-June 2021)**

S. No	Institutions	Discipline	Name of Student	Title of the Thesis
2019				
1	ABS	Ph.D. in Management	Reena Nigam	A Study on the Role of an Effective Communication Model in Preventing Disputes in Indian Industrial Organizations
2	ABS	Ph.D. in Management	Kamal Gulati	A Study to Assess Leadership Competencies and Leadership Development Needs of Medical Doctors in India
3	ACC	Ph.D. in Commerce	Supriya Khaneja	Framework to Identify Global Creative Accounting Practices with Reference to Accounting Standards: An Exploratory Research
4	ACC	Ph.D. in Commerce	Sushma Duhan	Impact of CSR Spending and CSR Disclosure on Financial Performance: A Study of Public Sector Banks in India
5	AIBAS	Ph.D. in Psychology	Simran Bedi	To Study the Neurocognitive Deficits and Efficacy of Therapy Based on Optimism Attitude Model (OAM) on Substance Dependent Patients
6	AIBAS	Ph.D. in Psychology	Oladiti Olawale	The Role and Effect of Secure Attachment on Leadership Style, Optimism and Management Performance Among the Management Staff of the Hospitality Industry in India and Nigeria
7	ALS	Ph.D. in Law	Priyanka	Protection of Traditional Knowledge Under the Intellectual Property Rights Regime with Special Reference to India : An Analytical Study
8	AMS	Ph.D. in Hospital Administration	Aiwerioghene Erhauyi Meshach	A Comparative Study on Nigerian Healthcare System and Indian Healthcare System, In Context to Medical Tourism Sector
9	AMS	Ph.D. in Hospital Administration	Poonam	Development and Application of Key Performance Indicators to Measure the Performance of Medical Equipment Management System in the Public Hospitals
10	ASAS	Ph.D. in Mathematics	Amit Kumar Sharma	Vibration of Visco-Elastic Plate with Variable Geometry

11	ASAS	Ph.D. in Applied Chemistry	Simpi Mehta	Design, Synthesis and Characterization of Selected Novel Coumarin Derivatives as Anti Cancerous Agents
12	ASAS	Ph.D. in Applied Chemistry	Rakesh Kumar	Preparation of Diosgenin Nanocolloids to Enhance Bioavailability
13	ASAS	Ph.D. in Mathematics	Reeta Bhardwaj	An Advanced Study of Waiting Line Models in Stochastic and Fuzzy Environment
14	ASAS	Ph.D. in Mathematics	Deepali Suhas Sarode	Multi Index, Multi Criteria and Fixed Charge Transportation Problem with Fuzzy Parameter
15	ASAS	Ph.D. in Applied Chemistry	Nirmla Devi	Development and Evaluation of Novel Chitosan Based Nanocomposite Films for Wound Healing
16	ASCO	Ph.D. in Journalism & Mass Communication	Manoj Kumar	Cinematography of Film Making in Indian Hindi Cinema. A Case Study of Three Indian Hindi Cinema (1) Mother India (2) Sholay (3) Lagaan
17	ASCO	Ph.D. in Journalism & Mass Communication	Rahul Kushwaha	Impact of New Media on Political Communication in 2014 Parliamentary Elections
18	ASET	Ph.D. in Engineering	Charu Jain	Offline Signature Verification using Artificial Neural Network
19	ASET	Ph.D. in Engineering	Meenu	Optimization of Routing Algorithm in AdHoc Network based on Adaptive Genetic Algorithm
20	ASET	Ph.D. in Engineering	Neeraj Gupta	Characterisation of Cylindrical Gate all around MOSFET
2020				
21	ABS	Ph.D. in Management	Jasheena C. J	Consumer Awareness and Purchase Intention Towards Packaged Sustainable Food in Delhi NCR - An Empirical Study
22	ABS	Ph.D. in Management	Sonam Yadav	Work-Family Balance as a Predictor of Employee Engagement in Organized Apparel Retail Outlets with Special Reference to Delhi National Capital Region

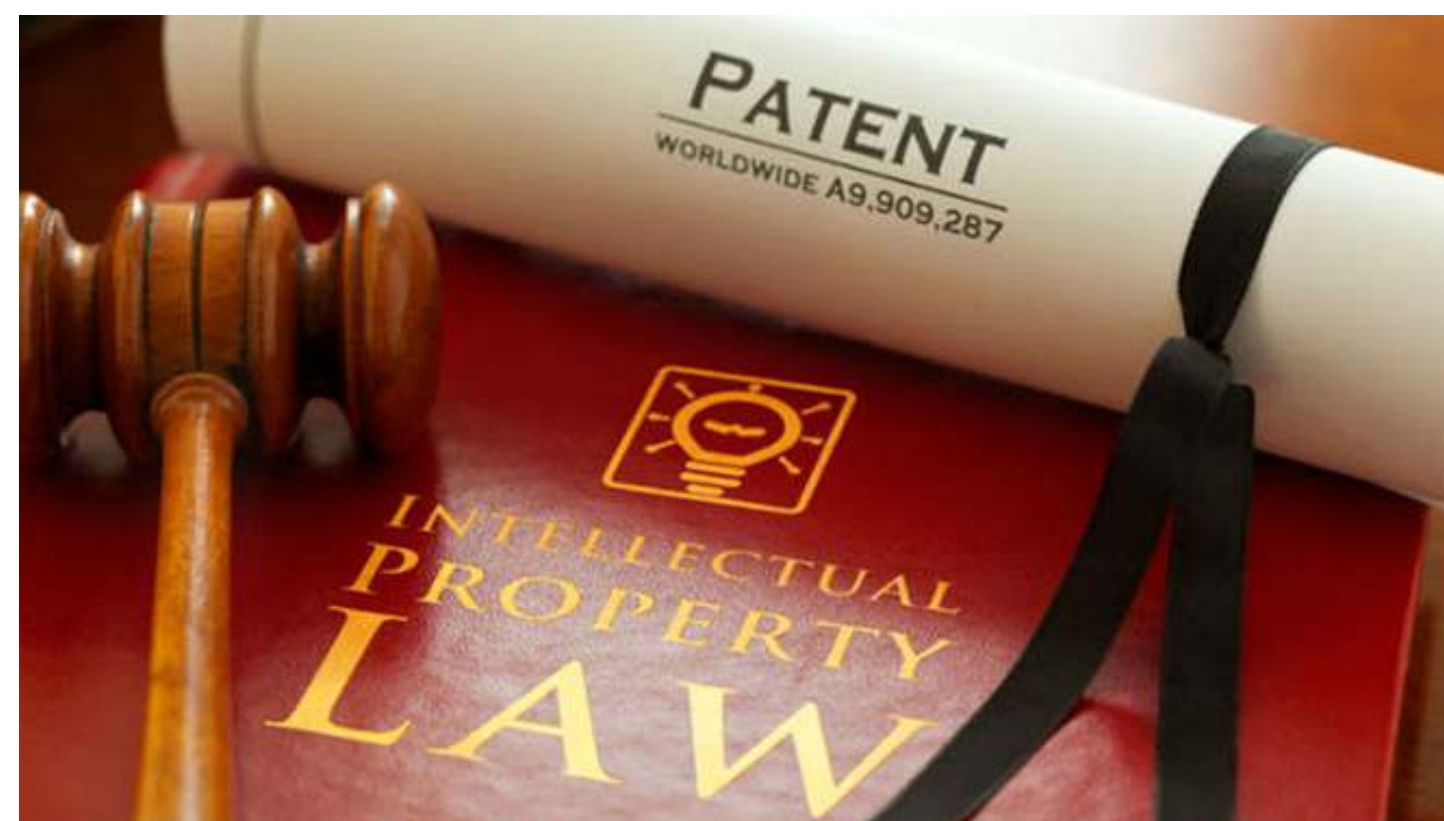
23	ABS	Ph.D. in Management	Seema Kataria	A Study on Antecedents and Consequences of Organisation Citizenship Behavior in Hospitals Listed in Delhi NCR
24	ABS	Ph.D. in Management	Shikha Sharma	Sustainable Practices in Indian Hotel Restaurants: An Exploratory Study of the Northern Region of India
25	ABS	Ph.D. in Management	Sulabh Sharma	Impact of Organisational Climate on Motivation of Human Resource in India Automobile Industry
26	ABS	Ph.D. in Management	Manoj Kumar Mishra	A study of Assessing Innovation Maturity of auto component Sector in India
27	ABS	Ph.D. in Management	Krishan Kumar	A comparative Analysis on the role of gross Domestic Product and Gross National Happiness as a method of growth measurement of a Country
28	AIB	Ph.D. in Biotechnology	Dhannajay Kumar Yadav	Improvement of antagonistic ability and characterization of secondary metabolites of Bacillus amyloliquefaciens to manage bacterial wilt of tomato caused by Ralstonia solanacearum
29	AIB	Ph.D. in Biotechnology	Rahul Pal	Effect of iron deprivation on drug resistance of Mycobacterium tuberculosis"
30	AIB	Ph.D. in Biotechnology	Geeta Verma	Investigation on genetic relatedness and biochemical role of XopR-T3SS effector protein in Xanthomonas oryzae pv. oryzae Causing bacterial blight in rice.
31	AIB	Ph.D. in Biotechnology	Rahul Kumar Chandel	Study of Phosphine Resistance in <i>Rhizopertha Dominica</i> Infesting Wheat
32	AIB	Ph.D. in Biotechnology	Manisha Dagar	Role of Protein Kinase A in Androgen Signaling Pathway
33	AIB	Ph.D. in Biotechnology	Malobi Nandi	"Insights into Mycobacterium tuberculosis dormancy adaptation in axenic culture and intracellular milieu from Transcriptome analysis"
34	AIB	Ph.D. in Biotechnology	Deepak Kumar	Analysis of major pollutant in Hindon river (tributary of Yamuna) and its bioremediation by microbial consortium

35	AIB	Ph.D. in Biotechnology	Rajesh M	Isolation, Characterization and Adjuvant Potential of Poly-a-L-glutamine from Cell Wall of Mycobacterium tuberculosis H37Rv
36	AIB	Ph.D. in Biotechnology	Ashok Kumar	Molecular epidemiology, fungibiome and resistome and fungal isolates recovered from different cohort of patients from hospitals in Haryana
37	AIB	Ph.D. in Biotechnology	Sharda Sharma	Antimycobacterial potential of Vanillin & Geraniol against Mycobacterium
38	AIB	Ph.D. in Biotechnology	Julie Pratibha Singh	Identification of molecular targets for the treatment of prostate cancer
39	AIBAS	Ph.D. in Psychology	Bornali Yadav	The relationship of positive psychological capital and optimism with employee engagement.
40	AIBAS	Ph.D. in Psychology	Sweta Saraff	Gamification as Pedagogical Intervention for Performance, Mindset and Metacognition of Students
41	AIISH	Ph.D. in Integrative Biology	Manikandan K	Role of Cyclic Di-AMP in Mycobacterial Physiology and Virulence
42	ALS	Ph.D. in Law	Teena	Emergence of Environmental jurisprudence
43	ASAS	Ph.D. in Physics	Amit Kumar	Ultrasonic and thermo physical properties of condensed Material
44	ASAS	Ph.D. in Physics	Kavita Kumari	Structural and Magnetic Properties of Diluted Oxide Magnetic Semiconductors for Spintronics Applications
45	ASAS	Ph.D. in Forensic Science	Manisha Mann	Forensic Studies on Sequence of Strokes & Its determination
46	ASAS	Ph.D. in Mathematics	Kuldeep	Bulk Transportation Problem and its Variants with Fuzzy Parameter

47	ASAS	Ph.D. in Mathematics	Nisha	Mathematical Modelling of the Epidemiology of Malaria and Dengue
48	ASAS	Ph.D. in Mathematics	Sunil Bhardwaj	Reliability analysis of repairable systems with respect to maintenance performance management
49	ASAS	Ph.D. in Physics	Preeti	Synthesis & Characterization of Lead Based Disordered Multi Ferric Ceramics
50	ASCO	Ph.D. in Journalism & Mass Communication	Sam Vinay Rao	Cyber Piracy and its Repercussions on the Publishing Industry: An Assessment of the Future of Printed Books amongst Urban Youth
51	ASCO	Ph.D. in Journalism & Mass Communication	Rusha Mudgal	From Print to E-Newspaper: What Indian Readers Want
52	ASCO	Ph.D. in Journalism & Mass Communication	Inderjit Singh	Films of Rajkumar Santoshi-Style and statement -An auteur Study
53	ASEES	Ph.D. in Environmental Sciences	Neha Maheshwari	Isolation and characterization of CO2 mitigating bacteria from free air CO2 enriched (FACE) soil community for the production of biomaterials
54	ASEES	Ph.D. in Environmental Sciences	Aakriti Verma	Use of Modified Rice Husk: A Potential Matrix for Water Purification
55	ASEES	Ph.D. in Environmental Sciences	Veeranna Channashettar	Isolation and characterization of biosurfactant producing microbes
56	ASET	Ph.D. in Engineering	Ved Prakash	Analysis and design of Microstrip antenna for wireless Applications.
57	ASET	Ph.D. in Engineering	Ganesh Gupta	An Investigation of on Demand power Management in AD Hoc Wireless Network
58	ASET	Ph.D. in Information Technology	Patel Nilamkumari Ranchhodhai	Development of Secure AODV Protocol for Handling Network Layer Attacks in Wireless Ad hoc Networks

59	ASET	Ph.D. in Engineering	Rashmi Goyal	Optimization of Software Testing Using Genetic Algorithm
60	ASET	Ph.D. in Engineering	Sonal Dahiya	A Petri Net Based Approach For Modelling And Simulation of Energy Consumption in Wireless Sensor Networks
61	ASET	Ph.D. in Engineering	Quinton Chamunorwa Kanhukamwe	Developing a model for systematic research, development and commercialisation of intellectual property - A critical analysis of Harare Institute of Technology
62	ASET	Ph.D. in Engineering	Abhishek Kumar Jain	Handling unknown attacks through intrusion detection system
63	ASET	Ph.D. in Engineering	Manjeet Kaur	Tuning of PID controllers for speed control of the drive using evolutionary algorithms
64	ASET	Ph.D. in Engineering	Edmund Shingirayi Maputi	Multistage gearbox design using advanced optimization techniques
65	ASET	Ph.D. in Engineering	Kudzanayi Chiteka	Installation and cleaning cycle optimization for fouling mitigation in non-tracking commercial Solar PV plants
66	ASFDT	Ph.D. in Fashion Technology	Harinder Pal	Investigation about consumer attitude and its antecedents towards environmental sustainable apparels: A study of Northern India
67	ASLA	Ph.D. in English	Pooja Malik	Dynamism and realism – An Archetypal Paradigm of Manju kapur's Novels
68	ASOE	Ph.D. in Economics	Vani Aggarwal	The Effectiveness of mHealth Interventions for Maternal and Child Healthcare Sector : The Indian Scenerio
69	ASOE	Ph.D. in Economics	Aarti Dawra	A study of public private Partnership Model in Infrastructure sector in India
2021				
70	ABS	Ph.D. in Management	Nipun Sharma	"The Study of the Factors Driving Mobile Data Growth and It's Impact on Revenu of the Indian Telcom Industry"

71	AIB	Ph.D. in Biotechnology	Deepika Kulshreshtha	Comparative study on compatible and incompatible interactions in wheat-puccinia striiformis f.sp.tritici
72	AIB	Ph.D. in Biotechnology	Shweta Singh	Antifungal potential of Terpenoid and Alkaloid compounds against human fungal pathogen, Candida albicans
73	AIIT	Ph.D. in Information Technology	Tarun Bala	Designing of lifetime estimation algorithm for heterogenous power backup in wireless networks
74	AIIT	Ph.D. in Information Technology	Varsha Bhatia	An energy efficient clustering algorithm approach based on hidden markov model in wireless sensor networks
75	ASAS	Ph.D. in Mathematics	Monika	Analytical and numerical solution of Burger;s and time dependent differential equations in fluid using the homotopy perturbation method



LIST OF PATENTS FILED (2019-2021)

S. N.	Name of Inventors	Title	Date of Submission	Application No.
1.	Rishipal	GPS Guided Automatic Vehicle Indicator System	08.01.2019	20191100833
2.	Seema Rani Pathak, Varun Rawat	Biodegradable Food Packaging Material	18.01.2019	201911002173
3.	Ashish Kumar, Megha Sahu, Gunjan Sharma, Harsha Kharkwal, Satish Sardana, Arun Kumar Sharma	Animal Ventilator	18.01.2019	201911002174
4.	Prabhu Prasad Das, Manish Shandilya, Padmakali Banerjee	Device Design for Non-Destructive Measurement of Leaf Chlorophyll Content	18.01.2019	201911002175
5.	C.P. Kaushik, Mamta Thakran, S.K. Ray, Brijesh Kumar	A System and Method for Improving Air Quality Index	18.01.2019	201911002176
6.	Manisha Mann, Seema Rani Pathak, Dr. S.K. Shukla	Novel Kit for Detection of Forged Documents	18.01.2019	201911002177
7.	Saurabh Bhatia, Satish Sardana Krishna Ram Senwar, Arvind Chhabra, Ajay Sharma	One Pot Green Synthesis of Ulvan Reduced Andrographolides Loaded Silver Nanoparticles	23.01.2019	201911002754
8.	Gargi Bagchi, Julie Pratibha Singh, Ravi Datta Sharma	A Method for Identification of GPR56 As A Receptor for Androgen Signalling	24.01.2019	201911002934
9.	Pavan Kumar Raju, Kiran Somiseti, Manoj Kumar Pandey	Pneumatic Powered Exoskeleton	19.04.2019_(P), 30.08.2019_(C)	201911010641
10.	Prabhu Prasad Das, Padmakali Banerjee	A System and Method for The Identification and Delineation of Saline – Fresh Water Interface In Coastal Aquifers	19.04.2019	201911010642
11.	Dr. Prabhu Prasad Das, Padmakali Banerjee, Manish Shandilya, Kalpana Garsa, Neenu Yadav	A System and Method for Estimating Black Carbon (BC) Concentration In Surrounding Air	19.04.2019	201911010643

12.	Saurabh Bhatia, Satish Sardana, Arvind Chhabra Celia Vargas	A System and Method for Ulvan Reduced Gold Nanoparticles	19.04.2019_(P) 30.08.2019_(C)	201911010646
13.	Puneeta Ajmera, Vineet Jain, Mahavir Singh	Elbow Sleeve with An Inbuilt Deep Friction Massager	19.04.2019	201911010647
14.	Luxita Sharma, Pankhuri Pandey, Mahavir Singh	Probiotic Bread Spread and Its Method There of	19.04.2019	201911010648
15.	Arvind Chhabra, Burra VLS Prasad, Naresh Mohan Chaddha	A System and Method for Prediction Of The Quality Of Effector Function Generation In Human T Cell Receptor Engineered Anti- Tumor T Cells	19.04.2019	201911010649
16.	Rishipal, Jaya Krishna	A System and Method for Providing Information of Growing Various Crops To The Farmers	19.04.2019	201911010650
17.	Ashish Kumar, Sheen Kaul, Gunjan Sharma (AUUP), Arun Kumar Sharma	An Antipollution Eye Makeup	19.04.2019	201911010651
18.	Dr. Brijesh Kumar (AUH, Manesar)	A System and Method for Induced Band Gap In Bilayer Graphene Transferred On Hexagonal Boron Nitride	08.04.2019	201911014024
19.	Monika Vats, Arvind Chhabra, Jyotsna Sharma, Chandra Mohan Srivastava, Shatendra K. Sharma	Fabric with Self Cleaning Property	08.04.2019	201911014025
20.	Luxita Sharma, Zarrin Ashraf, Mahavir Singh	A Method of Preparation of Colocasia Esculenta Leaves Aqueous Extract	08.04.2019	201911014026
21.	Sameer, Bhuvnesh Yadav, Anil Kumar Yadav	A System and Method for Differentiating Real and Forged Fingerprints	08.04.2019	201911014027
22.	Preeti Thakur, Atul Thakur	A Method of Green Synthesis of Barium Ferrite Nanoparticles	18.04.2019	201911015553
23.	Chandra Mohan Srivastava, Anek Pal Gupta, Seema R Pathak Aarambh Verma, Pooja Basu	Hybrid Hydrogel Grafted Wood Husk for Removal and Degradation Of Dye From Water Effluents	18.04.2019	201911015554

24.	Manoj Kumar Pandey, Sweta Tripathi	Two Wheeler Anti Fall System On Skid Detection	18.04.2019	201911015555
25.	Nitai Debnath, Annu Yadav, Sumistha Das	An Improved Nanocomposite for The Delivery of Agrochemicals	18.04.2019	201911015556
26.	Kaustav Bandyopadhyay	A Non-Invasive Device for Hemoglobin (Hb) Measurement	18.04.2019	201911015557
27.	Arvind Chhabra, AK Raghav, Atul Thakur, Sudeep Shukla, Preetam Babu Sharma, Monika Vats, Jyotsna Sharma	A System and Method for Preparing Chloroplast Nanoparticles	18.04.2019	201911016187
28.	Sanjeev Sharma, P B Sharma	Development of Graphene And Or Carbyne Based Super Strong Nanocomposite Material For Ballestic Applications	21.05.2019	201911020094
29.	Arvind Chhabra, Sudeep Shukla	An Indigenous Apoptosis Detection and Measurement Kit	04.06.2019	201911022094
30.	Luxita Sharma, Barbie Dutta, Mahavir Singh	A Method of Preparation of Natural Antacid from Musa Balbisiana And Citrus Limetta	18.06.2019	201911024111
31.	Prakhar Jindal, Arun Kumar Sharma	Add-On Device for Toilet Hygiene	18.06.2019	201911024112
32.	Brijesh Kumar, S.K. Ray	A System and Method for Organ Based Adult Stem Cells Proliferation	18.06.2019	201911024113
33.	Ashish Kumar, Arun Kumar Sharma	Anti-Hair Growth Nanocrystal Formulation	18.06.2019	201911024114
34.	Saurabh Bhatia, P.B. Sharma, Seema Rani Pathak, Viveak Ballyan, Sandeep Singh	A Method for Pretreated Chitosan Encapsulated Exudate from Ficus Racemose and Its Hepatoprotective Effect	18.06.2019	201911024115
35.	S.N. Sridhara	A Toothbrush with Detachable Bristle Head	18.06.2019	201911024116
36.	Vivek Jaglan	Tooth Brush With Digital Display	2019	Design No. 312437
37.	Vimal Kishore Singh	A System and Method for Preparing Red Blood Cell	09.07.2019	201911027393
38.	Saurabh Bhatia	A System and Method to Improve the Shelf Life Of Freeze Dried Alkali	09.07.2019	201911027394

39.	Narendra Kumar	A System and Method for Isolated, Improved, Mutated Strain Of Bacteria - Bacillus Amyloliquefaciens In Wilting Of Tomato	23.07.2019	201911029678
40.	Chandra Mohan Srivastav	Aloe Vera Incorporated Hydrogel and Nanofibrous Mats Based Bi-Layer Wound Dressing Material	23.07.2019	201911029679
41.	Somalapura Nagappa Sridhara, Rajesh Kumar Tyagi	Antitheft System for Keyless Access	07.08.2019	201911031957
42.	Shalendra Kumar, Kavita Kumari, Ankish Vij	A Method of Synthesis of Development Of Copper (Cu) Doped Cerium Di -Oxide (CeO ₂) Nanoparticles	13.08.2019	201911032724
43.	Prakhar Jindal, Manish Kumar Bharti, Sonia Chalia	A Motorized Shaving Brush	13.08.2019	201911032725
44.	Vinod kumar, Arun Kumar Sharma Mr. Ashish Kumar	An Automated Chimney Fire Extinguisher	23.08.2019	201911034018
45.	Samridhi Lal, Satish Sardana	A System and Method for Water Purification Using Biodegradable Substances	23.08.2019	201911034019
46.	I. Pavan Kumar Raju, Kiran Somisetti, Manoj Kumar Pandey Sweta Tripathi	A System and Method for Identification of Person	23.08.2019	201911034020
47.	Dr Luxita Sharma, Mr Hardik Dalal, Ms Shelly Garg	A Method of Preparation Of A Fermented Protein Rich Beverage With Lupin Beans	23.08.2019	201911034021
48.	Manish Kumar Bharti, Prakhar Jindal, Sonia Chalia Prachi Jindal	An Auto Adjusting Waist Belt Buckle	23.08.2019	201911034022
49.	Sunita Kumawat, Zeeshan Fatima	A System And Method Of Drug Target For The Treatment Of Drug Resistant Tuberculosis	23.08.2019	201911034023
50.	Ashok Kumar Raghav, Sujit Kumar	An Ultrasonic Scissor	27.08.2019	201911034434
51.	Ashok Kumar Raghav, Neeraj Gupta, Rashmi Gupta, Sujit Kumar	An Automobile Battery Power Level Indicator	27.08.2019	201911034435
52.	Vimal Kishore Singh	A System And Method For Using Cordyceps Sinensis	30.08.2019	201911035008

53.	Gargi Bagchi, Gunjan Dagar, Rajendra Prasad	Cell Assay Kit For Detection Of Androgens/Antiandrogens In Water	6/9/2019	201911035969
54.	Monika Vats, Satish Sardana, Arvind Chhabra	A Method of Green Synthesis of Copper Oxide Nanoparticles Using Cucumis Sativus (Cucumber) Extract And Its Infusion In Cream	11/9/2019	201911036498
55.	Shashi Bhushan Gupta, Somalapura Nagappa Sridhara	A Power Assisted Centre - Stand For Two- Wheeler	16/09/2019	201911037153
56.	Prakhar Jindal, Manish Kumar Bharti Prachi Jindal Sonia Chalia	A Water Tank With Auxiliary Hydrokinetic Power Generation System	16/09/2019	201911037154
57.	Chandra Mohan Srivastava, Monu Verma, Varun Rawat, Gyaneshwar Rao	Natural Compost Loaded Acacia Gum Based Biodegradable Hydrogel For Conditioning Of Agriculture Land And Grass Ecosystem	16/09/2019	201911037155
58.	Simpi Raheja, Sandeep Panwar Jogi	An Anti Breast Engorgement Brassiere	16/09/2019	201911037156
59.	Atul Thakur	Treatment of Methylene Blue Using Multiwalled Carbon Nanotubes"	12/10/2019	201911051001
60.	Narendra Kumar	A Method To Culture And Identify Fusarium Solani Causing Stem Rot And Wilt Of Lucky Bamboo (Dracaena Sanderiana)	12/10/2019	201911051003
61.	Rakesh Kumar Singh	A Cell -Based Assay Using House Dust Mite In Rat Mast Cell Line, RBL- 2H3 To Measure Biomarkers Relevant In Pulmonary Inflammation	13/12/2019	201911051776
62.	Naveen.B.P, Sivapullaiah. P.V	A System and Method For The Prediction Of Coefficient Of Consolidation For Different Waste Materials Present In Landfill Sites	13/12/2019	201911051777
63.	Arun Kumar	A Thermosensitive Marking Pen	08.01.2020	202011000845
64.	Atul Thakur	A Method of Synthesis Of Yttrium Iron Garnet (YIG) Nano-Materials As Source Of Clean And Green Energy	10.01.2020	202011001179

65.	Sanjeev Sharma	A System and Method For Accumulative Tube Bonding For Severe Plastic Deformation	22.01.2020	202011002859
66.	Ranjita Ghosh Moulick,	A System And Method Of Silver Nanoparticle Based Detection Of Advanced Glycation End Product	29.01.2020	202011003883
67.	Manju Anand	A Low Cost Method Of Mass Cloning Of Plant {Tylophora Indica (Burm. F) Merrill} Using Liquid Medium	04.02.2020	202011004806
68.	Sangeeta Kumari, Naveen BP,	A Microbial Contortium Jagerry Powder for Bioremediation Process Of Minimise The Chemical Load Of Leachate Sample	24.02.2020	202011007725
69.	Gunjan Dagar, Rajendra prasad, Gargi bagchi,	A System and Method of Detection of Androgens and Anti-Androgens In Water With SEAP Assay	24.02.2020	202011007726
70.	DLuxita Sharma, Zarrin Ashraf	A Method of Preparation of A Low Calorie And Calcium Rich Plant Based Mayonnaise	03.03.2020	202011009069
71.	Saurabh Bhatia, Arun Sharma, Celia Vargas, Saurabh Maru	A Nasal Stick for Lungs Detoxification Against Air Pollutants	06.03.2020	202011009701
72.	Rajesh Arora	High Speed Blade Type Dry Grinding Machine Tool	13.03.2020	202011010830
73.	Ujjaini Dasgupta, Ravi Datta Sharma,	An A Method Providing Spliced Transcripts Of CERS2 Gene To Alter The Level Of Ceramides To Effect Tumor Regression	16.03.2020	202011011239
74.	Tanu Kukreja Bhayana, Hardik singh ahuja,	An Automated System and Method For Mental Screening	18.03.2020	202011011637
75.	Zvikomborero Lazarus Duri, Dr. Naveen BP, Rajesh Arora,	A System and Method for Chrysotile Asbestors Fiber Reinforced Geopolymer Bricks	19.03.2020	202011011892
76.	Zvikomborero Lazarus Duri, Rajesh Arora, Naveen BP	A System and Method of Predictive Optimisation for Geopolymer Cement Production	23.03.2020	202011012583

77.	S.N. Sridhara,	A Thermos Flask with Reversible Liquid Crystal Temperature Strip (LCT) On Cap	27.03.2020	202011013530
78.	Kudzanayi Chiteka,Rajesh Arora, Dr. S. N. Sridhara,Ranjana Arora	A Soiling Monitoring and Cleaning Device For SPV Panel	27.03.2020	202011013536
79.	Rajesh Arora, Ranjana Arora, Om Parkash,Tanuj Joshi	Emergency Bathroom Latch Opener Using A Spring Device	01.04.2020	202011014571
80.	Haziq Rahat Bullah, Riti ka Agarwal , Abhishek Prabhakar , Aman Jatain , Shalini Bhaskar Bajaj	A System And Method Of L - DOPA Response Prediction For Parkinson's Disease Using Machine Learning Approach	06.04.2020	202011015184
81.	Komal, Poonam Sharma , Shalini Bhaskar Bajaj	An Integrated Eye Makeup Kit	08.04.2020	202011015462
82.	Arvind Chhabra, Monika Vats, Neha Kuhar, Shatendra K. Sharma,	An Antimicrobial Face Mask Using Nanoparticle Coating	25.04.2020	202011017740
83.	Atul Thakur , Preeti Thakur , Shilpa Taneja ,	A Method For Synthesis Of Bismuth Doped Ni -Zn Ferrites	27.04.2020	202011017917
84.	Kiran Somiseti , Charu Jain , Aarti Chugh , Nisha Charaya	An Anti Tremor Pen	01.05.2020	202011018758
85.	Atul Thakur , Preeti Thakur , Deepika Sindhu , Shubhi Kesarwani , Pritam Babu Sharma	A Method For Cobalt Substituted Zinc Ferrite Assisted Photocatalytic Degradation Of Methylene Blue	01.05.2020	202011018761
86.	Anant Patil, S. N. Sridhara , Rajesh Arora , Ranjana Arora	A Multi-Purpose Solar Artifact Integrated With Phase Change Material	02.05.2020	202011018834
87.	Deepa Suhag, Swati Kaushik, Deepa Ghosh, Biswarup Basu ,Mehak Chauhan	A Bio -Synthetic Hydrogel Composite and Its Method Thereof'	06.05.2020	202011019343
88.	Arvind Chhabra	An Infectious Agent/ Cells/ Biomarker Trap System Utilizing Patient-Derived Human Colvaescent Plasma To Develop Next Generation Diagnostic Kits Against Infectious Diseases And Chronic Conditions'	11.05.2020	202011019784
89.	Gunjan Sharma, Ashish Kumar, Arun Kumar	A Breast Feeding Device To Help With Hypogalactia	18.05.2020	202011020872

90.	Brijesh Kumar	Low-Cost Nano -Patterning of Graphene To Safeguard From Viruses And Bacteria	23.05.2020	202011021718
91.	Saurabh Bhatia, Pritam Babu Sharma, Viveak Ballyan, Ahmed Al-Harrasi, Sridevi Chigurupati	A Sugar -Free Chewing Gum to Cure Dental Caries, Pain And Mouth Ulcer	29.05.2020	202011022670
92.	Chander Shekhar, Preeti, Aditya H Narayan Pandey, Rachna Selvamani,	A Method of Synthesis of Magneto -Electric Lead Nickel Niobate Ceramics	12.06.2020	202011024826
93.	Seema R Pathak, Manisha Devi, Chinmay Paridha , Varun Rawat , Chandra Srivastava, Pooja Rawat, Monika Vats , Manoj Dhariwal,	A Grey Water Remediation System with Existing Original Equipment Manufacturer Oem	20.07.2020	202011030991
94.	Preeti Thakur, Atul Thakur, Pritam Babu Sharma , Dinesh Kumar	A Method For Preparing Nano -Composite Antimicrobial Polymers For Manufacturing Respirator Mask	22.07.2020	202011031429
95.	Edmund S Maputi, Rajesh Arora, Ranjana Arora	A Retractable Seat Assembly for A Motor Vehicle	27.07.2020	202011032177
96.	P. B. Sharma, Gunjan Sharma, Ashish Kumar, Arun Kumar,	An Autonomic Nano - Formulation For Long Haul Disinfection and Process Thereof	29.07.2020	202011032587
97.	Saurabh Bhatia, Pritam Babu Sharma, Viveak Ballyan, Ahmed Al - Harrasi,	A Novel Medicated Plaster for The Treatment Of Underlying Skin Complications	30.07.2020	202011032835
98.	Kiran Somiseti, Rohit Phogat, Khushboo Tripathi	A Head Gesture -Controlled Wheelchair System	06.08.2020	202011033725
99.	Sanjeev Sharma, K. N. Sanjeev, Pritam Babu Sharma, Abdel Hamid Ismail Mourad	A Method for Preparing An Advanced Graphene And Natural Silk Reinforced Epoxy Composite Materials	20.08.2020	202011035994
100.	Vinod Kumar, Prakhar Jindal	A Detachable Wiping Assembly for Crockery and Utensils	25.08.2020	202011036648
101.	Saurabh Bhatia, Pritam Babu Sharma, Ahmed Al - Harrasi	Nasal Spray with Boswellic Acid Based Compositions and Method Thereof	28.08.2020	202011037227
102.	Shivangi Kaushal, Komal Khushboo Tripathi,	A Mop Assembly	04.09.2020	202011038376

103.	Ila Gupta, Anurag Pandey,	A Virtual Illusion Window Assembly	28.09.2021	2020110141926
104.	Saurabh Bhatia, Pritam Babu Sharma Sridevi Chigurupati	A Polyherbal Anti -Acne Composition and Preparation Method Thereof	23.10.2020	202011046335
105.	Naveen BP, Thakur Ram jiram singh, J. P. TEGAR	A Method for Preparing Composite Materials Sheet Of Nonwoven Geotextile On The Strength Of Clayey Soil	27.10.2020	202011046849
106.	Sheetal Thakran, Samragi Madan,	An Ebot For Medical First Aid and Emergency	13.11.2020	202011049781
107.	Arun Kumar, Ashish Kumar, Gunjan Sharma	A Face Mask Having Ventilator Attachment Inlet	13.11.2020	202011049782
108.	Dr. Luxita Sharma, Dr. Satish Sardana, Suyasha Gupta AUH,	Protein Rich Chunks from Horsegram, Barnyard Millet And Whey To Strengthen Immunity And Method Thereof	03.12.2020	202011052761
109.	Deepa Suhag, Zeeshan Fatima	An Antimicrobial Composition Having Ceramide Rich - Hydrogel Dressers Blended with Vegetable Oil Emulsion And Method Thereof	03.12.2020	202011052760
110.	Dr. Arun Kumar, Dr. Ashish Kumar, (AIP, AUH, Manesar campus)	A Multilayer Liner with Enhanced Capacity To Absorb Cervix Discharge	18.12.2020	202011055226
111.	Debjanee Das, Suresh K. Kalangi,	Plasmodium Falciparum Apical Membrane Antigen 1 (Ama1) Antigen Based Non-Invasive Detection Of Malaria Through Urine And Method Thereof	14.01.2021	202111001742
112.	Narendra Kumar, S M Paul Khurana, V N Pandey	A System and Method of Formulating Fumigant Activity of Syzygium Aromaticum Oil In Combination With Anethum Graveolens Oil	20.01.2021	202111002632
113.	Saurabh Bhatia, Pritam Babu Sharma and Ahmed Al-Harrasi,	A Quick -Absorbable Bioadhesive Sublingual Capsaicin Tablets and Preparation Method Thereof	15.02.2021	202111006298
114.	Prakhar Jindal, Abhishek Priyam, Mark Koli, Pritesh Gulhane,	Reduction In Workpiece Setting Time And Increase Productivity Using Fixture'	05.03.2021	202111011074
115.	Tanuj Joshi, Ravikant Sharma,	A Footwear Cleaning Assembly	16.03.2021	202111011072

116.	Swati Chauhan, Ashish Kumar, Arun Kumar,	A Method for Nano Diamond Mediated Nu traceutical Delivery For Non Alcoholic Fatty Acid Liver Disease"	22.03.2021	202111012098
117.	Suresh Kumar Kalangi	Biogenic Gold -Silver Bimetallic Nanoparticles As Potential Anti Leishmanial Agents Drug Carriers Against Wild And Drug Resistant Leishmania D oanavani	31.03.2021	202111014750
118.	Naveen B P, Mohammad Yaseen,	An Inorganic Solid Waste Segregator And Resource Recovery System	14.04.2021	202111017330
119.	Tanu Joshi, Ravikant Sharma, Shashi Kant,	A Drainage Grating Assembly	24.04.2021	202111018998
120.	Amitender Yadav, Debashree Ghosh, Sudip Majumdar, Kavita Yadav and Ranjeet Kumar Brajpuriya,	A Paper Based Biosensor for Uric Acid Detection And Method Thereof	01.06.2021	202111024317
121.	Vimal Kishore Singh, Yogesh Kumar Verma	A Method of Generating Biosynthetic Biomaterial (Hydrogel) And Pluripotent Stem Cells For Ocular Surface/Lacrimal Gland/Corneal Tissue Regeneration	15.06.2021	202111026519
122.	Saif Hameed, Zeeshan Fatima, Munindra Ruwali, Akansha Bhatt, Devashish Rath, Chitra Seetharam Misra ,Shyam Sunder Rangu (BARC, Mumbai) and Ashok Rattan	Rna Extraction Free Assay For Kit Development To Visually Detect Sars- Cov -2 And Methods Thereof	23.06.2021	202111028198
123.	Dipti Vaya, Nidhi Verma, Tejpal S Chundawat,	A Method To Present Antimicrobial Activity Of Tio2 And 14 Zn/Go Nanomaterial On Enterococcus Faecails	29.07.2021	202111034048

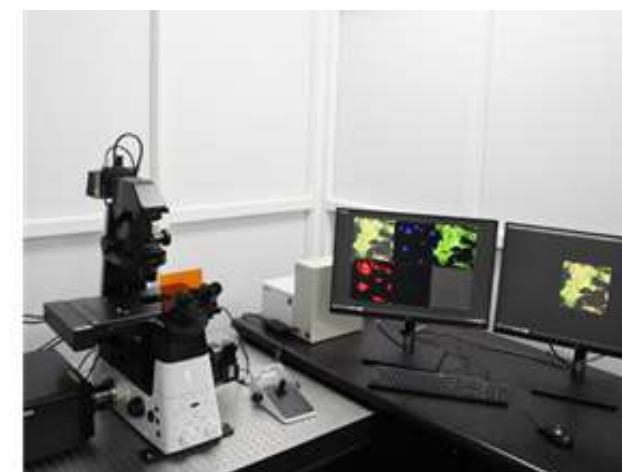
INFRASTRUCTURE & FACILITY

Central Instrument Research Facility, AUH

The central instrument research facility (CIRF) is housed at Amity University Haryana, Gurugram provides a central facility of latest and advanced high end sophisticated analytical instrument for research and innovation for promoting interdisciplinary research. Instruments are manned by well qualified personnel. This facility is available for Amitians and other academic research institutions, industries and organizations.



Infrastructure Facilities	
PHYSICAL	EQUIPMENT
Central Instrumentation Research Facility (CIRF) https://www.amity.edu/gurugram/central-instrument-research-facility.aspx	Confocal microscope, Nanodrop, Inverted fluorescence microscope, Gel documentation system, Flow cytometry, FT-IR spectrophotometer, UV-Vis spectrophotometer, Fluorescence spectrophotometer, UPLC, HPLC, Ultracentrifuge, Cold Centrifuge, Floor top refrigerated centrifuge, LC/ MS-MS-qTRAP Mass
Amity Lipidomics Research Facility (ALRF) https://www.amity.edu/gurugram/lipid	



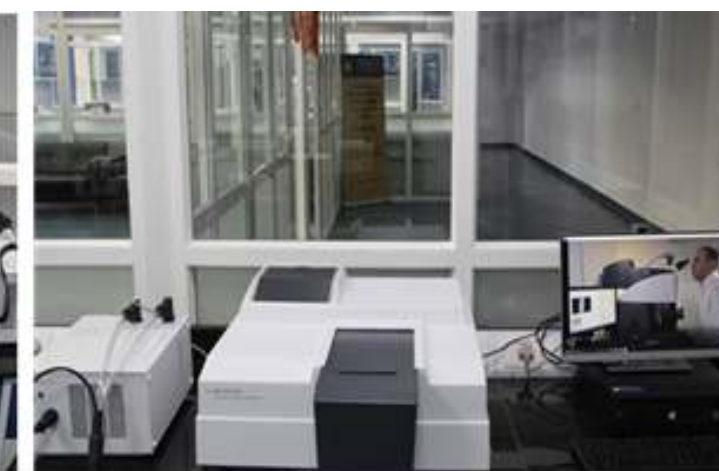
Confocal Microscope



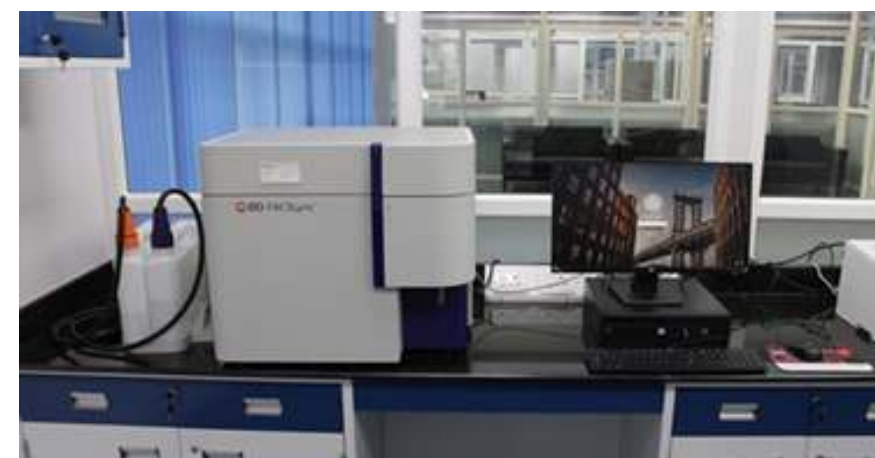
Fluorescence Microscope



Cary Eclipse Spectrofluorometer



UV-Visible spectrophotometer



BD FACSLytic™ High performance Flow cytometer



Gel documentation system



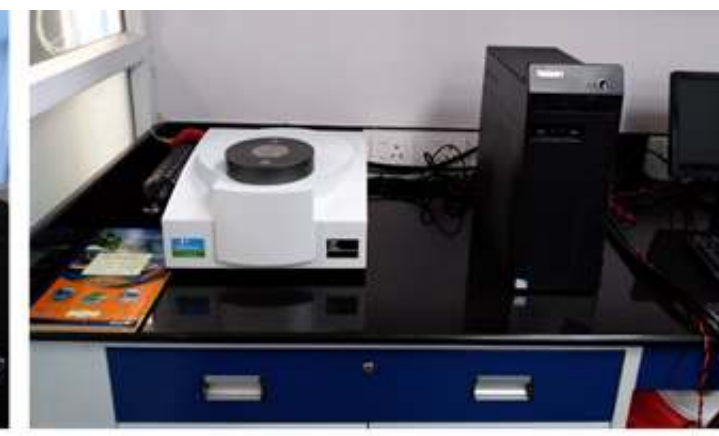
FTIR Spectrometer



Zetasizer Nano ZS



LAMBDA 365 UV-Vis Spectrophotometer



Simultaneous Thermal Analyzer



Ultra Performance Liquid Chromatography



ACTA Pure, Protein Purification System



Ultracentrifuge



High Speed Cooling Centrifuge



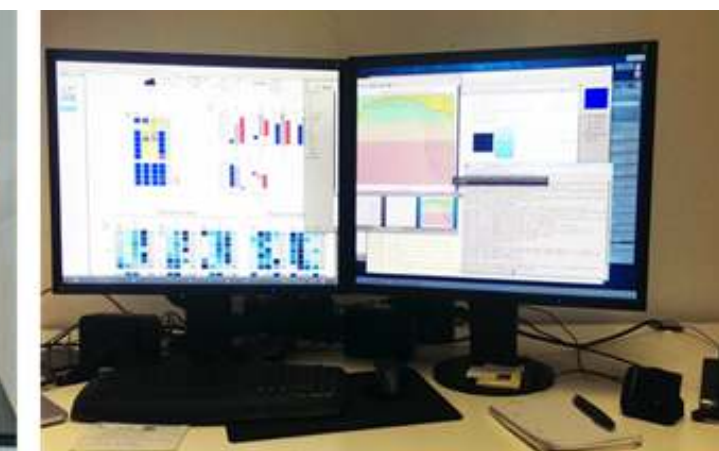
Micro fluorescence Spectrophotometer



Nanodro Spectrophotometer



Lipidomics Core Research Facility



Bioinformatics Core Research Facility

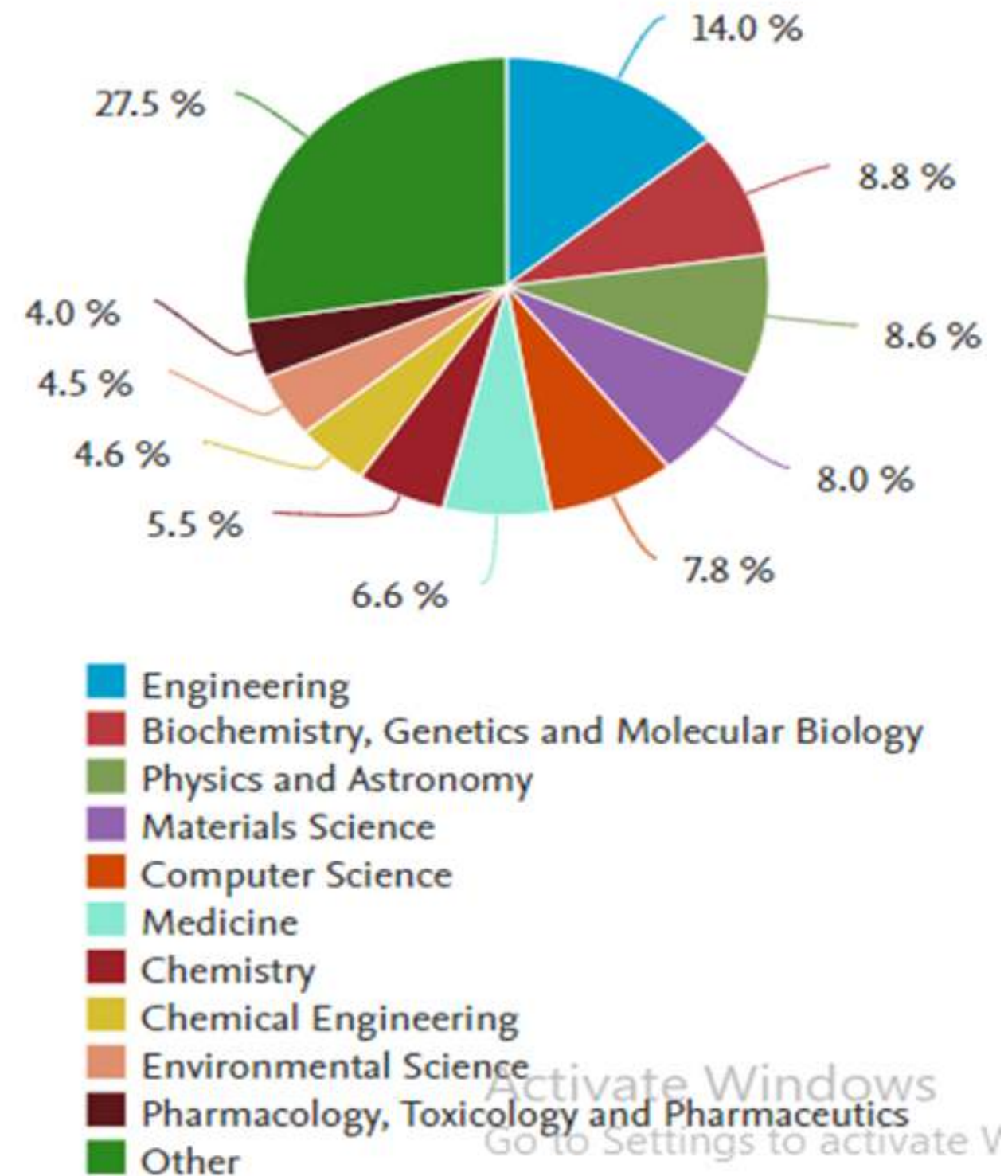


AIB and AIISH has a major initiative to extend the research and innovation mission at AUH, an effort has been made to establish a world class, ultra-modern infrastructure a Biotechnology lab under AIB and AIISH to facilitate the R&D projects with high-end precision and sophistication. The following thrust areas are focussed under the Bionova consortium.

- Non-Coding RNA Biology Lab
- Microbial Transport Systems
- Mycobacterial Stress Biology
- Bioengineering
- Sphingolipid Biology
- Plant Biotechnology
- Data Science

COMPREHENSIVE INTERDISCIPLINARY RESEARCH AT AUH

Amity University, Haryana



Activate Windows
Go to Settings to activate Windows

SCOPUS LISTED PUBLICATIONS

2019

- Abdul Azeez, E. P., Negi, D. P., & Mishra, A. (2019). Women's experiences of defecating in the open: A qualitative study. *Indian Journal of Gender Studies*, 26(1-2), 160-170. doi:10.1177/0971521518808098
- Abdul Azeez, E. P., & Subramania Siva, P. (2019). Graduation from poverty and deprivation: Reflections from an intervention in the graduation model. *Social Indicators Research*, 144(3), 1135-1150. doi:10.1007/s11205-019-02084-1
- Agrawal, S. S., Bansal, S., & Sinha, S. (2019). Comparative acoustic-phonetic analysis of retroflex consonants of some indian languages. Paper presented at the Proceedings of the International Congress on Acoustics, , 2019-September 6836-6843. doi:10.18154/RWTH-CONV-239582 Retrieved from www.scopus.com
- Ahmad, S., Raushan, M. A., Gupta, H., Kattayat, S., Kumar, S., Dalela, S., Siddiqui, M. J. (2019). Performance enhancement of UV quantum well light emitting diode through structure optimization. *Optical and Quantum Electronics*, 51(7) doi:10.1007/s11082-019-1964-z
- Ahmed, S., Arora, R., & Parkash, O. (2019). Prediction of flow parameters of glass beads-water slurry flow through horizontal pipeline using computational fluid dynamics. *Jordan Journal of Mechanical and Industrial Engineering*, 12(3), 197-213. Retrieved from www.scopus.com
- Ahmed, S. U., & Arora, R. (2019). Quality characteristics optimization in CNC end milling of A36 K02600 using Taguchi's approach coupled with artificial neural network and genetic algorithm. *International Journal of Systems Assurance Engineering and Management*, 10(4), 676-695. doi:10.1007/s13198-019-00796-8
- Ahmed, S. U., Arora, R., & Arora, R. (2019). Optimization of glass-beads water slurry flow characteristics using taguchi's decision-making technique coupled with genetic algorithm. *Pertanika Journal of Science and Technology*, 27(4), 2079-2107. Retrieved from www.scopus.com
- Ahmed, S. U., Arora, R., & Parkash, O. (2019). Flow characteristics of multiphase glass beads-water slurry through horizontal pipeline using computational fluid dynamics. *International Journal of Automotive and Mechanical Engineering*, 16(2), 6605-6623. doi:10.15282/ijame.16.2.2019.10.0497
- Ajmera, P., & Jain, V. (2019). Modeling the factors affecting the quality of life in diabetic patients in india using total interpretive structural modeling. *Benchmarking*, 26(3), 951-970. doi:10.1108/BIJ-07-2018-0180
- Ajmera, P., & Jain, V. (2019). Modelling the barriers of health 4.0—the fourth healthcare industrial revolution in india by TISM. *Operations Management Research*, 12(3-4), 129-145. doi:10.1007/s12063-019-00143-x
- Anima, P., Arun, M., & Satish, S. (2019). Scientific validation of wound healing potential of jasminum sambac ait. *South African Journal of Botany*, 121, 584-589. doi:10.1016/j.sajb.2018.11.018
- Anshu, Sharma, S. C., & Sharma, J. (2019). Lower hybrid waves excitation by a relativistic electron beam in a magnetized dusty plasma: Kinetic theory. Paper presented at the 46th EPS Conference on Plasma Physics, EPS 2019, Retrieved from www.scopus.com
- Aravapalli Vanaja, Suresh, M., Jeevanandam, J., Venkatesh, Gousia, S., Pavan, D., . . . Murthy, N. B. (2019). Copper-doped zinc oxide nanoparticles for the fabrication of white LEDs. *Protection of Metals and Physical Chemistry of Surfaces*, 55(3), 481-486. doi:10.1134/S2070205119030250
- Arora, A., Oswal, P., Rao, G. K., Kaushal, J., Kumar, S., Singh, A. K., & Kumar, A. (2019). Chalcogen (S/Se) ligated palladium(II) complexes of bulky ligands: Application in O-arylation of phenol. *ChemistrySelect*, 4(36), 10765-10769. doi:10.1002/slct.201901834
- Arora, R., & Arora, R. (2019). Parametric investigations and thermodynamic optimization of regenerative brayton heat engine doi:10.1007/978-981-13-6416-7_70 Retrieved from www.scopus.com
- Arora, R., Arora, R., & Sridhara, S. N. (2019). Performance assessment of 186 kWp grid interactive solar photovoltaic plant in northern india. *International Journal of Ambient Energy*, doi:10.1080/01430750.2019.1630312
- Arora, Y., & Goyal, D. (2019). Hadoop as a service on premise vs over cloud. Paper presented at the Proceedings of the International Conference on Trends in Electronics and Informatics, ICOEI 2019, , 2019-April 1355-1359. doi:10.1109/icoei.2019.8862608 Retrieved from www.scopus.com
- Bala, T., & Jaglan, V. (2019). Lifetime estimation algorithm based on aging for heterogeneous wireless network. *Journal of Advanced Research in Dynamical and Control Systems*, 11(6 Special Issue), 931-941. Retrieved from www.scopus.com
- Bala, T., Jaglan, V., & Saini, A. (2019). Lifetime estimation impact factors in heterogeneous wireless sensor network: A survey. *International Journal of Advanced Science and Technology*, 28(15), 579-584. Retrieved from www.scopus.com
- Bandyopadhyay, K., Verdier, J., & Kang, Y. (2019). The model legume medicago truncatula: Past, present, and future. *Plant biotechnology: Progress in genomic era* (pp. 109-130) doi:10.1007/978-981-13-8499-8_5 Retrieved from www.scopus.com
- Banerjee, A., Vishwakarma, P., Kumar, A., Lynn, A. M., & Prasad, R. (2019). Information theoretic measures and mutagenesis identify a novel linchpin residue involved in substrate selection within the nucleotide-binding domain of an ABCG family exporter Cdr1p. *Archives of Biochemistry and Biophysics*, 663, 143-150. doi:10.1016/j.abb.2019.01.013
- Bellucci, S., & Tiwari, B. N. (2019). Thermodynamic geometry of Yang–Mills vacua. *Universe*, 5(4) doi:10.3390/universe5040090
- Bhaduri, A., & Kajal. (2019). Facile synthesis and characterization of cupric oxide (CuO) nanoparticles: Inexpensive and abundant candidate for light harvesting. Paper presented at the AIP Conference Proceedings, 2093 doi:10.1063/1.5097116 Retrieved from www.scopus.com
- Bhardwaj, A., Sharma, M., Kaushik, C. P., & Kaushik, A. (2019). Bioremediation of high-strength post-methanated distillery wastewater at lab scale by using constructed wetland technology. Re-use and recycling of materials: Solid waste management and water treatment (pp. 173-181) Retrieved from www.scopus.com
- Bhardwaj, R., & Mani, N. (2019). Modeling for time period of natural frequency for non-homogeneous square plate with variable thickness and temperature effect. *Advances in applied mathematical analysis and applications* (pp. 209-227) Retrieved from www.scopus.com
- Bhardwaj, R., & Mani, N. (2019). Modelling on vibration of skew plate with thickness and temperature variation. Paper presented at the *Vibroengineering Procedia*, 22 6-12. doi:10.21595/vp.2019.20544 Retrieved from www.scopus.com
- Bhardwaj, S., Bhardwaj, N., & Kumar, V. (2019). The study of reliability of diesel locomotive engine using weibull distribution. *International Journal of Agricultural and Statistical Sciences*, 15(2), 549-554. Retrieved from www.scopus.com
- Bhatia, S., Sardana, S., Senwar, K. R., Dhillon, A., Sharma, A., & Naved, T. (2019). In vitro antioxidant and antinociceptive properties of porphyra vietnamensis. *BioMedicine (France)*, 9(1), 23-30. doi:10.1051/bmdcn/2019090103
- Bhatia, S., Sardana, S., Sharma, A., De La Cruz, C. B. V., Chaugule, B., & Khodaie, L. (2019). Development of broad spectrum mycosporine loaded sunscreen formulation from ulva fasciata delile. *BioMedicine (France)*, 9(3), 12-18. doi:10.1051/bmdcn/2019090317
- Bhatia, V., Jaglan, V., Kumawat, S., & Kaswan, K. S. (2019). A hidden markov model based prediction mechanism for cluster head selection in WSN. *International Journal of Advanced Science and Technology*, 28(15), 585-600. Retrieved from www.scopus.com
- Bhatia, V., Kumar, D., Kumar, A., Mehta, V., Chopra, S., Vij, A., Singh, S. P. (2019). Mixed transition and rare earth ion doped borate glass: Structural, optical and thermoluminescence study. *Journal of Materials Science: Materials in Electronics*, 30(1), 677-686. doi:10.1007/s10854-018-0336-y
- Brajpuriya, R., Rajan, S., Jani, S., & Vyas, A. (2019). Structural, magnetic, and morphological study of cosputtered FeAl thin film grown in nonreactive environment. *Surface and Interface Analysis*, 51(3), 371-377. doi:10.1002/sia.6591
- Brajpuriya, R., Rajan, S., & Vyas, A. (2019). Annealing dependent structural and magnetic study of ball milled Fe_{1-x}Al_x powder. Paper presented at the AIP Conference Proceedings, 2115 doi:10.1063/1.5113358 Retrieved from www.scopus.com
- Budhwar, N., & Daniel, S. (2019). A study of the effect of infective immigrants in the transmission of malaria & dengue by simulation. *Journal of Advanced*

- Research in Dynamical and Control Systems, 11(6 Special Issue), 1176-1181. Retrieved from www.scopus.com
- Bumbrah, G. S., & Rawat, B. (2019). 1,8-diazafluoren-9-one (dfo): A method for latent fingerprints detection. *Journal of Forensic Medicine and Toxicology*, 36(1), 63-67. doi:10.5958/0974-4568.2019.00016.4
 - Cervantes, J. L., Oak, E., Garcia, J., Liu, H., Lorenzini, P. A., Batra, D., . . . Roca, X. (2019). Vitamin D modulates human macrophage response to mycobacterium tuberculosis DNA. *Tuberculosis*, 116, S131-S137. doi:10.1016/j.tube.2019.04.021
 - Chakravarty, M., Pandya, P., Raina, A., Varshney, D., Sharma, D., Kumar, N., & Yadav, B. (2019). Rare finding of a triallelic pattern at the fga locus for paternity analysis. *Journal of South India Medicolegal Association*, 11(2), 98-102. Retrieved from www.scopus.com
 - Chakravarty, M., Varshney, D., Priyanka, Sharma, D., Kumar, N., Pandya, P., . . . Yadav, B. (2019). Confirmation of biological paternal lineage by using a panel of y-chromosome str's in a parentage testing murder case: A case of allele mismatch in the child. *International Journal of Medical Toxicology and Legal Medicine*, 22(3-4), 140-143. doi:10.5958/0974-4614.2019.00076.7
 - Chandel, R. K., Nebapure, S. M., Sharma, M., Subramanian, S., Srivastava, C., & Khurana, S. M. P. (2019). Insecticidal and repellent activities of eucalyptus oil against lesser grain borer rhyzopertha dominica (fabricius). *Journal of Microbiology, Biotechnology and Food Sciences*, 9(3), 525-529. doi:10.15414/jmbfs.2019/20.9.3.525-529
 - Chatterjee, A., Devara, P. C. S., Balasubramanian, R., & Jaffe, D. A. (2019). Aerosol climate change connection (AC3) special issue: An overview. *Aerosol and Air Quality Research*, 19(1), 1-4. doi:10.4209/aaqr.2018.11.0435
 - Chaturvedi, N., Mishra, A., & Rawat, V. (2019). Synthesis and characterization of oxygen depleted tert-amine calix[4]arene ligands and study the effect on sigma non-opioid intracellular protein receptor. *Structural Chemistry*, 30(5), 1899-1910. doi:10.1007/s11224-019-01324-x
 - Chaturvedi, S., & Khurana, S. M. P. (2019). Importance of actinobacteria for bioremediation. *Plant biotechnology: Progress in genomic era* (pp. 277-307) doi:10.1007/978-981-13-8499-8_13 Retrieved from www.scopus.com
 - Chauhan, V., Gupta, R., Kumar, V., Ram, J., Singh, F., Prasad, M., . . . Kumar, R. (2019). High energy (150MeV) Fe11+ ion beam induced modifications of physico-chemical and photoluminescence properties of high-k dielectric nanocrystalline zirconium oxide thin films. *Ceramics International*, 45(15), 18887-18898. doi:10.1016/j.ceramint.2019.06.124
 - Chiteka, K., Sridhara, S. N., & Arora, R. (2019). Numerical investigation of installation and environmental parameters on soiling of roof-mounted solar photovoltaic array. *Cogent Engineering*, 6(1) doi:10.1080/23311916.2019.1649007
 - Dagar, M., Singh, J. P., Dagar, G., Tyagi, R. K., & Bagchi, G. (2019). Phosphorylation of HSP90 by protein kinase A is essential for the nuclear translocation of androgen receptor. *Journal of Biological Chemistry*, 294(22), 8699-8710. doi:10.1074/jbc.RA119.007420
 - Dahiya, S., Kumawat, S., & Singh, P. (2019). A petri net based approach for modelling of resource shared distributed wireless sensor networks. *International Journal of Scientific and Technology Research*, 8(11), 2973-2978. Retrieved from www.scopus.com
 - Dahiya, S., Kumawat, S., & Singh, P. (2019). Petri net based modeling and property analysis of distributed discrete event system. *International Journal of Innovative Technology and Exploring Engineering*, 8(12), 3887-3891. doi:10.35940/ijitee.L3392.1081219
 - Das, S. (2019). Short term forecasting of solar radiation and power output of 89.6kWp solar PV power plant. Paper presented at the Materials Today: Proceedings, 39 1959-1969. doi:10.1016/j.matpr.2020.08.449 Retrieved from www.scopus.com
 - Das, S., Goswami, A., & Debnath, N. (2019). Application of baculoviruses as biopesticides and the possibilities of nanoparticle mediated delivery. *Nano-biopesticides today and future perspectives* (pp. 261-280) doi:10.1016/B978-0-12-815829-6.00011-5 Retrieved from www.scopus.com
 - Das, S., Solomon, S. S., & Saini, A. (2019). Thermal analysis of paraboloid dish type solar cooker. Paper presented at the Journal of Physics: Conference Series, 1276(1) doi:10.1088/1742-6596/1276/1/012055 Retrieved from www.scopus.com
 - Das, S., Yadav, A., & Debnath, N. (2019). Entomotoxic efficacy of aluminium oxide, titanium dioxide and zinc oxide nanoparticles against sitophilus oryzae (L.): A comparative analysis. *Journal of Stored Products Research*, 83, 92-96. doi:10.1016/j.jspr.2019.06.003
 - Deep, A., Rani, N., Kumar, A., Nandal, R., Sharma, P. C., & Sharma, A. K. (2019). Prospective of natural gum nanoparticulate against cardiovascular disorders. *Current Chemical Biology*, 13(3), 197-211. doi:10.2174/2212796813666190328194825
 - Devi, N., & Dutta, J. (2019). Development and in vitro characterization of chitosan/starch/halloysite nanotubes ternary nanocomposite films. *International Journal of Biological Macromolecules*, 127, 222-231. doi:10.1016/j.ijbiomac.2019.01.047
 - Dhaka, S. (2019). Traffic management and security in wired network doi:10.1007/978-981-13-5992-7_2 Retrieved from www.scopus.com
 - Dhamija, A., & Sikka, S. (2019). A systematic study of advancements in change impact analysis techniques. *International Journal of Innovative Technology and Exploring Engineering*, 8(8), 435-443. Retrieved from www.scopus.com
 - Dhar, S., Singh, J., Singh, P., & Yadav, A. K. (2019). Stability and bifurcation analysis of delayed neural network using harmonic balance approach. Paper presented at the 2019 6th International Conference on Signal Processing and Integrated Networks, SPIN 2019, 1053-1057. doi:10.1109/SPIN.2019.8711676 Retrieved from www.scopus.com
 - Dhariwal, M., & Fatima, N. (2019). New homotopy perturbation method for solving of coupled equation and heat equation and laplace equation. Paper presented at the Communication and Computing Systems- Proceedings of the 2nd International Conference on Communication and Computing Systems, ICCCS 2018, 362-367. Retrieved from www.scopus.com
 - Dhir, S., Srivastava, A., Yoshikawa, N., & Khurana, S. M. P. (2019). Plant viruses as virus induced gene silencing (VIGS) vectors. *Plant biotechnology: Progress in genomic era* (pp. 517-526) doi:10.1007/978-981-13-8499-8_22 Retrieved from www.scopus.com
 - Ekta, Lahariya, V., Kushwaha, K. K., & Gupta, S. K. (2019). Optoelectronic study on starch capped cadmium sulfide nanoparticles. *Journal of Nano- and Electronic Physics*, 11(6) doi:10.21272/jnep.11(6).06002
 - Fatima, N., & Daniel, S. (2019). Solution of wave equations and heat equations using HPM doi:10.1007/978-3-030-01123-9_36 Retrieved from www.scopus.com
 - Gaurav, K., Singh, R., Tiwari, B. K., & Srivastava, R. (2019). Novel proton exchange membranes based on PVC for microbial fuel cells (MFCs). *Journal of Polymer Engineering*, 39(4), 360-367. doi:10.1515/polyeng-2018-0276
 - Goel, A. (2019). Appropriate model for landfill rehabilitation in india using hazard rating system. *Journal of Environmental Engineering and Science*, 15(2), 80-91. doi:10.1680/jenes.18.00041
 - Gulati, K., Madhukar, V., Verma, V., Singh, A. R., Gupta, S. K., & Sarkar, C. (2019). Medical leadership competencies: A comparative study of physicians in public and private sector hospitals in india. *International Journal of Health Planning and Management*, 34(1), e947-e963. doi:10.1002/hpm.2709
 - Gupta, R., & Jaglan, V. (2019). Test case generation for UML behavioral diagram by traversal algorithm. *International Journal of Innovative Technology and Exploring Engineering*, 8(10), 3262-3266. doi:10.35940/ijitee.J1190.0881019
 - Gupta, R., Jaglan, V., & Kaswan, K. S. (2019). Fault model for UML behavioral activity and sequence diagrams. *International Journal of Engineering and Advanced Technology*, 9(1), 6926-6929. doi:10.35940/ijeat.A2044.109119
 - Gupta, S. (2019). Application of nano-silica in cement mortar and concrete. *Smart nanoconcretes and cement-based materials: Properties, modelling and applications* (pp. 601-617) doi:10.1016/B978-0-12-817854-6.00027-1 Retrieved from www.scopus.com
 - Gupta, S., Kumawat, S., & Singh, G. P. (2019). Fuzzy petri net representation of fuzzy production propositions of a rule based system doi:10.1007/978-981-13-9939-8_18 Retrieved from www.scopus.com
 - Gupta, S., Singh, G. P., & Kumawat, S. (2019). Petri net recommender system to model metabolic pathway of polyhydroxyalkanoates. *International Journal of Knowledge and Systems Science*, 10(2), 42-59. doi:10.4018/IJKSS.2019040103
 - Gupta, S., Thakur, J., Pal, S., Gupta, R., Mishra, D., Kumar, S., . . . Bajaj, A. (2019). Cholic acid-peptide conjugates as potent antimicrobials against interkingdom polymicrobial biofilms. *Antimicrobial*

- Agents and Chemotherapy, 63(11) doi:10.1128/AAC.00520-19
- Hameed, S., & Fatima, Z. (2019). Targeting magnesium homeostasis as potential anti-infective strategy against mycobacteria doi:10.2174/9781681086378119050008 Retrieved from www.scopus.com
 - Hameed, Y., Rao, G. K., Ovens, J. S., Gabidullin, B., & Richeson, D. (2019). Visible-light photocatalytic reduction of CO₂ to formic acid with a ru catalyst supported by N,N-bis(diphenylphosphino)-2,6-diaminopyridine ligands. *ChemSusChem*, 12(15), 3453-3457. doi:10.1002/cssc.201901326
 - Hans, S., Fatima, Z., & Hameed, S. (2019). Magnesium deprivation affects cellular circuitry involved in drug resistance and virulence in candida albicans. *Journal of Global Antimicrobial Resistance*, 17, 263-275. doi:10.1016/j.jgar.2019.01.011
 - Hans, S., Fatima, Z., & Hameed, S. (2019). Retrograde signaling disruption influences ABC superfamily transporter, ergosterol and chitin levels along with biofilm formation in candida albicans. *Journal De Mycologie Medicale*, 29(3), 210-218. doi:10.1016/j.mycmed.2019.07.003
 - Jain, A., & Tripathi, K. (2019). Malicious detection using secure mutual trust based routing on an intrusion detection system in WSN. *International Journal of Recent Technology and Engineering*, 8(3), 3144-3150. doi:10.35940/ijrte.C5003.098319
 - Jain, C., Mishra, V., & Chugh, A. (2019). Palm vein technology for biometrics. *International Journal of Innovative Technology and Exploring Engineering*, 8(9 special issue), 598-602. doi:10.35940/ijitee.I1094.0789S19
 - Jain, M., Manju, Gundimeda, A., Kumar, A., Kumar, S., Gupta, G., . . . Thakur, A. (2019). Enhanced near-infrared luminescence in zinc aluminate bestowed by fuel-blended combustion approach. *Journal of Alloys and Compounds*, 797, 148-158. doi:10.1016/j.jallcom.2019.04.257
 - Jain, M., Manju, Gundimeda, A., Kumar, S., Gupta, G., Won, S. O., . . . Thakur, A. (2019). Defect induced broadband visible to near-infrared luminescence in ZnAl₂O₄ nanocrystals. *Applied Surface Science*, 480, 945-950. doi:10.1016/j.apsusc.2019.02.198
 - Jain, V., & Ajmera, P. (2019). Application of madm methods as moora and wedba for ranking of fms flexibility. *International Journal of Data and Network Science*, 3(2), 119-136. doi:10.5267/j.ijdns.2018.12.003
 - Jain, V., & Ajmera, P. (2019). Evaluation of performance factors of FMS by combined decision making methods as AHP, CMBA and ELECTRE methodology. *Management Science Letters*, 9(4), 519-534. doi:10.5267/j.msl.2019.1.010
 - Jain, V., & Ajmera, P. (2019). Modelling of the factors affecting lean implementation in healthcare using structural equation modelling. *International Journal of Systems Assurance Engineering and Management*, 10(4), 563-575. doi:10.1007/s13198-019-00770-4
 - Jain, V., & Soni, V. K. (2019). Modeling and analysis of FMS performance variables by fuzzy TISM. *Journal of Modelling in Management*, 14(1), 2-30. doi:10.1108/JM2-03-2018-0036
 - Jindal, A., Yadav, N., Dhar, K., Moulick, R. G., & Bhattacharya, J. (2019). Bi-functionalization of glass surfaces with poly-L-lysine conjugated silica particles and polyethylene glycol for selective cellular attachment and proliferation. *Journal of Materials Science*, 54(3), 2501-2513. doi:10.1007/s10853-018-2950-8
 - Joon, P., Bajaj, S. B., & Jatain, A. (2019). Segmentation and detection of lung cancer using image processing and clustering techniques doi:10.1007/978-981-13-1708-8_2 Retrieved from www.scopus.com
 - Kannaujia, R., Prasad, V., Sapna, Rawat, P., Rawat, V., Thakur, A., . . . Srivastava, C. M. (2019). Facile synthesis of CuFe₂O₄ doped polyacrylic acid hydrogel nanocomposite and its application in dye degradation. *Materials Letters*, 252, 198-201. doi:10.1016/j.matlet.2019.05.094
 - Kannaujia, R., Srivastava, C. M., Prasad, V., Singh, B. N., & Pandey, V. (2019). Phyllanthus emblica fruit extract stabilized biogenic silver nanoparticles as a growth promoter of wheat varieties by reducing ROS toxicity. *Plant Physiology and Biochemistry*, 142, 460-471. doi:10.1016/j.plaphy.2019.08.008
 - Karkra, S., & Patel, J. K. B. (2019). Multi-atlas segmentation: Label propagation and fusion based approach doi:10.1007/978-981-13-0344-9_28 Retrieved from www.scopus.com
 - Karkra, S., Singh, P., & Kaur, K. (2019). Convolution neural network: A shallow dive in to deep neural net technology. *International Journal of Recent Technology and Engineering*, 8(2 Special Issue 7), 487-495. doi:10.35940/ijrte.B1092.0782S719
 - Kaur, M., & Patel, J. K. B. (2019). Control of direct current motor using intelligent PID controller. *Journal of Advanced Research in Dynamical and Control Systems*, 11(1 Special Issue), 982-988. Retrieved from www.scopus.com
 - Khan, Z., Shahwar, D., Yunus Ansari, M. K., & Chandel, R. (2019). Toxicity assessment of anatase (TiO₂) nanoparticles: A pilot study on stress response alterations and DNA damage studies in lens culinaris medik. *Heliyon*, 5(7) doi:10.1016/j.heliyon.2019.e02069
 - Khandelwal, N. K., Wasi, M., Nair, R., Gupta, M., Kumar, M., Mondal, A. K., . . . Prasad, R. (2019). Vacuolar sequestration of azoles, a novel strategy of azole antifungal resistance conserved across pathogenic and nonpathogenic yeast. *Antimicrobial Agents and Chemotherapy*, 63(3) doi:10.1128/AAC.01347-18
 - Khandelwal, S., & Khurana, S. M. P. (2019). Isolation and characterization of antimicrobial protein/peptide from leaves of moringa oleifera (miracle tree). *Medicinal Plants*, 11(2), 155-160. doi:10.5958/0975-6892.2019.00019.4
 - Khandelwal, S., & Khurana, S. M. P. (2019). Molecular docking studies and GC-MS analysis of the antimicrobial compounds isolated from leaves of moringa oleifera. *Medicinal Plants*, 11(1), 95-103. doi:10.5958/0975-6892.2019.00004.2
 - Khurana, S. M. P., & Gaur, R. K. (2019). Plant biotechnology: Progress in genomic era. *Plant biotechnology: Progress in genomic era* (pp. 1-670) doi:10.1007/978-981-13-8499-8 Retrieved from www.scopus.com
 - Khurana, S. M. P., & Gaur, R. K. (2019). Preface. *Plant Biotechnology: Progress in Genomic Era*, , vii-ix. Retrieved from www.scopus.com
 - Kulshreshtha, D., Aggarwal, R., & Kumar, N. (2019). Histopathological analysis of incompatible and compatible interaction of puccinia striiformis f.sp. tritici on wheat at early infection stage. *Indian Journal of Agricultural Research*, 53(5), 594-598. doi:10.18805/IJARE.A-5187
 - Kulshreshtha, S., & Kulshreshtha, R. (2019). The emerging importance of "homestays" in the indian hospitality sector. *Worldwide Hospitality and Tourism Themes*, 11(4), 458-466. doi:10.1108/WHATT-04-2019-0024
 - Kumar, A., Lather, N., & Sharma, A. (2019). Analysis of time period of isotropic square plate on clamped and simply supported conditions. Paper presented at the AIP Conference Proceedings, , 2142 doi:10.1063/1.5122486 Retrieved from www.scopus.com
 - Kumar, D., Chaudhary, S., Yadav, S., & Nehra, V. (2019). The study and interpretation of sthe with computational fluid dynamics as tool. *International Journal of Mechanical and Production Engineering Research and Development*, 9(4), 299-306. doi:10.24247/ijmperdaug201931
 - Kumar, D., Singh, H., & Sharma, S. (2019). Comparative analysis of water and nano fluid in sthe using computational fluid dynamics. *International Journal of Mechanical and Production Engineering Research and Development*, 9(4), 815-822. doi:10.24247/ijmperdaug201983
 - Kumar, J., Singh, P., Yadav, A. K., & Kumar, A. (2019). Asymmetric image encryption using gyrator transform with singular value decomposition doi:10.1007/978-981-13-1642-5_34 Retrieved from www.scopus.com
 - Kumar, J., Yadav, A., Alvi, P. A., Kumar, S., & Vij, A. (2019). Combustion synthesis and thermoluminescence response of near ultra-violet irradiated mg₂B₂O₅ nanophosphors. Paper presented at the AIP Conference Proceedings, , 2093 doi:10.1063/1.5097094 Retrieved from www.scopus.com
 - Kumar, N., Dubey, S. C., Kumar, P., & Khurana, S. M. P. (2019). Fusarium solani causing stem rot and wilt of lucky bamboo (dracaena sanderiana) in india-first record. *Indian Phytopathology*, 72(2), 367-371. doi:10.1007/s42360-019-00119-8
 - Kumar, N., & Khurana, S. M. P. (2019). Active compounds and bacteria harbouring capacity of lichens and its medicinal use in bacterial and cancer infections. *Plant biotechnology: Progress in genomic era* (pp. 327-348) doi:10.1007/978-981-13-8499-8_15 Retrieved from www.scopus.com
 - Kumar, P., Gupta, N., Gupta, R., & Sharma, A. (2019). Noise analysis of dual halo dual dielectric triple material surrounding gate MOSFET for RF applications. Paper presented at the Proceedings of 3rd International Conference on 2019 Devices for Integrated Circuit, DevIC 2019, 331-333. doi:10.1109/DEVIC.2019.8783796 Retrieved from www.scopus.com

- Kumar, S., Thakur, J., Yadav, K., Mitra, M., Pal, S., Ray, A., . . . Bajaj, A. (2019). Cholic acid-derived amphiphile which combats gram-positive bacteria-mediated infections via disintegration of lipid clusters. *ACS Biomaterials Science and Engineering*, 5(9), 4764-4775. doi:10.1021/acsbomaterials.9b00706
- Kumar, S. A., Juhi, S., & Vikram, S. H. (2019). DCT- and DWT-based intellectual property right protection in digital images doi:10.1007/978-981-13-1580-0_49 Retrieved from www.scopus.com
- Kumar, V., Kumar, S., Chauhan, P. K., Verma, M., Bahuguna, V., Joshi, H. C., . . . Vlaskin, M. S. (2019). Low-temperature catalyst based hydrothermal liquefaction of harmful macroalgal blooms, and aqueous phase nutrient recycling by microalgae. *Scientific Reports*, 9(1) doi:10.1038/s41598-019-47664-w
- Kumar, V., Sharma, H., Singh, S. K., Kumar, S., & Vij, A. (2019). Enhanced near-band edge emission in pulsed laser deposited ZnO/c-sapphire nanocrystalline thin films. *Applied Physics A: Materials Science and Processing*, 125(3) doi:10.1007/s00339-019-2485-0
- Kumar, V., Singh, S. K., Sharma, H., Kumar, S., Banerjee, M. K., & Vij, A. (2019). Investigation of structural and optical properties of ZnO thin films of different thickness grown by pulsed laser deposition method. *Physica B: Condensed Matter*, 552, 221-226. doi:10.1016/j.physb.2018.10.004
- Kumari, K., Aljawfi, R. N., Katharria, Y. S., Dwivedi, S., Chae, K. H., Kumar, R., . . . Kumar, S. (2019). Study the contribution of surface defects on the structural, electronic structural, magnetic, and photocatalyst properties of Fe: CeO₂ nanoparticles. *Journal of Electron Spectroscopy and Related Phenomena*, 235, 29-39. doi:10.1016/j.elspec.2019.06.004
- Kumari, K., Aljawfi, R. N., Vij, A., Chae, K. H., Hashim, M., Alvi, P. A., & Kumar, S. (2019). Band gap engineering, electronic state and local atomic structure of Ni doped CeO₂ nanoparticles. *Journal of Materials Science: Materials in Electronics*, 30(5), 4562-4571. doi:10.1007/s10854-019-00746-x
- Kumari, K., Vij, A., Hashim, M., Chawla, A. K., & Kumar, S. (2019). Structural and optical properties of Cu doped CeO₂ nanoparticles. Paper presented at the AIP Conference Proceedings, , 2093 doi:10.1063/1.5097095 Retrieved from www.scopus.com
- Lahariya, V. (2019). Photo and electroluminescence study of ZnS in polymer matrix. Paper presented at the AIP Conference Proceedings, , 2142 doi:10.1063/1.5122377 Retrieved from www.scopus.com
- Lather, N., Kumar, A., & Sharma, A. (2019). Theoretical analysis of time period of rectangular plate with variable thickness and temperature. Paper presented at the AIP Conference Proceedings, , 2142 doi:10.1063/1.5122487 Retrieved from www.scopus.com
- Lather, N., & Sharma, A. (2019). Natural vibration of skew plate on different set of boundary conditions with temperature gradient. Paper presented at the *Vibroengineering Procedia*, 22 74-80. doi:10.21595/vp.2019.20550 Retrieved from www.scopus.com
- Luxita, S., & Puneeta, A. (2019). Organoleptic and physicochemical properties of tarts developed from quinoa, chickpea and oats flour and their ranking by topsis method. *Current Research in Nutrition and Food Science*, 7 (2) , 4 5 7 - 4 6 8 . doi:10.12944/CRNFSJ.7.2.15
- M, N., D, S., Hans, S., Varghese, A., Fatima, Z., & Hameed, S. (2019). Studies on the antifungal activity of biotemplated gold nanoparticles over candida albicans. *Materials Research Bulletin*, 119 doi:10.1016/j.materresbull.2019.110563
- Madhukar, V., & Sharma, D. (2019). The role of information technology applications in profitability: A study of the Indian travel and tourism industry. *Worldwide Hospitality and Tourism Themes*, 11(4), 429-437. doi:10.1108/WHATT-04-2019-0025
- Madhupriya, Kumar, A., Rao, G. P., & Khurana, S. M. P. (2019). Development and utilization of gyrA and gyrB gene-based diagnostics for the phytoplasma classified under 16Sr I group in plants and insects. *3 Biotech*, 9(5) doi:10.1007/s13205-019-1706-8
- Maheshwari, N., Kumar, M., Thakur, I. S., & Srivastava, S. (2019). Cloning, expression and characterization of β - and γ carbonic anhydrase from bacillus sp. SS105 for biomimetic sequestration of CO₂. *International Journal of Biological Macromolecules*, 131, 445-452. doi:10.1016/j.ijbiomac.2019.03.082
- Majumder, S., Brajpuriya, R., Vij, A., Kumar, S., Panchal, N., & Vyas, A. (2019). Synthesis and characterization of GO coupled SrS material with a study of luminescence properties. Paper presented at the AIP Conference Proceedings, , 2162 doi:10.1063/1.5130265 Retrieved from www.scopus.com
- Malik, Y. S., Barh, D., Azevedo, V., & Paul Khurana, S. M. (2019). Genomics and biotechnological advances in veterinary, poultry, and fisheries. *Genomics and biotechnological advances in veterinary, poultry, and fisheries* (pp. 1-531) doi:10.1016/C2017-0-04640-2 Retrieved from www.scopus.com
- Malik, Y. S., Barh, D., Azevedo, V., & Paul Khurana, S. M. (2019). Preface. *Genomics and Biotechnological Advances in Veterinary, Poultry, and Fisheries*, , xxix-xxxii. doi:10.1016/B978-0-12-816352-8.00026-6
- Mani, N., Sharma, A., & Bhardwaj, R. (2019). Common fixed point theorem for noncontinuous maps in complete metric spaces satisfying f - contraction. Paper presented at the AIP Conference Proceedings, , 2142 doi:10.1063/1.5122606 Retrieved from www.scopus.com
- Mani, N., Sharma, A., Bhardwaj, R., & Bhati, S. M. (2019). A study on metric fixed point theorems satisfying integral type contractions. *Advances in applied mathematical analysis and applications* (pp. 229-248) Retrieved from www.scopus.com
- Mann, M., Pathak, S. R., & Shukla, S. K. (2019). Three-dimensional detection of sequence of strokes using confocal microscope. *Egyptian Journal of Forensic Sciences*, 9(1) doi:10.1186/s41935-019-0120-z
- Mansi, K. (2019). Foreign policy of Canada vis-à-vis India under Stephen Harper: From cold storage to warmth of billion-dollar trade. *Nation-building, education and culture in India and Canada: Advances in Indo-Canadian Humanities and Social Sciences Research* (pp. 135-154) doi:10.1007/978-981-13-6741-0_9 Retrieved from www.scopus.com
- Manyapu, V., Mandpe, A., & Kumar, S. (2019). Corrigendum to "Synergistic effect of fly ash in in-vessel composting of biomass and kitchen waste" [*bioresour. technol.* 251 (2018) 114-120](S0960852417321740)(10.1016/j.biortech.2017.12.039). *Bioresource Technology*, 277, 225. doi:10.1016/j.biortech.2018.12.031
- Maputi, E. S., & Arora, R. (2019). Design optimization of a three-stage transmission using advanced optimization techniques. *International Journal for Simulation and Multidisciplinary Design Optimization*, 10 doi:10.1051/smdo/2019009
- Maputi, E. S., & Arora, R. (2019). Multi-objective spur gear design using teaching learning-based optimization and decision-making techniques. *Cogent Engineering*, 6(1) doi:10.1080/23311916.2019.1665396
- Marwal, A., Kumar, R., Paul Khurana, S. M., & Gaur, R. K. (2019). Complete nucleotide sequence of a new geminivirus isolated from vitis vinifera in India: A symptomless host of grapevine red blotch virus. *Virus Disease*, 30(1), 106-111. doi:10.1007/s13337-018-0477-x
- Marwal, A., Kumar, R., Verma, R. K., Mishra, M., Gaur, R. K., & Khurana, S. M. P. (2019). Genomics and molecular mechanisms of plant's response to abiotic and biotic stresses. *Plant biotechnology: Progress in genomic era* (pp. 131-146) doi:10.1007/978-981-13-8499-8_6 Retrieved from www.scopus.com
- Meena, M. S., Singh, P., Rana, A., Mery, D., & Prasad, M. (2019). A robust face recognition system for one sample problem doi:10.1007/978-3-030-34879-3_2 Retrieved from www.scopus.com
- Meenu, Jaglan, V., Sehrawat, H., & Siwach, V. (2019). Estimation of network lifetime considering ageing effect on battery capacity of mobile devices in wireless ad-hoc network. *International Journal of Advanced Science and Technology*, 28(15), 601-611. Retrieved from www.scopus.com
- Mehta, M., Saini, V., Patel, M. N., & Menon, S. K. (2019). Applicability and reliability of foramen magnum for sex determination in contemporary western Indian population: A computed tomographic study. *Journal of Forensic Radiology and Imaging*, 17, 31-35. doi:10.1016/j.jofri.2019.05.005
- Mekonnen, T., Haileselassie, T., Kaul, T., Sharma, M., Geleta, B., & Tesfaye, K. (2019). Molecular screening of zymoseptoria tritici resistance genes in wheat (Triticum aestivum L.) using tightly linked simple sequence repeat markers. *European Journal of Plant Pathology*, 155(2), 593-614. doi:10.1007/s10658-019-01795-y
- Midha, S., & Triptahi, K. (2019). Extended TLS security and defensive algorithm in openflow SDN. Paper presented at the Proceedings of the 9th International Conference on Cloud Computing, Data Science and Engineering, Confluence 2019, 141-146. doi:10.1109/CONFLUENCE.2019.8776607 Retrieved from www.scopus.com
- Mishra, A., Mishra, A., Yadav, N., Bhattacharya, J., & Moulick, R. G. (2019). Covalent attachment of streptavidin to two dimensional magnetic

- nanocomposite enhances surface enhancement raman spectroscopic signal. *Journal of Applied Physics*, 125(16) doi:10.1063/1.5079607
- Mishra, V. P., Shukla, B., & Jain, C. (2019). A simulation-based approach to sense and alert the DDoS attacks in organizations network. *International Journal of Advanced Science and Technology*, 28(14), 268-284. Retrieved from www.scopus.com
 - Mongre, R. K., Mishra, C. B., Prakash, A., Jung, S., Lee, B. S., Kumari, S., . . . Lee, M. -. (2019). Novel carbazole-piperazine hybrid small molecule induces apoptosis by targeting BCL-2 and inhibits tumor progression in lung adenocarcinoma in vitro and xenograft mice model. *Cancers*, 11(9) doi:10.3390/cancers11091245
 - Moreno, A., Banerjee, A., Prasad, R., & Falson, P. (2019). PDR-like ABC systems in pathogenic fungi. *Research in Microbiology*, 170(8), 417-425. doi:10.1016/j.resmic.2019.09.002
 - Nair, A. S., Singh, M., & Khosla, B. (2019). Phytoremediation of heavy metals contaminated soil using tegetes patula. *Annals of Biology*, 35(2), 181-185. Retrieved from www.scopus.com
 - Nanda, A., Gupta, S., & Vijrania, M. (2019). A comprehensive survey of OLAP: Recent trends. Paper presented at the Proceedings of the 3rd International Conference on Electronics and Communication and Aerospace Technology, ICECA 2019, 425-430. doi:10.1109/ICECA.2019.8822203 Retrieved from www.scopus.com
 - Nanda, M., Kumar, V., Fatima, N., Pruthi, V., Verma, M., Chauhan, P. K., . . . Grigorenko, A. V. (2019). Detoxification mechanism of organophosphorus pesticide via carboxylestrase pathway that triggers de novo TAG biosynthesis in oleaginous microalgae. *Aquatic Toxicology*, 209, 49-55. doi:10.1016/j.aquatox.2019.01.019
 - Nandal, R., Deep, A., Singh, I., Kaushik, M., Hoti, S. L., Narasimhan, B., . . . Sharma, A. K. (2019). Synthesis of metal complexes of primaquine and in-vitro antimalarial evaluation against plasmodium falciparum. *Current Bioactive Compounds*, 15(6), 631-636. doi:10.2174/1573407214666180720124844
 - Nandi, M., Sikri, K., Chaudhary, N., Mande, S. C., Sharma, R. D., & Tyagi, J. S. (2019). Multiple transcription factors co-regulate the mycobacterium tuberculosis adaptation response to vitamin C. *BMC Genomics*, 20(1) doi:10.1186/s12864-019-6190-3
 - Naveen, B. P., & Malik, R. K. (2019). Assessment of contamination potential of leachate from municipal solid waste landfill sites for metropolitan cities in india. *Pollution*, 5(2), 313-322. doi:10.22059/poll.2018.266991.527
 - Naveen, B. P., Sumalatha, J., & Malik, R. K. (2019). Numerical modelling of leachate transport into water bodies at a landfill site. *Journal of Environmental Engineering and Science*, 15(1), 6-15. doi:10.1680/jenes.18.00042
 - Negi, S. (2019). End functionalization of a double walled carbon nanotube for biomedical application. Paper presented at the AIP Conference Proceedings,, 2093 doi:10.1063/1.5097107 Retrieved from www.scopus.com
 - Oswal, P., Arora, A., Kaushal, J., Rao, G. K., Kumar, S., Singh, A. K., & Kumar, A. (2019). Ultra-small palladium nano-particles synthesized using bulky S/Se and N donor ligands as a stabilizer: Application as catalysts for suzuki-miyaura coupling. *RSC Advances*, 9(39), 22313-22319. doi:10.1039/c9ra03498f
 - Pal, R., Hameed, S., & Fatima, Z. (2019). Altered drug efflux under iron deprivation unveils abrogated MmpL3 driven mycolic acid transport and fluidity in mycobacteria. *BioMetals*, 32(1), 49-63. doi:10.1007/s10534-018-0157-8
 - Pal, R., Hameed, S., Kumar, P., Singh, S., & Fatima, Z. (2019). Understanding lipidomic basis of iron limitation induced chemosensitization of drug-resistant mycobacterium tuberculosis. *3 Biotech*, 9(4) doi:10.1007/s13205-019-1645-4
 - Pal, S., Medatwal, N., Kumar, S., Kar, A., Komalla, V., Yavvari, P. S., . . . Bajaj, A. (2019). A localized chimeric hydrogel therapy combats tumor progression through alteration of sphingolipid metabolism. *ACS Central Science*, 5(10), 1648-1662. doi:10.1021/acscentsci.9b00551
 - Palak, & Bumrah, G. S. (2019). Trends in developing latent fingerprints on adhesive tapes: A review. [TenDencje i kierunki w ujawnianiu śladów linii papilarnych na taśmach samoprzylepnych: Przegląd] *Z Zagadnień Nauk Sadowych*, 120, 279-299. Retrieved from www.scopus.com
 - Pan, C. -, Chang, W. -, Kumar, A., Singh, S. P., Kaushik, A. C., Sharma, J., . . . Shiue, Y. -. (2019). Nanoparticles-mediated brain imaging and disease prognosis by conventional as well as modern modal imaging techniques: A comparison. *Current Pharmaceutical Design*, 25(24), 2637-2649. doi:10.2174/1381612825666190709220139
 - Pandey, D. (2019). Agricultural sustainability and climate change nexus. *Contemporary environmental issues and challenges in era of climate change* (pp. 77-97) doi:10.1007/978-981-32-9595-7_4 Retrieved from www.scopus.com
 - Parkash, O., Kumar, A., & Sikarwar, B. S. (2019). CFD modeling of commercial slurry flow through horizontal pipeline doi:10.1007/978-981-13-6577-5_16 Retrieved from www.scopus.com
 - Pathak, A. N., Talan, A., & Gaurav, K. (2019). Plant oil biodiesel: Technologies for commercial production, present status and future prospects. *Plant biotechnology: Progress in genomic era* (pp. 191-212) doi:10.1007/978-981-13-8499-8_9 Retrieved from www.scopus.com
 - Pathan, E. K., Ghormade, V., Panwar, S. L., Prasad, R., & Deshpande, M. V. (2019). Molecular studies of NAD-and NADP-glutamate dehydrogenases decipher the conundrum of yeast-hypha dimorphism in zygomycete benjaminiella poitrasii. *FEMS Yeast Research*, 19(8) doi:10.1093/femsyr/foz074
 - Pathania, A., Thakur, P., Trukhanov, A. V., Trukhanov, S. V., Panina, L. V., Lüders, U., & Thakur, A. (2019). Development of tungsten doped ni-zn nano-ferrites with fast response and recovery time for hydrogen gas sensing application. *Results in Physics*, 15 doi:10.1016/j.rinp.2019.102531
 - Phogat, S., & Gupta, A. K. (2019). Evaluating the elements of just in time (JIT) for implementation in maintenance by exploratory and confirmatory factor analysis. *International Journal of Quality and Reliability Management*, 36(1), 7-24. doi:10.1108/IJQRM-12-2017-0279
 - Phogat, S., & Gupta, A. K. (2019). Expected maintenance waste reduction benefits after implementation of just in time (JIT) philosophy in maintenance (a statistical analysis). *Journal of Quality in Maintenance Engineering*, 25(1), 25-40. doi:10.1108/JQME-03-2017-0020
 - Ponnusamy, S., Sharma, N. L., & Wirths, K. -. (2019). Logarithmic coefficients problems in families related to starlike and convex functions. *Journal of the Australian Mathematical Society*, 109(2), 230-249. doi:10.1017/S1446788719000065
 - Prakash, V., Kumawat, S., & Singh, P. (2019). Design and analysis of full and half mode substrate integrated waveguide planar leaky wave antenna with continuous beam scanning in x-ku band. *Frequenz*, 73(5-6), 171-178. doi:10.1515/freq-2018-0212
 - Prasad, R., Balzi, E., Banerjee, A., & Khandelwal, N. K. (2019). All about CDR transporters: Past, present, and future. *Yeast*, 36(4), 223-233. doi:10.1002/yea.3356
 - Prasad, R., Nair, R., & Banerjee, A. (2019). Emerging mechanisms of drug resistance in candida albicans. *Progress in Molecular and Subcellular Biology*, 58, 135-153. doi:10.1007/978-3-030-13035-0_6
 - Prasad, R., Nair, R., & Banerjee, A. (2019). Multidrug transporters of candida species in clinical azole resistance. *Fungal Genetics and Biology*, 132 doi:10.1016/j.fgb.2019.103252
 - Ranchhodbhai, P. N., & Tripathi, K. (2019). Identifying and improving the malicious behavior of rushing and blackhole attacks using proposed IDSAODV protocol. *International Journal of Recent Technology and Engineering*, 8(3), 6554-6562. doi:10.35940/ijrte.C5317.098319
 - Randhawa, A., Kundu, D., Sharma, A., Prasad, R., & Mondal, A. K. (2019). Overexpression of the CORVET complex alleviates the fungicidal effects of fludioxonil on the yeast saccharomyces cerevisiae expressing hybrid histidine kinase 3. *Journal of Biological Chemistry*, 294(2), 461-475. doi:10.1074/jbc.RA118.004736
 - Rani, S., Ali, R., & Agarwal, A. (2019). Fuzzy inventory model for deteriorating items in a green supply chain with carbon concerned demand. *OPSEARCH*, 56(1), 91-122. doi:10.1007/s12597-019-00361-8
 - Raul, B., Kryvoruchko, I., Benedito, V. A., Bandyopadhyay, K., & Sinharoy, S. (2019). Root nodule development in model versus non-canonical plants. *Plant biotechnology: Progress in genomic era* (pp. 397-428) doi:10.1007/978-981-13-8499-8_18 Retrieved from www.scopus.com
 - Ravelo, B., Thakur, A., Saini, A., & Thakur, P. (2019). Temperature effect analysis on microstrip structure. Analytical methodology of tree microstrip interconnects modelling for signal distribution: Voltage transfer function and S-parameter analyses (pp. 215-229) doi:10.1007/978-981-15-0552-2_11 Retrieved from www.scopus.com
 - Rishipal. (2019). Employee loyalty and counter-productive work behaviour among employees in the

- indian hospitality sector. *Worldwide Hospitality and Tourism Themes*, 11(4), 438-448. doi:10.1108/WHATT-04-2019-0020
- Rishipal, Saraff, S., & Kumar, R. (2019). A gamification framework for redesigning the learning environment doi:10.1007/978-3-030-12500-4_6 Retrieved from www.scopus.com
 - Riyaj, M., Singh, A. K., Rathi, A., Kattayat, S., Kumar, S., Dalela, S., & Alvi, P. A. (2019). High pressure affects on optical characteristics of AlGaAs/GaAsP/AlGaAs nano-heterostructure. *Optik*, 181, 389-397. doi:10.1016/j.ijleo.2018.12.069
 - Sahgal, D., & Ramesh, A. (2019). Vision based vehicle detection with fog removal algorithm. *International Journal of Engineering and Advanced Technology*, 8(4C), 174-178. Retrieved from www.scopus.com
 - Sahu, S., Agarwal, R., & Tyagi, R. K. (2019). Fuzzy vehicle control system for single intersection. *International Journal of Recent Technology and Engineering*, 8(2 Special Issue 7), 457-462. doi:10.35940/ijrte.B1085.0782S719
 - Saini, K., Kaushal, A., Gupta, S., & Kumar, D. (2019). Multiplexed stn and plca based specific genetic marker for early detection of salmonella enterica and listeria monocytogenes in milk samples. *Annals of the University Dunarea De Jos of Galati, Fascicle VI: Food Technology*, 43(2), 9-20. doi:10.35219/foodtechnology.2019.2.01
 - Saini, K., Kaushal, A., Gupta, S., & Kumar, D. (2019). Rapid detection of salmonella enterica in raw milk samples using stn gene-based biosensor. *3 Biotech*, 9(11) doi:10.1007/s13205-019-1957-4
 - Saini, S., & Yadav, B. (2019). Current techniques used for diatom test in diagnosis of drowning deaths. *Journal of Punjab Academy of Forensic Medicine and Toxicology*, 19(2), 186-189. doi:10.5958/0974-083X.2020.00041.2
 - Sanjeev, G. M. (2019). What should indian tourism and hospitality managers focus on to stay competitive in the coming decade? *Worldwide Hospitality and Tourism Themes*, 11(4), 467-473. doi:10.1108/WHATT-05-2019-0027
 - Sanjeev, G. M., & Birdie, A. K. (2019). The tourism and hospitality industry in india: Emerging issues for the next decade. *Worldwide Hospitality and Tourism Themes*, 11(4), 355-361. doi:10.1108/WHATT-05-2019-0030
 - Sanjeev, G. M., & Teare, R. (2019). Reflections on the outcomes: What should indian tourism and hospitality managers focus on to stay competitive in the coming decade? *Worldwide Hospitality and Tourism Themes*, 11(4), 474-479. doi:10.1108/WHATT-05-2019-0032
 - Sarode, D. S., & Tuli, R. (2019). Optimal solution of the planar four index transportation problem. Paper presented at the Proceedings - 2019 Amity International Conference on Artificial Intelligence, AICAI 2019, 548-553. doi:10.1109/AICAI.2019.8701265 Retrieved from www.scopus.com
 - Savita, Jain, M., Manju, Vij, A., & Thakur, A. (2019). Impact of annealing on the structural properties of MgO nanoparticles by XRD analysis and rietveld refinement. Paper presented at the AIP Conference Proceedings, , 2093 doi:10.1063/1.5097093 Retrieved from www.scopus.com
 - Sharma, A. (2019). Vibration frequencies of a rectangular plate with linear variation in thickness and circular variation in Poisson's ratio. *Journal of Theoretical and Applied Mechanics (Poland)*, 57(3), 605-615. doi:10.15632/jtam-pl/109707
 - Sharma, A. (2019). Vibration of nonhomogeneous square plate with circular variation in density doi:10.1007/978-981-13-1642-5_23 Retrieved from www.scopus.com
 - Sharma, A., & Kumar, P. (2019). Natural vibration of square plate with circular variation in thickness doi:10.1007/978-981-13-0589-4_29 Retrieved from www.scopus.com
 - Sharma, A., Kumar, V., & Bhardwaj, R. (2019). Vibration of rectangle plate with variable density and poisson's ratio. Paper presented at the Vibroengineering Procedia, , 22 68-73. doi:10.21595/vp.2019.20547 Retrieved from www.scopus.com
 - Sharma, A., Mani, N., & Bhardwaj, R. (2019). Natural vibration of tapered rectangular plate with exponential variation in non homogeneity. *Journal of Vibroengineering*, 21(1), 187-197. doi:10.21595/jve.2018.19589
 - Sharma, A. K., Taneja, G., Kumar, A., Sahu, M., Sharma, G., Kumar, A., . . . Deep, A. (2019). Insulin analogs: Glimpse on contemporary facts and future prospective. *Life Sciences*, 219, 90-99. doi:10.1016/j.lfs.2019.01.011
 - Sharma, G., Sahu, M., Kumar, A., Sharma, A. K., Aeri, V., & Katare, D. P. (2019). Temporal dynamics of pre and post myocardial infarcted tissue with concomitant preconditioning of aerobic exercise in chronic diabetic rats. *Life Sciences*, 225, 79-87. doi:10.1016/j.lfs.2019.03.077
 - Sharma, L., Dhawan, D., & Kumari, S. (2019). Development and quality evaluation of germinated bengal gram (cicer arietinum) pickle. *International Journal of Scientific and Technology Research*, 8(9), 1683-1688. Retrieved from www.scopus.com
 - Sharma, M., Aljawfi, R. N., Kumari, K., Chae, K. H., Gautam, S., Dalela, S., . . . Kumar, S. (2019). Investigation of local atomic structure of ni doped SnO2 thin films via X-ray absorption spectroscopy and their magnetic properties. *Journal of Materials Science: Materials in Electronics*, 30(1), 760-770. doi:10.1007/s10854-018-0345-x
 - Sharma, M., Doila, S. N., Kumar, S., & Alvi, P. A. (2019). Effect of fe doping on magnetic behavior of SnO2 nanoparticles for spintronics applications. Paper presented at the IOP Conference Series: Materials Science and Engineering, 594(1) doi:10.1088/1757-899X/594/1/012004 Retrieved from www.scopus.com
 - Sharma, M., Khera, S. N., & Sharma, P. B. (2019). Applicability of machine learning in the measurement of emotional intelligence. *Annals of Data Science*, 6(1), 179-187. doi:10.1007/s40745-018-00185-1
 - Sharma, M., Kumar, S., Aljawfi, R. N., Dalela, S., Dolia, S. N., Alshoaibi, A., & Alvi, P. A. (2019). Role of fe-doping on structural, optical and magnetic properties of SnO2 nanoparticles. *Journal of Electronic Materials*, 48(12), 8181-8192. doi:10.1007/s11664-019-07649-x
 - Sharma, M., Naji Aljawfi, R., Kumari, K., Chae, K. H., Dalela, S., Gautam, S., . . . Kumar, S. (2019). Investigation of local geometrical structure, electronic state and magnetic properties of PLD grown ni doped SnO 2 thin films. *Journal of Electron Spectroscopy and Related Phenomena*, 232, 21-28. doi:10.1016/j.elspec.2019.01.002
 - Sharma, M., Nehra, J., Kumar, S., & Alvi, P. A. (2019). First principle study of electronic properties of fe-doped SnO2 nanoparticles. Paper presented at the AIP Conference Proceedings, 2115 doi:10.1063/1.5113341 Retrieved from www.scopus.com
 - Sharma, M. M., Agrawal, A., & Suresh Kumar, B. (2019). Test case design and test case prioritization using machine learning. *International Journal of Engineering and Advanced Technology*, 9(1), 2742-2748. doi:10.35940/ijeat.A9762.109119
 - Sharma, P., Arora, A., Oswal, P., Rao, G. K., Kaushal, J., Kumar, S., . . . Kumar, A. (2019). Bidentate organochalcogen ligands (N, E; E=S/Se) as stabilizers for recyclable palladium nanoparticles and their application in Suzuki-Miyaura coupling reactions. *Polyhedron*, 171, 120-127. doi:10.1016/j.poly.2019.06.057
 - Sharma, P., Dhiman, S., Kumari, S., Rawat, P., Srivastava, C., Sato, H., . . . Majumder, S. (2019). Revisiting the physiochemical properties of hematite (-Fe2O3) nanoparticle and exploring its bio-environmental application. *Materials Research Express*, 6(9) doi:10.1088/2053-1591/ab30ef
 - Sharma, P., Singh, A., Raheja, S., & Singh, K. K. (2019). Automatic vehicle detection using spatial time frame and object based classification. *Journal of Intelligent and Fuzzy Systems*, 37(6), 8147-8157. doi:10.3233/JIFS-190593
 - Sharma, R., Kumar Mittal, V., & Gupta, V. (2019). Homogeneous modelling and analysis of hip prosthesis using FEA. Paper presented at the *Journal of Physics: Conference Series*, , 1240(1) doi:10.1088/1742-6596/1240/1/012118 Retrieved from www.scopus.com
 - Sharma, S., Kumari, P., Vashist, A., Kumar, C., Nandi, M., & Tyagi, J. S. (2019). Cognate sensor kinase-independent activation of mycobacterium tuberculosis response regulator DevR (DosR) by acetyl phosphate: Implications in anti-mycobacterial drug design. *Molecular Microbiology*, 111(5), 1182-1194. doi:10.1111/mmi.14196
 - Sharma, S., & Sharma, J. (2019). DFT study of electronic and optical properties of cu 2 O nanostructures. Paper presented at the AIP Conference Proceedings, 2093 doi:10.1063/1.5097101 Retrieved from www.scopus.com
 - Singh, A., Khandelwal, N. K., & Prasad, R. (2019). Lipidomics approaches: Applied to the study of pathogenesis in candida species. *Progress in Molecular and Subcellular Biology*, 58, 195-215. doi:10.1007/978-3-030-13035-0_8
 - Singh, A. K., Chandra, D., Kattayat, S., Kumar, S., Alvi, P. A., & Rathi, A. (2019). First-principles investigation of electronic properties of GaAsxSb1-x ternary

- alloys. *Semiconductors*, 53(12), 1584-1592. doi:10.1134/S1063782619160267
- Singh, A. K., & Patro, B. D. K. (2019). An efficient elliptic curve based smart card authentication scheme. *International Journal of Engineering and Advanced Technology*, 8(5), 2393-2398. Retrieved from www.scopus.com
 - Singh, H., & Arora, B. B. (2019). Effect of area ratio on flow separation in annular diffuser doi:10.1007/978-981-13-6416-7_28 Retrieved from www.scopus.com
 - Singh, H., Chopra, T., Jain, S., Kaur, A., & Kamotra, S. (2019). Effect of aggregate type and polymer modification on the performance of bituminous concrete mixes. *International Journal of Applied Science and Engineering*, 16(1), 1-13. doi:10.6703/IJASE.201906_16(1).001
 - Singh, H., Chopra, T., Kamotra, S., Jain, S., & Kaur, A. (2019). Performance evaluation of bituminous concrete mixes modified with SBS polymer and warm mix additive. *International Journal of Recent Technology and Engineering*, 8(3), 441-450. doi:10.35940/ijrte.C4219.098319
 - Singh, M., Gupta, S., Sharma, A., & Sharma, S. (2019). Cosmology using long gamma-ray bursts: Statistical analysis of errors in calibrated data. *Research in Astronomy and Astrophysics*, 19(2) doi:10.1088/1674-4527/19/2/28
 - Singh, P., Ghosh, D., Manyapu, V., Yadav, M., & Majumder, S. (2019). Synergistic impact of iron (III) oxide nanoparticles and organic waste on growth and development of solanum lycopersicum plants: New paradigm in nanobiofertilizer. *Plant Archives*, 19(1), 339-344. Retrieved from www.scopus.com
 - Singh, P., Yadav, A. K., & Singh, K. (2019). Known-plaintext attack on cryptosystem based on fractional hartley transform using particle swarm optimization algorithm doi:10.1007/978-981-13-1642-5_29 Retrieved from www.scopus.com
 - Singh, P., Yadav, A. K., Singh, K., & Saini, I. (2019). Asymmetric watermarking scheme in fractional hartley domain using modified equal modulus decomposition. *Journal of Optoelectronics and Advanced Materials*, 21(7-8), 484-491. Retrieved from www.scopus.com
 - Singh, R. P., & Sharma, S. (2019). Effect of hot and cold areas in accumulative roll bonding of Al/Al₂O₃ nanostructure composites. *International Journal of Recent Technology and Engineering*, 8(1), 375-380. Retrieved from www.scopus.com
 - Singh, S., Fatima, Z., Ahmad, K., & Hameed, S. (2019). Fungicidal action of geraniol against candida albicans is potentiated by abrogated CaCdr1p drug efflux and fluconazole synergism. *PLoS ONE*, 13(8) doi:10.1371/journal.pone.0203079
 - Singh, S., & Kumar, A. (2019). Soft waste management in spinning industry doi:10.1007/978-981-13-7017-5_23 Retrieved from www.scopus.com
 - Singh, S., Tuli, R., & Sarode, D. (2019). Time-cost trade-off in a multi index bi-criteria fixed charge transportation problem. *International Journal of Advanced Operations Management*, 11(3), 211-231. doi:10.1504/IJAOM.2019.100710
 - Singh, V., Kumari, G., Chhajer, B., & Vijayasimha, M. (2019). Efficacy of enhanced external counter pulsation on clinical parameters and health-related quality of life in coronary heart disease patients with diabetes mellitus. *Biomedical and Pharmacology Journal*, 12(4), 1937-1949. doi:10.13005/bpj/1825
 - Sinha, A. K., Vigalok, A., & Rawat, V. (2019). Catalytic application of zinc complex of oxygen depleted 1, 3-bis(pyrazole)-p-tert-butylcalix[4]arene. *Tetrahedron Letters*, 60(11), 796-799. doi:10.1016/j.tetlet.2019.02.017
 - Srivastava, C. M., Purwar, R., & Gupta, A. P. (2019). Enhanced potential of biomimetic, silver nanoparticles functionalized antheraea mylitta (tasar) silk fibroin nanofibrous mats for skin tissue engineering. *International Journal of Biological Macromolecules*, 130, 437-453. doi:10.1016/j.ijbiomac.2018.12.255
 - Srivastava, S., & Kumar, M. (2019). Biodegradation of polycyclic aromatic hydrocarbons (PAHs): A sustainable approach. *Sustainable green technologies for environmental management* (pp. 111-139) doi:10.1007/978-981-13-2772-8_6 Retrieved from www.scopus.com
 - Sumalatha, J., Naveen, B. P., & Malik, R. K. (2019). Efficiency of washing techniques for removal of heavy metals from industrial sludge. *Pollution*, 5(1), 189-198. doi:10.22059/poll.2018.264574.507
 - Sumalatha, J., Naveen, B. P., & Malik, R. K. (2019). Removal of heavy metals from industrial sludge using soil washing technique. *Asian Journal of Water, Environment and Pollution*, 16(3), 83-89. doi:10.3233/AJW190036
 - Sumalatha, J., Naveen, B. P., & Malik, R. K. (2019). Toxic metals removal from industrial sludge by using different leaching solutions. *Journal of the Institution of Engineers (India): Series A*, 100(2), 337-345. doi:10.1007/s40030-019-00361-3
 - Swati, & Bajaj, S. B. (2019). Cgvl:An hierarchical locking mechanism. *International Journal of Control and Automation*, 12(6), 725-743. Retrieved from www.scopus.com
 - Taneja, G., Sud, A., Pendse, N., Panigrahi, B., Kumar, A., & Sharma, A. K. (2019). Nano-medicine and vascular endothelial dysfunction: Options and delivery strategies. *Cardiovascular Toxicology*, 19(1) doi:10.1007/s12012-018-9491-x
 - Thaha, R., Jogi, S. P., Rajan, S., Mahajan, V., Mehndiratta, A., & Singh, A. (2019). Automated segmentation of knee cartilage using modified radial approach for OA patients with and without bone abnormality. Paper presented at the 2018 IEEE EMBS Conference on Biomedical Engineering and Sciences, IECBES 2018 - Proceedings, 432-436. doi:10.1109/IECBES.2018.08626718 Retrieved from www.scopus.com
 - Vashishta, V., Ajmera, P., & Yadav, S. (2019). Patient safety and infection control quality indicators in delhi-ncr region. *International Journal of Scientific and Technology Research*, 8(12), 2696-2707. Retrieved from www.scopus.com
 - Vaya, D., Meena, & Das, B. K. (2019). Green synthesis of cobalt oxide nanoparticles by a starch-assisted method. *Nanoscience and Nanotechnology - Asia*, 9(3), 362-370. doi:10.2174/2210681208666180312123055
 - Verma, A., Singh, K., & Rajendra, K. (2019). Utilizing waste materials procurement for adsorption of chromium onto bio-matrix from rice husk to minimize water contamination. *Plant Archives*, 19, 326-332. Retrieved from www.scopus.com
 - Verma, G., Mondal, K. K., Kulshreshtha, A., & Sharma, M. (2019). XopR T3SS-effector of xanthomonas oryzae pv. oryzae suppresses cell death-mediated plant defense response during bacterial blight development in rice. *3 Biotech*, 9(7) doi:10.1007/s13205-019-1802-9
 - Verma, M., Junaid, A., Verma, K., & Gupta, D. D. (2019). Exploring the role of social media as a support mechanism among persons with diabetes: An online ethnographic study. *Journal of Content, Community and Communication*, 10(5), 78-85. doi:10.31620/JCCC.12.19/09
 - Vishwakarma, P., Banerjee, A., Pasrija, R., Prasad, R., & Lynn, A. M. (2019). The E-helix is a central core in a conserved helical bundle involved in nucleotide binding and transmembrane domain intercalation in the ABC transporter superfamily. *International Journal of Biological Macromolecules*, 127, 95-106. doi:10.1016/j.ijbiomac.2019.01.030
 - Wani, M. Y., Pathak, H., Kaur, K., & Kumar, A. (2019). Free space optical communication system under different weather conditions. *Journal of Optical Communications*, doi:10.1515/joc-2019-0064
 - Wasi, M., Kumar Khandelwal, N., Moorhouse, A. J., Nair, R., Vishwakarma, P., Bravo Ruiz, G., . . . Prasad, R. (2019). ABC transporter genes show upregulated expression in drug-resistant clinical isolates of candida auris: A genome-wide characterization of atp-binding cassette (abc) transporter genes. *Frontiers in Microbiology*, 10 doi:10.3389/fmicb.2019.01445
 - Yadav, A. K., Singh, P., Saini, I., & Singh, K. (2019). Asymmetric encryption algorithm for colour images based on fractional hartley transform. *Journal of Modern Optics*, 66(6), 629-642. doi:10.1080/09500340.2018.1559951
 - Yadav, D. K., Singh, D., & Kumar, N. (2019). Simultaneous growth promoting and managing bacterial wilt of tomato through bacillus amyloliquefaciens. *Indian Journal of Agricultural Sciences*, 89(12), 2025-2031. Retrieved from www.scopus.com
 - Yadav, N., Yadav, D. K., Yadav, S., & Khurana, S. M. P. (2019). Chloroplast proteins and virus interplay: A pathfinder to crop improvement. *Plant biotechnology: Progress in genomic era* (pp. 631-665) doi:10.1007/978-981-13-8499-8_27 Retrieved from www.scopus.com
 - Zaidi, B., Belghit, S., Ullah, M. S., Hadjoudja, B., Guerraoui, A., Gagui, S., . . . Shekhar, C. (2019). Investigation of MgO powders synthesized by liquid-phase method. *Metallofizika i Noveishie Tekhnologii*, 41(8), 1121-1126. doi:10.15407/mfint.41.08.1121
 - Zaidi, B., Shekhar, C., Hadjoudja, B., Gagui, S., & Chouial, B. (2019). Optimization of highly efficient monolayer MoSe₂ based solar cells. *Acta Physica Polonica A*, 136(3), 495-497. doi:10.12693/APhysPolA.136.495
 - Zaidi, B., Ullah, M. S., Hadjoudja, B., Gagui, S., Houaidji, N., Chouial, B., & Shekhar, C. (2019). Role of TCO films in improving the efficiency of CdS/MoS₂

heterojunction solar cells. *Journal of Nano- and Electronic Physics*, 11(2) doi:10.21272/jnep.11(2).02030

- Zaidi, B., Zouagri, M., Merad, S., Shekhar, C., Hadjoudja, B., & Chouial, B. (2019). Boosting electrical performance of CIGS solar cells: Buffer layer effect. *Acta Physica Polonica A*, 136(6), 988-991. doi:10.12693/APhysPolA.136.988

2020

- Agarwal, S., Sharma, A., Bouzeyen, R., Deep, A., Sharma, H., Mangalparthi, K. K., ... Singh, R. (2020). VapBC22 toxin-antitoxin system from mycobacterium tuberculosis is required for pathogenesis and modulation of host immune response. *Science Advances*, 6(23) doi:10.1126/sciadv.aba6944
- Aggarwal, K., & Jogi, S. P. (2020). Automatic liver and subcutaneous fat segmentation from MRI-PDF images. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 376-378. doi:10.1109/ComPE49325.2020.9200196 Retrieved from www.scopus.com
- Aggarwal, N., Yadav, J., Thakur, K., Bibban, R., Chhokar, A., Tripathi, T., ... Bharti, A. C. (2020). Human papillomavirus infection in head and neck squamous cell carcinomas: Transcriptional triggers and changed disease patterns. *Frontiers in Cellular and Infection Microbiology*, 10 doi:10.3389/fcimb.2020.537650
- Ahlawat, S., Chaudhary, R., Dangi, M., Bala, K., Singh, M., & Chhillar, A. K. (2020). Advances in tuberculous meningitis diagnosis. *Expert Review of Molecular Diagnostics*, 20(12), 1229-1241. doi:10.1080/14737159.2020.1858805
- Ahmed, S. U., Arora, R., & Parkash, O. (2020). Numerical investigations on flow characteristics of sandwater slurry through horizontal pipeline using computational fluid dynamics. *Journal of Thermal Engineering*, 6(2), 140-152. doi:10.18186/THERMAL.729205
- Ajmera, P., & Jain, V. (2020). A fuzzy interpretive structural modeling approach for evaluating the factors affecting lean implementation in indian healthcare industry. *International Journal of Lean Six Sigma*, 11(2), 376-397. doi:10.1108/IJLSS-02-2018-0016

- Aljawfi, R. N., Abu-Samak, M., Kumar, S., & Swillam, M. A. (2020). Experimental and DFT investigation of electronic structure and ferromagnetic stable state in pristine and mn: SnO2 NPs. *Vacuum*, 179 doi:10.1016/j.vacuum.2020.109536
- Aljawfi, R. N., Alam, M. J., Rahman, F., Ahmad, S., Shahee, A., & Kumar, S. (2020). Impact of annealing on the structural and optical properties of ZnO nanoparticles and tracing the formation of clusters via DFT calculation. *Arabian Journal of Chemistry*, 13(1), 2207-2218. doi:10.1016/j.arabjc.2018.04.006
- Alti, D., Veeramohan Rao, M., Rao, D. N., Maurya, R., & Kalangi, S. K. (2020). Gold-silver bimetallic nanoparticles reduced with herbal leaf extracts induce ROS-mediated death in both promastigote and amastigote stages of leishmania donovani. *ACS Omega*, 5(26), 16238-16245. doi:10.1021/acsomega.0c02032
- Anand, M., Sharma, S., & Monga, P. (2020). Antimicrobial and antioxidant potential of tylophora indica (burm. F.) merrill and development of an efficient micropropagation system for its therapeutic use. *Medicinal Plants*, 12(1), 82-89. doi:10.5958/0975-6892.2020.00012.X
- Arora, R. (2020). Energy, exergy and exergoeconomic analyses and optimisation of 137 MW gas power station implementing MOPSOCD. *International Journal of Energy Technology and Policy*, 16(4), 327-352. Retrieved from www.scopus.com
- Arora, R. (2020). Thermodynamic investigations with maximum power point tracking (MPPT) of hybrid thermoelectric generator-heat pump model. *International Journal of Ambient Energy*, doi:10.1080/01430750.2020.1739140
- Arora, R., & Arora, R. (2020). Thermodynamic optimization of an irreversible regenerated brayton heat engine using modified ecological criteria. *Journal of Thermal Engineering*, 6(1), 28-42. doi:10.18186/THERMAL.671079
- Avutu, S. R., Paul, S., Anjaneya Prasad, V. V. B., & Verma, J. K. (2020). Modelling of brushless DC hub motor to control the speed of indigenous powered wheelchair. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 91-94. doi:10.1109/ComPE49325.2020.9200192 Retrieved from www.scopus.com

- Awasthi, A., Dhawan, D., & Soyav, M. (2020). Role of employee behaviour in hospitality industry. *International Journal of Scientific and Technology Research*, 9(1), 2208-2210. Retrieved from www.scopus.com
- Awasthi, A., Nain, A., & Roy, A. (2020). A study on cost cutting & control in food & beverage service department. *International Journal of Scientific and Technology Research*, 9(2), 1717-1719. Retrieved from www.scopus.com
- Ayyala, K. A. K., Ngoho, S., Thakur, P., Prasad, M. S., Thakur, A., & Ravelo, B. (2020). Magneto-dielectric substrate effect on bandpass li-circuit negative group delay(NGD) performance. Paper presented at the Proceedings - International Conference on Smart Electronics and Communication, ICOSEC 2020, 984-987. doi:10.1109/ICOSEC49089.2020.9215435 Retrieved from www.scopus.com
- Babu, P., & Suthar, G. (2020). Indoor air quality and thermal comfort in green building: A study for measurement, problem and solution strategies doi:10.1007/978-981-15-1334-3_15 Retrieved from www.scopus.com
- Banerjee, A., Moreno, A., Khan, M. F., Nair, R., Sharma, S., Sen, S., ... Prasad, R. (2020). Cdr1p highlights the role of the non-hydrolytic ATP-binding site in driving drug translocation in asymmetric ABC pumps. *Biochimica Et Biophysica Acta - Biomembranes*, 1862(2) doi:10.1016/j.bbmem.2019.183131
- Banjare, M. K., Behera, K., Banjare, R. K., Pandey, S., & Ghosh, K. K. (2020). Multi-spectroscopic investigation on the inclusion complexation of α -cyclodextrin with long chain ionic liquid. *Carbohydrate Research*, 491 doi:10.1016/j.carres.2020.107982
- Banjare, R. K., Banjare, M. K., Behera, K., Pandey, S., & Ghosh, K. K. (2020). Micellization behavior of conventional cationic surfactants within glycerol-based deep eutectic solvent. *ACS Omega*, 5(31), 19350-19362. doi:10.1021/acsomega.0c00866
- Bansal, L., Jindal, P., & Bharti, M. K. (2020). Investigations on the modifications in ignition delay time of shellac-based pyrotechnic igniter using additives of varying particle size. *Journal of Aerospace Technology and Management*, 12(1), 1-11. doi:10.5028/jatm.v12.1178
- Batra, P., Chaudhary, S., Bhatt, K., Varshney, S., & Verma, S. (2020). A review: Abstractive text

summarization techniques using NLP. Paper presented at the Proceedings - 2020 International Conference on Advances in Computing, Communication and Materials, ICACCM 2020, 23-28. doi:10.1109/ICACCM50413.2020.9213079 Retrieved from www.scopus.com

- Bhalothia, D., Krishnia, L., Yang, S. -, Yan, C., Hsiung, W. -, Wang, K. -, & Chen, T. -. (2020). Recent advancements and future prospects of noble metal-based heterogeneous nanocatalysts for oxygen reduction and hydrogen evolution reactions. *Applied Sciences (Switzerland)*, 10(21), 1-19. doi:10.3390/app10217708
- Bhardwaj, S., & Pant, S. (2020). Study of characterization of the stinging nettle (urtica dioica L.). *Man-made Textiles in India*, 48(10), 337-341. Retrieved from www.scopus.com
- Bharti, M. K., Gupta, S., Chalia, S., Garg, I., Thakur, P., & Thakur, A. (2020). Potential of magnetic nanoferrites in removal of heavy metals from contaminated water: Mini review. *Journal of Superconductivity and Novel Magnetism*, 33(12), 3651-3665. doi:10.1007/s10948-020-05657-1
- Bhatt, R., Bhuvanesh, N., Sharma, K. N., & Joshi, H. (2020). Palladium complexes of Thio/Seleno-ether containing N-heterocyclic carbenes: Efficient and reusable catalyst for regioselective C-H bond arylation. *European Journal of Inorganic Chemistry*, 2020(6), 532-540. doi:10.1002/ejic.201901259
- Bhowmik, D., Nandi, R., Jagadeesan, R., Kumar, N., Prakash, A., & Kumar, D. (2020). Identification of potential inhibitors against SARS-CoV-2 by targeting proteins responsible for envelope formation and virion assembly using docking based virtual screening, and pharmacokinetics approaches. *Infection, Genetics and Evolution*, 84 doi:10.1016/j.meegid.2020.104451
- Bilal, S., Caja Rivera, R., Mubayi, A., & Michael, E. (2020). Complexity and critical thresholds in the dynamics of visceral leishmaniasis: Thresholds in visceral leishmaniasis. *Royal Society Open Science*, 7(12) doi:10.1098/rsos.200904rsos200904
- Budhwar, N., Daniel, S., & Kumar, V. (2020). An SIRS age-structured model for vector-borne diseases with infective immigrants. Paper presented at the Springer Proceedings in Mathematics and Statistics, , 307 207-219. doi:10.1007/978-981-15-1157-8_18 Retrieved from www.scopus.com

- Chahar, D., Taneja, S., Thakur, P., & Thakur, A. (2020). Remarkable resistivity and improved dielectric properties of Co-Zn nanoferrites for high frequency applications. *Journal of Alloys and Compounds*, 843 doi:10.1016/j.jallcom.2020.155681
- Chand, G., & Kar, S. (2020). REDUPLICATION INITIATED through DISCOURSE MARKERS: A CASE of HADOTI. *Dialectologia*, (25), 115-139. Retrieved from www.scopus.com
- Chandel, S., Thakur, P., & Thakur, A. (2020). Low leakage current density and improved dielectric behavior of BiFeO₃ nano-ceramics. *Journal of Alloys and Compounds*, 845 doi:10.1016/j.jallcom.2020.156287
- Charak, S., Shandilya, M., & Mehrotra, R. (2020). RNA targeting by an anthracycline drug: Spectroscopic and in silico evaluation of epirubicin interaction with tRNA. *Journal of Biomolecular Structure and Dynamics*, 38(6), 1761-1771. doi:10.1080/07391102.2019.1617786
- Charan, A., & Verma, J. K. (2020). Characterizing social media contents for regulating hate crimes and cyber racism against marginalized and dalits in india. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 864-871. doi:10.1109/ComPE49325.2020.9200049 Retrieved from www.scopus.com
- Chatterjee, K. N., Sharma, D., & Pal, H. (2020). Quality aspects of sustainable handloom denim fabrics made of hand spun and machine spun cotton yarn. *Journal of Textile and Apparel, Technology and Management*, 11(2) Retrieved from www.scopus.com
- Chaturvedi, V., Kumari, L., Virmani, N., Dube, R., Kumar, V., & Raina, A. (2020). Methodology of skeletal age estimation and sex determination with ossification centers of the sternum: An exploratory study. *International Journal of Medical Toxicology and Legal Medicine*, 23(3-4), 217-221. doi:10.5958/0974-4614.2020.00071.6
- Chauhan, D., Pooja, Nirbhaya, V., Srivastava, C. M., Chandra, R., & Kumar, S. (2020). Nanostructured transition metal chalcogenide embedded on reduced graphene oxide based highly efficient biosensor for cardiovascular disease detection. *Microchemical Journal*, 155 doi:10.1016/j.microc.2020.104697
- Chauhan, M., Singh, A. K., & Komal. (2020). Survey of onion routing approaches: Advantages, limitations and future scopes doi:10.1007/978-3-030-43192-1_76 Retrieved from www.scopus.com
- Chhajer, B., Singh, V., & Kumari, G. (2020). Clinical linkage of covid-19 with hypertension, diabetes and cardiovascular disease. *International Journal of Research in Pharmaceutical Sciences*, 11(Special Issue1), 1034-1041. doi:10.26452/ijrps.v11iSPL1.3441
- Chhajer, B., Singh, V., Kumari, G., Amin, R., Tiwari, S., Jaiswal, P., & Gupta, M. K. (2020). Effect of lifestyle based edu vaccine in indian community: Study outcomes of national program for prevention and eradication of heart attack (NPPEHA). *Journal of Applied Pharmaceutical Science*, 10(1), 55-61. doi:10.7324/JAPS.2020.101007
- Chiteka, K., Arora, R., Sridara, S. N., & Enweremadu, C. C. (2020). Cleaning cycle optimisation in non-tracking ground mounted solar PV systems using particle swarm optimisation. *International Journal for Simulation and Multidisciplinary Design Optimization*, 11 doi:10.1051/smdo/2020004
- Chiteka, K., Arora, R., & Sridhara, S. N. (2020). A method to predict solar photovoltaic soiling using artificial neural networks and multiple linear regression models. *Energy Systems*, 11(4), 981-1002. doi:10.1007/s12667-019-00348-w
- Chiteka, K., Arora, R., Sridhara, S. N., & Enweremadu, C. C. (2020). A novel approach to solar PV cleaning frequency optimization for soiling mitigation. *Scientific African*, 8 doi:10.1016/j.sciaf.2020.e00459
- Chiteka, K., Arora, R., Sridhara, S. N., & Enweremadu, C. C. (2020). Numerical investigation of soiling of multi-row rooftop solar PV arrays. *International Journal of Energy and Environmental Engineering*, 11(4), 439-458. doi:10.1007/s40095-020-00344-2
- Choudhary, B. L., Kumar, U., Kumar, S., Chander, S., Kumar, S., Dalela, S., . . . Alvi, P. A. (2020). Irreversible magnetic behavior with temperature variation of Ni_{0.5}Co_{0.5}Fe₂O₄ nanoparticles. *Journal of Magnetism and Magnetic Materials*, 507 doi:10.1016/j.jmmm.2020.166861
- Chugh, A., Jain, C., & Mishra, V. P. (2020). IoT-based multifunctional smart toy car doi:10.1007/978-981-15-2043-3_50 Retrieved from www.scopus.com
- Dagar, G., & Bagchi, G. (2020). Nanoparticles as potential endocrine disruptive chemicals. *NanoBioMedicine* (pp. 411-429) doi:10.1007/978-981-32-9898-9_17 Retrieved from www.scopus.com
- Dahiya, S., Kumawat, S., & Singh, P. (2020). A petri net based approach for modelling of resource shared distributed wireless sensor networks. *International Journal of Scientific and Technology Research*, 9(1), 113-119. Retrieved from www.scopus.com
- Dalal, S., Agrawal, A., Dahiya, N., & Verma, J. (2020). Software process improvement assessment for cloud application based on fuzzy analytical hierarchy process method doi:10.1007/978-3-030-58811-3_70 Retrieved from www.scopus.com
- Dangi, S. B., Khichar, K. K., Kumar, U., Hashmi, S. Z., Choudhary, B. L., Kumar, S., & Alvi, P. A. (2020). Investigation of optical properties of PVA-GO nanocomposites. Paper presented at the AIP Conference Proceedings, 2220 doi:10.1063/5.0001129 Retrieved from www.scopus.com
- Dar, J. (2020). Solar splitting day-lighting system "SolsDays": The first beam splitting day-lighting system. *Smart and Sustainable Built Environment*, 9(2), 130-143. doi:10.1108/SASBE-06-2018-0035
- Das, A., Natarajan, K., Tiwari, S., & Ganguli, A. K. (2020). Nanostructures synthesized by the reverse microemulsion method and their magnetic properties. *Materials Research Express*, 7(10) doi:10.1088/2053-1591/abbb55
- Das, P. P. (2020). Saline contamination mahanadi deltaic aquifers: A review. *Proceedings of the Indian National Science Academy*, 86(3), 1169-1176. doi:10.16943/ptinsa/2020/155491
- Das, P. P., Mohapatra, P. P., Goswami, S., Mishra, M., & Pattanaik, J. K. (2020). A geospatial investigation of interlinkage between basement fault architecture and coastal aquifer hydrogeochemistry. *Geoscience Frontiers*, 11(4), 1431-1440. doi:10.1016/j.gsf.2019.12.008
- Das, R., Shah, J., Sharma, S., Sharma, P. B., & Kotnala, R. K. (2020). Electricity generation by splitting of water from hydroelectric cell: An alternative to solar cell and fuel cell. *International Journal of Energy Research*, 44(14), 11111-11134. doi:10.1002/er.5698
- Das, S., Hameed, S., & Fatima, Z. (2020). Potential drug targets in mycobacterial cell wall: Non-lipid perspective. *Current Drug Discovery Technologies*, 17(2), 147-157. doi:10.2174/1570163815666180605113609
- Debnath, N., & Das, S. (2020). Nanobiosensor: Current trends and applications. *NanoBioMedicine* (pp. 389-409) doi:10.1007/978-981-32-9898-9_16 Retrieved from www.scopus.com
- Deep, A., Verma, M., Marwaha, R. K., Sharma, A. K., & Kumari, B. (2020). Development, characterization and anticancer evaluation of silver nano-particles from dalbergia sissoo leaf extracts. *Current Cancer Therapy Reviews*, 16(2), 145-151. doi:10.2174/1573394715666190820150651
- Deore, H., Agrawal, A., Jaglan, V., Nagpal, P., & Sharma, M. M. (2020). A new approach for navigation and traffic signs indication using map integrated augmented reality for self-driving cars. *Scalable Computing*, 21(3), 441-450. doi:10.12694:/scpe.v21i3.1742
- Dhar, S., Yadav, S., Singh, P., Singh, J., & Yadav, A. K. (2020). Optimization of discharge patterns in parkinson condition in subthalamic nucleus model of basal ganglia using particle swarm optimization algorithm. *Advances in Mathematics: Scientific Journal*, 9(5), 3135-3153. doi:10.37418/amsj.9.5.72
- Dhawan, D., & Sharma, S. (2020). Abdominal obesity, adipokines and non-communicable diseases. *Journal of Steroid Biochemistry and Molecular Biology*, 203 doi:10.1016/j.jsbmb.2020.105737
- Dutta, J., Mohini, & Priyanka. (2020). Effect of degree of deacetylation and molecular weight on physicochemical properties of chitosan films. *Journal of the Indian Chemical Society*, 97(5), 731-735. Retrieved from www.scopus.com
- Fatima, Z., & Hameed, S. (2020). Lipidomic insight of anticandidal perillyl alcohol and sesamol induced candida membrane disruption: Implications of lipid alteration, impaired fluidity and flippase activity. *Infectious Disorders - Drug Targets*, 20(6), 784-797. doi:10.2174/1871526519666191023125020
- Fatima, Z., Nandan, S., & Hameed, S. (2020). Understanding mass spectrometry-based global mycobacterial lipidomics. *Current Molecular Medicine*, 20(8), 607-623. doi:10.2174/1566524020666200206120840
- Fatima, Z., Singh, S., & Hameed, S. (2020). Nanophytotherapeutic potential of essential oils against candida infections. *NanoBioMedicine* (pp. 315-331) doi:10.1007/978-981-32-9898-9_13 Retrieved from www.scopus.com
- Gagui, S., Zaidi, B., Megdoud, Y., Hadjoudja, B., Chouial, B., Meradji, H., . . . Shekhar, C. (2020). Ab-initio study of the structural and optoelectronic

- properties of BaSe_{1-x}S_x alloys. *Computational Condensed Matter*, 22 doi:10.1016/j.cocom.2019.e00433
- Gahlot, A., Sharma, S. C., & Sharma, J. (2020). The effect of dust grains on the weibel instability in presence of large amplitude electrostatic waves. *Physics of Plasmas*, 27(4) doi:10.1063/1.5133756
 - Galkina, K. V., Finkelberg, J. M., Markova, O. V., Azbarova, A. V., Banerjee, A., Kumari, S., . . . Knorre, D. A. (2020). Protonophore FCCP provides fitness advantage to PDR-deficient yeast cells. *Journal of Bioenergetics and Biomembranes*, 52(5), 383-395. doi:10.1007/s10863-020-09849-1
 - Gandhi, H., Singh, D., & Tomar, A. (2020). Explicit solution of general fourth order time fractional KdV equation by lie symmetry analysis. Paper presented at the AIP Conference Proceedings, , 2253 doi:10.1063/5.0019077 Retrieved from www.scopus.com
 - Ganiga, R., Pai, R. M., Manohara Pai, M. M., & Sinha, R. K. (2020). A preliminary study of real-time capturing and sharing of routine health data among the public health professionals. *Indian Journal of Community Medicine*, 45(2), 176-180. doi:10.4103/ijcm.IJCM_258_19
 - Ganiga, R., Pai, R. M., Manohara Pai, M. M., Sinha, R. K., & Mowla, S. (2020). Integrating nfc and iot to provide healthcare services in cloud-based ehr system doi:10.1007/978-981-15-5558-9_33 Retrieved from www.scopus.com
 - Ghanghas, S., Dahiya, S., Pandey, M. K., & Tripathi, S. (2020). Design and development of iot based intelligent home automation system. *International Journal of Emerging Trends in Engineering Research*, 8(7), 3487-3494. doi:10.30534/ijeter/2020/98872020
 - Ghosh, D., Majumder, S., & Sharma, P. (2020). Anticancerous activity of transition metal oxide nanoparticles. *NanoBioMedicine* (pp. 107-137) doi:10.1007/978-981-32-9898-9_5 Retrieved from www.scopus.com
 - Ghosh, S. (2020). Immersed boundary method for a permeable sedimenting circular particle between two parallel rigid walls. *Progress in Computational Fluid Dynamics*, 20(1), 20-28. doi:10.1504/PCFD.2020.104708
 - Ghosh, S., & Kumar, M. (2020). Study of drafting, kissing and tumbling process of two particles with different sizes and densities using immersed boundary method in a confined medium. *Applied Mathematics and Computation*, 386 doi:10.1016/j.amc.2020.125411
 - Goel, B., & Yadav, B. (2020). Blood dating based on haemoglobin derivatives. *Journal of Forensic Medicine and Toxicology*, 37(1), 9-13. doi:10.5958/0974-4568.2020.00002.2
 - Guillon, J., Nim, S., Moreau, S., Ronga, L., Savrimoutou, S., Thivet, E., . . . Le Borgne, M. (2020). Synthesis of new piperazinyl-pyrrolo[1,2-: A] quinoxaline derivatives as inhibitors of candida albicans multidrug transporters by a buchwald-hartwig cross-coupling reaction. *RSC Advances*, 10(5), 2915-2931. doi:10.1039/c9ra09348f
 - Gupta, A., & Singh, H. (2020). Optimum design study of a straight tube with different inserts for thermal performance characteristics. *Heat Transfer*, 49(4), 1955-1981. doi:10.1002/htj.21702
 - Gupta, A., Singh, H., & Raghav, A. K. (2020). Effect of change in the curvature of flow and performance characteristics of straight and S-shaped diffuser. *Journal of the Institution of Engineers (India): Series C*, 101(6), 977-989. doi:10.1007/s40032-020-00601-7
 - Gupta, J., Bisht, J., Agrawal, M., Bhattacharya, J., Sen, P., & Ghosh Moulick, R. (2020). A method to detect immunoreactions on the basis of current: Vs. concentration slope-an electrochemical approach. *RSC Advances*, 10(73), 44798-44804. doi:10.1039/d0ra07582e
 - Gupta, R., & Jaglan, V. (2020). Coverage based test suite minimization using UML behavioural diagrams. Paper presented at the *Journal of Physics: Conference Series*, , 1478(1) doi:10.1088/1742-6596/1478/1/012026 Retrieved from www.scopus.com
 - Gupta, R., Mehrotra, D., & Tyagi, R. K. (2020). Computational complexity of fractal image compression algorithm. *IET Image Processing*, 14(17), 4425-4434. doi:10.1049/iet-ipr.2019.0489
 - Gupta, R., Thakur, J., Pal, S., Mishra, D., Rani, P., Kumar, S., . . . Bajaj, A. (2020). Cholic-acid-derived amphiphiles can prevent and degrade fungal biofilms. *ACS Applied Bio Materials*, doi:10.1021/acsabm.9b01221
 - Gupta, S., Jha, K. N., & Vyas, G. (2020). Proposing building information modeling-based theoretical framework for construction and demolition waste management: Strategies and tools. *International Journal of Construction Management*, doi:10.1080/15623599.2020.1786908
 - Gupta, S. B. (2020). Comparison of the effect of 1st order and 2nd order fluctuating temperature field on convective heat transfer coefficient in an unsteady laminar-boundary layer. Paper presented at the IOP Conference Series: Materials Science and Engineering, , 912(4) doi:10.1088/1757-899X/912/4/042049 Retrieved from www.scopus.com
 - Gupta, V., Guleri, R., Gupta, M., Kaur, N., Kaur, K., Kumar, P., . . . Pati, P. K. (2020). Anti-neuroinflammatory potential of tylophora indica (burm. F) merrill and development of an efficient in vitro propagation system for its clinical use. *PLoS ONE*, 15(3) doi:10.1371/journal.pone.0230142
 - Hameed, S., & Fatima, Z. (2020). Pathogenicity and drug resistance of human pathogens: Mechanisms and novel approaches. *Pathogenicity and drug resistance of human pathogens: Mechanisms and novel approaches* (pp. 1-404) doi:10.1007/978-981-32-9449-3 Retrieved from www.scopus.com
 - Hameed, S., & Fatima, Z. (2020). Preface. *Pathogenicity and Drug Resistance of Human Pathogens: Mechanisms and Novel Approaches*, , xi-xiii. Retrieved from www.scopus.com
 - Hameed, S., & Fatima, Z. (2020). Response of mycobacterium tuberculosis to PH stress: Promising approach to control tuberculosis. *Pathogenicity and drug resistance of human pathogens: Mechanisms and novel approaches* (pp. 81-92) doi:10.1007/978-981-32-9449-3_4 Retrieved from www.scopus.com
 - Hameed, S., Hans, S., Singh, S., & Fatima, Z. (2020). Harnessing metal homeostasis offers novel and promising targets against candida albicans. *Current Drug Discovery Technologies*, 17(4), 415-429. doi:10.2174/1570163816666190227231437
 - Hameed, S., Sharma, S., & Fatima, Z. (2020). Techniques to understand mycobacterial lipids and use of lipid-based nanoformulations for tuberculosis management. *NanoBioMedicine* (pp. 433-451) doi:10.1007/978-981-32-9898-9_18 Retrieved from www.scopus.com
 - Hans, S., Purkait, D., Nandan, S., Bansal, M., Hameed, S., & Fatima, Z. (2020). Rec A disruption unveils cross talk between DNA repair and membrane damage, efflux pump activity, biofilm formation in mycobacterium smegmatis. *Microbial Pathogenesis*, 149 doi:10.1016/j.micpath.2020.104262
 - Jain, M., Manju, Kumar, M., Lee, H. H., Won, S. O., Chae, K. H., . . . Thakur, A. (2020). Color modulation by selective excitation activated defects and complex cation distribution in Zn_{1-x}Mg_xAl₂O₄ nanocrystals. *Dalton Transactions*, 49(27), 9336-9348. doi:10.1039/d0dt01456g
 - Jain, M., Manju, Kumar, R., Won, S. O., Chae, K. H., Vij, A., & Thakur, A. (2020). Defect states and kinetic parameter analysis of ZnAl₂O₄ nanocrystals by X-ray photoelectron spectroscopy and thermoluminescence. *Scientific Reports*, 10(1) doi:10.1038/s41598-019-57227-8
 - Jain, M., Manju, Savita, Vij, A., & Thakur, A. (2020). Activation of multiple defects in zinc aluminate through gamma and UV irradiation. *Vacuum*, 180 doi:10.1016/j.vacuum.2020.109600
 - Jain, M., Manju, Vashishtha, P., Gupta, G., Sinha, A. K., Gupta, M., . . . Thakur, A. (2020). Mechanistic insights into defect generation and tuning of optical properties in Zn_{1-x}FexAl₂O₄ (0.01 ≤ x ≤ 0.40) nanocrystals. *Acta Crystallographica Section B: Structural Science, Crystal Engineering and Materials*, 76, 757-768. doi:10.1107/S2052520620009130
 - Jain, S., & Sharma, T. (2020). Study of temperature using artificial neural network and multiple linear regression. *Advances in Mathematics: Scientific Journal*, 9(3), 787-795. doi:10.37418/AMSJ.9.3.7
 - Jatain, A. (2020). Metric based reusability analysis of software systems. *Journal of Interdisciplinary Mathematics*, 23(1), 107-116. doi:10.1080/09720502.2020.1721672
 - Jilani, S. B., Dev, C., Eqbal, D., Jawed, K., Prasad, R., & Yazdani, S. S. (2020). Deletion of pgi gene in E. coli increases tolerance to furfural and 5-hydroxymethyl furfural in media containing glucose-xylose mixture. *Microbial Cell Factories*, 19(1) doi:10.1186/s12934-020-01414-0
 - Joon, A., Tyagi, R. K., & Kumar, K. (2020). Noise filtering and imbalance class distribution removal for optimizing software fault prediction using best software metrics suite. Paper presented at the Proceedings of the 5th International Conference on Communication and Electronics Systems, ICCES 2020, 1381-1389. doi:10.1109/

- ICCES48766.2020.09137899 Retrieved from www.scopus.com
- Joshi, T., Sharma, R., Kumar Mittal, V., & Gupta, V. (2020). Comparative investigation and analysis of hip prosthesis for different bio-compatible alloys. Paper presented at the Materials Today: Proceedings, 43 105-111. doi:10.1016/j.matpr.2020.11.222 Retrieved from www.scopus.com
 - Joshi, T., Sharma, R., Kumar Mittal, V., Gupta, V., & Parkash, O. (2020). Fabrication of hybrid bicycle for minimizing pollutant emissions. Paper presented at the Journal of Physics: Conference Series, , 1478(1) doi:10.1088/1742-6596/1478/1/012036 Retrieved from www.scopus.com
 - Kala, D., Gupta, S., Nagraik, R., Verma, V., Thakur, A., & Kaushal, A. (2020). Diagnosis of scrub typhus: Recent advancements and challenges. 3 Biotech, 10(9) doi:10.1007/s13205-020-02389-w
 - Kala, D., Sharma, T. K., Gupta, S., Nagraik, R., Verma, V., Thakur, A., & Kaushal, A. (2020). AuNPs/CNF-modified DNA biosensor for early and quick detection of O. tsutsugamushi in patients suffering from scrub typhus. 3 Biotech, 10(10) doi:10.1007/s13205-020-02432-w
 - Kalorth, N., Verma, M., & Sagar, M. (2020). INFORMATION AND USER: SOCIAL MEDIA LITERACY IN DIGITAL SOCIETIES. Journal of Content, Community and Communication, 12, 263-269. doi:10.31620/JCCC.12.20/24
 - Kansara, S., Pandey, V., Lobie, P. E., Sethi, G., Garg, M., & Pandey, A. K. (2020). Mechanistic involvement of long non-coding RNAs in oncotherapeutics resistance in triple-negative breast cancer. Cells, 9(6) doi:10.3390/cells9061511
 - Karimpour-Fard, M., Zorbakhash, S., Soufi, G. R., Ahadi, A., & Naveen, B. P. (2020). Design, fabrication and calibration of a tall pneumatic oedometer apparatus. Measurement: Journal of the International Measurement Confederation, 163 doi:10.1016/j.measurement.2020.107985
 - Karthik, K., Nandiganti, M., Thangaraj, A., Singh, S., Mishra, P., Rathinam, M., . . . Sreevathsa, R. (2020). Transgenic cotton (gossypium hirsutum L.) to combat weed vagaries: Utility of an apical meristem-targeted in planta transformation strategy to introgress a modified CP4-EPSPS gene for glyphosate tolerance. Frontiers in Plant Science, 11 doi:10.3389/fpls.2020.00768
 - Katiyar, T., Yadav, V., Maurya, S. S., Ruwali, M., Singh, M., Hasan, F., . . . Parmar, D. (2020). Interaction of glutathione-s-transferase genotypes with environmental risk factors in determining susceptibility to head and neck cancer and treatment response and survival outcome. Environmental and Molecular Mutagenesis, 61(5), 574-584. doi:10.1002/em.22362
 - Kaur, G., Kori, S., & Sharma, S. (2020). History, hierarchical development and characteristics of isothiocyanate. Spectrum of isothiocyanate chemistry and its applications (pp. 1-23) Retrieved from www.scopus.com
 - Kaur, J., Verma, V. C., Kumar, V., Singh, R., Bhatia, T., Sahu, S., . . . Singh, H. (2020). i-MANN: A web-based system for data management of mental health research in india. Indian Journal of Psychological Medicine, 42(6_suppl), S15-S22. doi:10.1177/0253717620969064
 - Kaur, K., Kumar, A., & Singh, H. (2020). Performance improvement of WDM optical network using optimal regenerator placement strategy. Journal of Optical Communications, 41(1), 83-89. doi:10.1515/joc-2017-0173
 - Kaur, K., Yadav, P. K., Bumbrah, G. S., & Sharma, R. M. (2020). Forensic classification of lipsticks using attenuated total reflectance – fourier transform infrared (ATR-FTIR) spectroscopy. Vibrational Spectroscopy, 110 doi:10.1016/j.vibspec.2020.103146
 - Kaushik, S., Gandhi, S., Chauhan, M., Ma, S., Das, S., Ghosh, D., . . . Suhag, D. (2020). Water-templated, polysaccharide-rich bioartificial 3D microarchitectures as extra-cellular matrix bioautomatons. ACS Applied Materials and Interfaces, 12(18), 20912-20921. doi:10.1021/acsami.0c01012
 - Kesiraju, K., Mishra, P., Bajpai, A., Sharma, M., Rao, U., & Sreevathsa, R. (2020). Agrobacterium tumefaciens-mediated in planta transformation strategy for development of transgenics in cotton (gossypium hirsutum L.) with GFP as a visual marker. Physiology and Molecular Biology of Plants, 26(11), 2319-2327. doi:10.1007/s12298-020-00887-y
 - Khan, S., Vyas, A., Rajan, S., Jani, S., & Brajpuriya, R. (2020). Structural studies of mechanically alloyed Fe1-xAlx powder. Journal of Nano- and Electronic Physics, 12(4) doi:10.21272/jnep.12(4).04012
 - Khan, S. H., Prakash, A., Pandey, P., Islam, A., Hassan, M. I., Lynn, A. M., & Ahmad, F. (2020). Effects of natural mutations (L94I and L94V) on the stability and mechanism of folding of horse cytochrome c: A combined in vitro and molecular dynamics simulations approach. International Journal of Biological Macromolecules, 159, 976-985. doi:10.1016/j.ijbiomac.2020.05.059
 - Kirtonia, A., Pandya, G., Sethi, G., Pandey, A. K., Das, B. C., & Garg, M. (2020). A comprehensive review of genetic alterations and molecular targeted therapies for the implementation of personalized medicine in acute myeloid leukemia. Journal of Molecular Medicine, 98(8), 1069-1091. doi:10.1007/s00109-020-01944-5
 - Knorre, D. A., Galkina, K. V., Shirokovskikh, T., Banerjee, A., & Prasad, R. (2020). Do multiple drug resistance transporters interfere with cell functioning under normal conditions? Biochemistry (Moscow), 85(12-13), 1560-1569. doi:10.1134/S0006297920120081
 - Komal, Sharma, P., Lamba, A., Nagpal, B., & Chauhan, S. (2020). Driver drowsiness detection system using convolutional neural network. International Journal on Emerging Technologies, 11(3), 502-506. Retrieved from www.scopus.com
 - Krishnamurthy, K. N., Sridhara, S. N., & Ananda Kumar, C. S. (2020). Optimization and kinetic study of biodiesel production from hydnocarpus wightiana oil and dairy waste scum using snail shell CaO nano catalyst. Renewable Energy, 146, 280-296. doi:10.1016/j.renene.2019.06.161
 - Krishnia, L., & Tyagi, P. K. (2020). Optimization of reducing agents for selective bandgap manipulation in visible region of graphene oxide and its work function estimation. Materials Performance and Characterization, 9(1), 231-255. doi:10.1520/MPC20190177
 - Kumar, A., Mishra, R. K., & Sarma, K. (2020). Mapping spatial distribution of traffic induced criteria pollutants and associated health risks using kriging interpolation tool in delhi. Journal of Transport and Health, 18 doi:10.1016/j.jth.2020.100879
 - Kumar, A., Nair, R., Kumar, M., Banerjee, A., Chakrabarti, A., Rudramurthy, S. M., . . . Prasad, R. (2020). Assessment of antifungal resistance and associated molecular mechanism in candida albicans isolates from different cohorts of patients in north indian state of haryana. Folia Microbiologica, 65(4), 747-754. doi:10.1007/s12223-020-00785-6
 - Kumar, H., Chen, B. -, Kuca, K., Nepovimova, E., Kaushal, A., Nagraik, R., . . . Kumar, D. (2020). Understanding of colistin usage in food animals and available detection techniques: A review. Animals, 10(10), 1-19. doi:10.3390/ani10101892
 - Kumar, H., Kuča, K., Bhatia, S. K., Saini, K., Kaushal, A., Verma, R., . . . Kumar, D. (2020). Applications of nanotechnology in biosensor-based detection of foodborne pathogens. Sensors (Switzerland), 20(7) doi:10.3390/s20071966
 - Kumar, J., Sharma, A., Won, S. O., Kumar, R., Chae, K. H., Kumar, S., & Vij, A. (2020). Probing defects and electronic structure of eu doped t-Mg2B2O5 nanocrystals using X-ray absorption near edge spectroscopy and luminescence techniques. Vacuum, 180 doi:10.1016/j.vacuum.2020.109602
 - Kumar, J., Singh, P., & Yadav, A. K. (2020). Asymmetric color image encryption using singular value decomposition and chaotic tinkerbelle map in fractional fourier domain. Paper presented at the Proceedings of SPIE - the International Society for Optical Engineering, , 11509 doi:10.1117/12.2568447 Retrieved from www.scopus.com
 - Kumar, K., Birla, V., Sasi, A., & Deep, A. (2020). Design and development of travel and tourism recommendation system using web-scraped data positioned on artificial intelligence and machine learning. International Journal of Advanced Trends in Computer Science and Engineering, 9(4), 5670-5679. doi:10.30534/ijatcse/2020/218942020
 - Kumar, M. (2020). Technical issues and performance analysis for grid connected PV system and present solar power scenario. Paper presented at the International Conference on Electrical and Electronics Engineering, ICE3 2020, 639-645. doi:10.1109/ICE348803.2020.9122812 Retrieved from www.scopus.com
 - Kumar, M., Pandey, A. K., Kumari, S., Wani, S. A., Jakeer, S., Tiwari, R., . . . Gaur, N. A. (2020). Secretome produced by a newly isolated aspergillus flavus strain in engineered medium shows synergy for biomass saccharification with a commercial cellulase. Biomass Conversion and Biorefinery, doi:10.1007/s13399-020-00935-3
 - Kumar, N. (2020). Phytochemistry and medicinal value of putranjiva roxburghii wall. Advances in

- pharmaceutical biotechnology: Recent progress and future applications (pp. 133-144) doi:10.1007/978-981-15-2195-9_11 Retrieved from www.scopus.com
- Kumar, N., & Paul Khurana, S. M. (2020). Preventive potential and action mechanism of essential oils against dermatophytes. Pathogenicity and drug resistance of human pathogens: Mechanisms and novel approaches (pp. 165-178) doi:10.1007/978-981-32-9449-3_9 Retrieved from www.scopus.com
 - Kumar, N., Paul Khurana, S. M., & Pandey, V. N. (2020). Antifungal activity of essential oil of *Tinospora cordifolia* against storage fungi of wheat. *Medicinal Plants*, 12(1), 150-157. doi:10.5958/0975-6892.2020.00020.9
 - Kumar, N., Sonthalia, A., & Koul, R. (2020). Optimization of the process parameters for hydrotreating used cooking oil by the taguchi method and fuzzy logic. *Journal of Energy Resources Technology, Transactions of the ASME*, 142(12) doi:10.1115/1.4047405
 - Kumar, N., Srivastava, R., Prakash, A., & Lynn, A. M. (2020). Structure-based virtual screening, molecular dynamics simulation and MM-PBSA toward identifying the inhibitors for two-component regulatory system protein NarL of mycobacterium tuberculosis. *Journal of Biomolecular Structure and Dynamics*, 38(11), 3396-3410. doi:10.1080/07391102.2019.1657499
 - Kumar, P., Gupta, N., Sachdeva, N., Sachdeva, T., & Vashishath, M. (2020). Performance investigation of dual-halo dual-dielectric triple material surrounding gate MOSFET with high- κ dielectrics for low power applications. *Journal of Semiconductor Technology and Science*, 20(3), 297-304. doi:10.5573/JSTS.2020.20.3.297
 - Kumar, S., Dutta, J., Dutta, P. K., & Koh, J. (2020). A systematic study on chitosan-liposome based systems for biomedical applications. *International Journal of Biological Macromolecules*, 160, 470-481. doi:10.1016/j.ijbiomac.2020.05.192
 - Kumar, S., Sharma, J., Sharma, S., Mathur, Y., Nandi, T., Sharma, D., & Kashyap, M. K. (2020). Observations of parametric drift wave instabilities in an electron cyclotron resonance ion source. *Plasma Physics and Controlled Fusion*, 62(10) doi:10.1088/1361-6587/aba8d8
 - Kumar, S., Sharma, M., Aljawfi, R. N., Chae, K. H., Kumar, R., Dalela, S., . . . Alvi, P. A. (2020). Tailoring the structural, electronic structure and optical properties of Fe: SnO₂ nanoparticles. *Journal of Electron Spectroscopy and Related Phenomena*, 240 doi:10.1016/j.elspec.2020.146934
 - Kumar, V. (2020). Seven spices of india-from kitchen to clinic. *Journal of Ethnic Foods*, 7(1) doi:10.1186/s42779-020-00058-0
 - Kumar, V., & Mehta, R. (2020). Adaptation and validation of receptive expressive emergent language test-3: Evidence from hindi speaking children with cochlear implant. *International Journal of Pediatric Otorhinolaryngology*, 132 doi:10.1016/j.ijporl.2020.109891
 - Kumar, V., & Mehta, R. (2020). Receptive and expressive language in hindi speaking children with postcochlear implantation at 6-month intervals. *International Archives of Otorhinolaryngology*, doi:10.1055/s-0040-1716570
 - Kumar, V., Singh, M., Behera, K., & Pandey, S. (2020). Ionic liquid induced removal of rhodamine B from water. *Journal of Molecular Liquids*, 319 doi:10.1016/j.molliq.2020.114195
 - Kumar, Y., Yadav, R., Sinha, A. K., Rawat, P., Rao, G. K., Srivastava, C. M., . . . Rawat, V. (2020). Microwave assisted Pd(OAc)₂-catalyzed chemoselective reduction of aryl α , β -unsaturated esters with triethylsilane. *Iranian Journal of Catalysis*, 10(3), 203-208. Retrieved from www.scopus.com
 - Kumari, A., Kumari, K., Vij, A., Alvi, P. A., & Kumar, S. (2020). Electrical and structural properties of La doped BiFeO₃. Paper presented at the AIP Conference Proceedings, 2220 doi:10.1063/5.0001563 Retrieved from www.scopus.com
 - Kumari, B., Kattayat, S., Kumar, S., Kaya, S., Katti, A., & Alvi, P. A. (2020). Improved and tunable optical absorption characteristics of MQW GaAs/AlGaAs nano-scale heterostructure. *Optik*, 208 doi:10.1016/j.ijleo.2020.164544
 - Kumari, G., Singh, V., & Jhinghan, A. K. (2020). Role of lifestyle medicine in the prevention and control of diabetes mellitus and associated co-morbidities. *International Journal of Scientific and Technology Research*, 9(3), 1435-1447. Retrieved from www.scopus.com
 - Kumari, K., Aljawfi, R. N., Chawla, A. K., Kumar, R., Alvi, P. A., Alshoaibi, A., . . . Kumar, S. (2020). Engineering the optical properties of Cu doped CeO₂ NCs for application in white LED. *Ceramics International*, 46(6), 7482-7488. doi:10.1016/j.ceramint.2019.11.246
 - Kumari, L., Dogra, T. D., Dube, R., Kumar, V., Mohapatra, B. K., & Chauhan, K. (2020). Effect of dental caries on human individualization based on multiplex str typing including amelogenin marker study. *Journal of Punjab Academy of Forensic Medicine and Toxicology*, 20(2), 66-71. doi:10.5958/0974-083X.2020.00101.6
 - Kumari, L., Dogra, T. D., Mohapatra, B. K., Chauhan, K., Dube, R., & Kumar, V. (2020). Ginal r effect of extreme heat on dna obtained from tooth of burnt corpses. *Journal of Forensic Medicine and Toxicology*, 37(2), 61-66. doi:10.5958/0974-4568.2020.00032.0
 - Kumari, S., Sharma, P., Ghosh, D., Shandilya, M., Rawat, P., Hassan, M. I., . . . Majumder, S. (2020). Time-dependent study of graphene oxide-trypsin adsorption interface and visualization of nano-protein corona. *International Journal of Biological Macromolecules*, 163, 2259-2269. doi:10.1016/j.ijbiomac.2020.09.099
 - Kumari, S., Sharma, P., Yadav, S., Kumar, J., Vij, A., Rawat, P., . . . Majumder, S. (2020). A novel synthesis of the graphene oxide-silver (GO-ag) nanocomposite for unique physiochemical applications. *ACS Omega*, 5(10), 5041-5047. doi:10.1021/acsomega.9b03976
 - Kundu, D., Hameed, S., Fatima, Z., & Pasrija, R. (2020). Phospholipid biosynthesis disruption renders the yeast cells sensitive to antifungals. *Folia Microbiologica*, 65(1), 121-131. doi:10.1007/s12223-019-00713-3
 - Lahariya, V., & Ramrakhiani, M. (2020). Luminescence study on Mn, Ni co-doped zinc sulfide nanocrystals. *Luminescence*, 35(6), 924-933. doi:10.1002/bio.3802
 - Madhavan, A. A., Juneja, S., Moulick, R. G., & Bhattacharya, J. (2020). Growth kinetics of gold nanoparticle formation from glycated hemoglobin. *ACS Omega*, 5(8), 3820-3827. doi:10.1021/acsomega.9b02200
 - Maheshwari, N., Krishna, P. K., Thakur, I. S., & Srivastava, S. (2020). Biological fixation of carbon dioxide and biodiesel production using microalgae isolated from sewage waste water. *Environmental Science and Pollution Research*, 27(22), 27319-27329. doi:10.1007/s11356-019-05928-y
 - Majhi, V., Paul, S., Saha, G., & Verma, J. K. (2020). Sensor based detection of parkinson's disease motor symptoms. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 553-557. doi:10.1109/ComPE49325.2020.9200051 Retrieved from www.scopus.com
 - Majumder, S., Dahiya, U. R., Yadav, S., Sharma, P., Ghosh, D., Rao, G. K., . . . Srivastava, C. M. (2020). Erratum: Majumder, S. et al. zinc oxide nanoparticles functionalized on hydrogel grafted silk fibroin fabrics as efficient composite dressing. *Biomolecules*, 10(8), 1. doi:10.3390/biom10081117
 - Majumder, S., Dahiya, U. R., Yadav, S., Sharma, P., Ghosh, D., Rao, G. K., . . . Srivastava, C. M. (2020). Zinc oxide nanoparticles functionalized on hydrogel grafted silk fibroin fabrics as efficient composite dressing. *Biomolecules*, 10(5) doi:10.3390/biom10050710
 - Malhotra, V., Vats, M., Nath, R., Mehta, S., Kumar, R., Bhalla, M., . . . Pathak, S. R. (2020). Synthesis and biological evaluation of imidazoline derivatives as potential CNS and CVS agents. *Bioorganic and Medicinal Chemistry Letters*, 30(23) doi:10.1016/j.bmcl.2020.127595
 - Malik, N., Gupta, S., Jaglan, V., & Vijarania, M. (2020). Search for sub-classes with in type-ia supernovae using hierarchical agglomerative clustering (hac). *International Journal of Emerging Trends in Engineering Research*, 8(9), 5248-5254. doi:10.30534/ijeter/2020/58892020
 - Malik, N., Jaglan, V., Vijarania, M., Arora, N., & Gupta, S. (2020). Supernova type ia diversity: A study using DBSCAN algorithm. *International Journal of Advanced Trends in Computer Science and Engineering*, 9(3), 3398-3402. doi:10.30534/ijatcse/2020/140932020
 - Manju, A., Jasmine, B., & Anil, S. (2020). Organogenetic potential of callus derived from the young shoots of bambusa bambos (L.) voss- an economically important edible bamboo. *Research Journal of Biotechnology*, 15(6), 22-27. Retrieved from www.scopus.com

- Manju, Jain, M., Madas, S., Vashishtha, P., Rajput, P., Gupta, G., . . . Thakur, A. (2020). Oxygen vacancies induced photoluminescence in SrZnO 2 nanophosphors probed by theoretical and experimental analysis. *Scientific Reports*, 10(1) doi:10.1038/s41598-020-74436-8
- Manju, Jain, M., Sen, D., Vij, A., & Thakur, A. (2020). Estimating trap distribution and intertrap charge transfer in SrZnO2 nanoparticles. *Journal of Physics and Chemistry of Solids*, 136 doi:10.1016/j.jpccs.2019.05.049
- Manju, Jain, M., Vashishtha, P., Kumar, S., Rajput, P., Gupta, G., . . . Thakur, A. (2020). Excitation energy dependent switchable emission in SrZnO2 nanophosphors: XAS and luminescence studies. *Journal of Materials Chemistry C*, 8(9), 3147-3155. doi:10.1039/c9tc06714k
- Maputi, E. S., & Arora, R. (2020). Gear concept selection procedure using fuzzy QFD, AHP and tacit knowledge. *Cogent Engineering*, 7(1) doi:10.1080/23311916.2020.1802816
- Maputi, E. S., & Arora, R. (2020). Influence of geometric variables on spur gear volume. *International Journal for Simulation and Multidisciplinary Design Optimization*, 11 doi:10.1051/smdo/2020003
- Maputi, E. S., & Arora, R. (2020). Multi-objective optimization of a 2-stage spur gearbox using NSGA-II and decision-making methods. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, 42(9) doi:10.1007/s40430-020-02557-2
- Medatwal, N., Ansari, M. N., Kumar, S., Pal, S., Jha, S. K., Verma, P., . . . Bajaj, A. (2020). Hydrogel-mediated delivery of celastrol and doxorubicin induces a synergistic effect on tumor regression: Via upregulation of ceramides. *Nanoscale*, 12(35), 18463-18475. doi:10.1039/d0nr01066a
- Midha, S., & Tripathi, K. (2020). Remotely triggered blackhole routing in SDN for handling DoS doi:10.1007/978-981-15-3020-3_1 Retrieved from www.scopus.com
- Mishra, C. B., Gusain, S., Shalini, S., Kumari, S., Prakash, A., Kumari, N., . . . Tiwari, M. (2020). Development of novel carbazole derivatives with effective multifunctional action against alzheimer's diseases: Design, synthesis, in silico, in vitro and in vivo investigation. *Bioorganic Chemistry*, 95 doi:10.1016/j.bioorg.2019.103524
- Mishra, C. B., Shalini, S., Gusain, S., Prakash, A., Kumari, J., Kumari, S., . . . Tiwari, M. (2020). Development of novel: N -(6-methanesulfonyl-benzothiazol-2-yl)-3-(4-substituted-piperazin-1-yl)-propionamides with cholinesterase inhibition, anti-β-amyloid aggregation, neuroprotection and cognition enhancing properties for the therapy of alzheimer's disease. *RSC Advances*, 10(30), 17602-17619. doi:10.1039/d0ra00663g
- Mishra, M., Sudarsan, D., Kar, D., Naik, A. K., Das, P. P., Santos, C. A. G., & da Silva, R. M. (2020). The development and research trend of using dsas tool for shoreline change analysis: A scientometric analysis. *Journal of Urban and Environmental Engineering*, 14(1), 69-77. doi:10.4090/juee.2020.v14n1.069077
- Mishra, V. P., Jain, C., & Chugh, A. (2020). IoT-based data logger for environmental monitoring doi:10.1007/978-981-15-2043-3_51 Retrieved from www.scopus.com
- Mohanty, S., & Arora, R. (2020). CFD analysis of a shell and tube heat exchanger with single segmental baffles. *International Journal of Automotive and Mechanical Engineering*, 17(2), 7890-7901. doi:10.15282/ijame.17.2.2020.08.0589
- Mohanty, S., Prakash, O., & Arora, R. (2020). Analytical and comparative investigations on counter flow heat exchanger using computational fluid dynamics. *Journal of Computational and Applied Research in Mechanical Engineering*, 10(1), 139-152. doi:10.22061/jcarme.2019.4665.1564
- Mondal, K. C., Rathod, K. G., Joshi, H. M., Mandal, H. S., Khan, R., Rajendra, K., . . . Jhariya, D. C. (2020). Impact of land-use and land-cover change on groundwater quality and quantity in the raipur, chhattisgarh, india: A remote sensing and GIS approach. Paper presented at the IOP Conference Series: Earth and Environmental Science, , 597(1) doi:10.1088/1755-1315/597/1/012011 Retrieved from www.scopus.com
- More, R., Kumar, V., Das Dogra, T., & Kumari, L. (2020). Edimiological study on nature of asphyxial death across age range and gender in semi-urban region of haryana: An exploratory cohort study. *Journal of Forensic Medicine and Toxicology*, 37(2), 46-51. doi:10.5958/0974-4568.2020.00029.0
- Moulick, R. G., Das, S., Debnath, N., & Bandyopadhyay, K. (2020). Potential use of nanotechnology in sustainable and 'smart' agriculture: Advancements made in the last decade. *Plant Biotechnology Reports*, 14(5), 505-513. doi:10.1007/s11816-020-00636-3
- Mukherjee, A., Bhattacharya, J., & Moulick, R. G. (2020). Nanodevices: The future of medical diagnostics. *NanoBioMedicine* (pp. 371-388) doi:10.1007/978-981-32-9898-9_15 Retrieved from www.scopus.com
- Muqtader Ahmed, M., Fatima, F., Abul Kalam, M., Alshamsan, A., Soliman, G. A., Shaikh, A. A., . . . Khalid Anwer, M. (2020). Development of spray-dried amorphous solid dispersions of tadalafil using glycyrrhizin for enhanced dissolution and aphrodisiac activity in male rats. *Saudi Pharmaceutical Journal*, 28(12), 1817-1826. doi:10.1016/j.jsps.2020.11.007
- Muzafar, S., Sharma, R. D., Shah, A. H., Gaur, N. A., Dasgupta, U., Chauhan, N., & Prasada, R. (2020). Identification of genomewide alternative splicing events in sequential, isogenic clinical isolates of candida albicans reveals a novel mechanism of drug resistance and tolerance to cellular stresses. *MSphere*, 5(4) doi:10.1128/MSPHERE.00608-20
- Nagpal, P., & Chaudhary, S. (2020). Health monitoring multifunction band using IOT doi:10.1007/978-981-15-3020-3_14 Retrieved from www.scopus.com
- Nagraik, R., Kaushal, A., Gupta, S., Sethi, S., Sharma, A., & Kumar, D. (2020). Nanofabricated versatile electrochemical sensor for leptospira interrogans detection. *Journal of Bioscience and Bioengineering*, 129(4), 441-446. doi:10.1016/j.jbiosc.2019.11.003
- Nagraik, R., Kaushal, A., Gupta, S., Sharma, A., & Kumar, D. (2020). Leptospirosis: A systematic review. *Journal of Microbiology, Biotechnology and Food Sciences*, 9(6), 1099-1109. doi:10.15414/jmbfs.2020.9.6.1099-1109
- Nanda, A., Bajaj, S. B., & Gupta, S. (2020). A comprehensive survey of machine learning in scheduling of transactions. Paper presented at the Proceedings of the 4th International Conference on Trends in Electronics and Informatics, ICOEI 2020, 740-745. doi:10.1109/ICOEI48184.2020.9143025 Retrieved from www.scopus.com
- Nigam, R., & Mishra, S. K. (2020). Change in attitude: Managing stress through soar model. *Journal of Critical Reviews*, 7(11), 818-823. doi:10.31838/jcr.07.11.147
- Night, D., Jain, A. K., Singh, M., & Rawat, V. (2020). A convenient 5-exo-dig cyclization route to diastereomerically pure methyl (2S)-2-(1-benzyl-3-oxo-1,3-dihydro-2H-indol-2-yl)-3-methylbutanoate. *Chemistry of Heterocyclic Compounds*, 56(10), 1370-1374. doi:10.1007/s10593-020-02825-y
- Nirmala, R., Singh, R. P., Verma, N., & Bongale, P. (2020). A GIS-based approach in drainage and morphometric analysis of suvarnavathi river basin and sub-watersheds, karnataka, india. *Asian Journal of Water, Environment and Pollution*, 17(4), 81-87. doi:10.3233/AJW200054
- Orofino, F., Truglio, G. I., Fiorucci, D., D'Agostino, I., Borgini, M., Poggialini, F., . . . Botta, M. (2020). In vitro characterization, ADME analysis, and histological and toxicological evaluation of BM1, a macrocyclic amidinourea active against azole-resistant candida strains. *International Journal of Antimicrobial Agents*, 55(3) doi:10.1016/j.ijantimicag.2019.105865
- Oswal, P., Arora, A., Rao, G. K., Kumar, S., Kumar, A., & Singh, A. K. (2020). Pyrazole based ligands: Versatile building blocks. *Pyrazole: Preparation and uses* (pp. 49-90) Retrieved from www.scopus.com
- Oswal, P., Arora, A., Singh, S., Nautiyal, D., Kumar, S., Rao, G. K., & Kumar, A. (2020). Organochalcogen ligands in catalysis of oxidation of alcohols and transfer hydrogenation. *Dalton Transactions*, 49(36), 12503-12529. doi:10.1039/d0dt01201g
- Pahwa, S., Kumari, A., Vij, A., Alvi, P. A., & Kumar, S. (2020). Ferroelectric properties of sm doped BaTiO3 bulk ceramics. Paper presented at the AIP Conference Proceedings, , 2220 doi:10.1063/5.0001564 Retrieved from www.scopus.com
- Pal, S., Garg, M., & Pandey, A. K. (2020). Deciphering the mounting complexity of the p53 regulatory network in correlation to long non-coding RNAs (lncRNAs) in ovarian cancer. *Cells*, 9(3) doi:10.3390/cells9030527
- Pandey, P., Prasad, K., Prakash, A., & Kumar, V. (2020). Insights into the biased activity of dextromethorphan and haloperidol towards SARS-CoV-2 NSP6: In silico binding mechanistic analysis. *Journal of Molecular Medicine*, 98(12), 1659-1673. doi:10.1007/s00109-020-01980-1
- Pandey, P., Rane, J. S., Chatterjee, A., Kumar, A., Khan, R., Prakash, A., & Ray, S. (2020). Targeting SARS-CoV-2 spike protein of COVID-19 with naturally

- occurring phytochemicals: An in silico study for drug development. *Journal of Biomolecular Structure and Dynamics*, 1-11. doi:10.1080/07391102.2020.1796811
- Pandya, G., Kirtonia, A., Sethi, G., Pandey, A. K., & Garg, M. (2020). The implication of long non-coding RNAs in the diagnosis, pathogenesis and drug resistance of pancreatic ductal adenocarcinoma and their possible therapeutic potential. *Biochimica Et Biophysica Acta - Reviews on Cancer*, 1874(2) doi:10.1016/j.bbcan.2020.188423
 - Parkash, O., & Arora, R. (2020). Flow characterization of multi-phase particulate slurry in thermal power plants using computational fluid dynamics. *Journal of Thermal Engineering*, 6(1), 188-203. doi:10.18186/THERMAL.672785
 - Parkash, O., Kumar, A., & Sikarwar, B. S. (2020). Numerical simulation and comparative analysis of pressure drop estimation in horizontal and vertical slurry pipeline. *Journal of Mechanical Engineering and Sciences*, 14(2), 6610-6624. doi:10.15282/JMES.14.2.2020.06.0518
 - Parvez, B., Haidri, R. A., & Verma, J. K. (2020). IoT in agriculture. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 844-847. doi:10.1109/ComPE49325.2020.9200035 Retrieved from www.scopus.com
 - Phogat, S., & Gupta, A. K. (2020). Ranking of maintenance wastes present in indian organizations (a statistical analysis). *Journal of Quality in Maintenance Engineering*, 26(1), 19-32. doi:10.1108/JQME-09-2018-0073
 - Prakash, V., Dahiya, S., Kumawat, S., & Singh, P. (2020). Design of 4 × 4 butler matrix and its process modeling using petri nets for phase array systems. *Progress in Electromagnetics Research C*, 103, 137-153. Retrieved from www.scopus.com
 - Preeti, Vyas, A., Alvi, P. A., Sharma, M., Kumari, K., & Kumar, S. (2020). X-ray diffraction and UV-visible spectroscopy study of fe-cu co-doped CeO₂. Paper presented at the AIP Conference Proceedings, , 2220 doi:10.1063/5.0001562 Retrieved from www.scopus.com
 - Raghav, A. K., Sharma, A., Gupta, R., & Gupta, N. (2020). Subthreshold modeling of dual-halo dual-dielectric triple-material surrounding-gate (DH-DD-TM-SG) MOSFET for improved leakages. *Journal of Engineering Research (Kuwait)*, 8(2), 178-190. Retrieved from www.scopus.com
 - Rahul, Manoj, & Verma, J. K. (2020). A user scheduling in LTE network having environment with mixed traffic. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 269-274. doi:10.1109/ComPE49325.2020.9200105 Retrieved from www.scopus.com
 - Raj, S., Vishnoi, A., & Srivastava, A. (2020). GOLD standard dataset for alzheimer genes. *Data in Brief*, 30 doi:10.1016/j.dib.2020.105439
 - Rane, J. S., Pandey, P., Chatterjee, A., Khan, R., Kumar, A., Prakash, A., & Ray, S. (2020). Targeting virus–host interaction by novel pyrimidine derivative: An in silico approach towards discovery of potential drug against COVID-19. *Journal of Biomolecular Structure and Dynamics*, , 1-11. doi:10.1080/07391102.2020.1794969
 - Rashid, M., Mittal, S., & Venkataraman, S. (2020). Analysis of host protein interactions in plant viruses: An in silico study using sesbania mosaic virus. *Virus Genes*, 56(6), 756-766. doi:10.1007/s11262-020-01794-w
 - Rashid, N., Bhat, M. A., Das, A., & Ingole, P. P. (2020). Unprecedented lower over-potential for CO₂ Electro-reduction on copper oxide anchored to graphene oxide microstructures. *Journal of CO₂ Utilization*, 39 doi:10.1016/j.jcou.2020.101178
 - Ravelo, B., Wan, F., Lallechere, S., Rahajandraibe, W., Thakur, P., & Thakur, A. (2020). Innovative theory of low-pass NGD via-hole-ground circuit. *IEEE Access*, 8, 130172-130182. doi:10.1109/ACCESS.2020.3009286
 - Rawat, D., Mahesh, S., Kumari, L., & Kumar, V. (2020). Role of the acoustic parameters of voice in forensic investigation: A community based exploratory study. *Journal of Forensic Medicine and Toxicology*, 37(2), 55-60. doi:10.5958/0974-4568.2020.00031.9
 - Ruwali, M., & Shukla, R. (2020). Human microbiome and malignancy: Principles, mechanisms, and challenges. Pathogenicity and drug resistance of human pathogens: Mechanisms and novel approaches (pp. 317-335) doi:10.1007/978-981-32-9449-3_16 Retrieved from www.scopus.com
 - Saharan, S., Yadav, A. K., & Yadav, B. (2020). Novel C stain-based chemical method for differentiating real and forged fingerprints. *Egyptian Journal of Forensic Sciences*, 10(1) doi:10.1186/s41935-020-00190-7
 - Saibabu, V., Fatima, Z., Ahmad, K., Khan, L. A., & Hameed, S. (2020). Octyl gallate triggers dysfunctional mitochondria leading to ROS driven membrane damage and metabolic inflexibility along with attenuated virulence in candida albicans. *Medical Mycology*, 58(3), 380-392. doi:10.1093/mmy/myz054
 - Saibabu, V., Fatima, Z., Singh, S., Khan, L. A., & Hameed, S. (2020). Vanillin confers antifungal drug synergism in candida albicans by impeding CaCdr2p driven efflux. *Journal De Mycologie Medicale*, 30(1) doi:10.1016/j.mycmed.2019.100921
 - Saikia, A., Majhi, V., Hussain, M., Barua, A. R., Paul, S., & Verma, J. K. (2020). Machine learning based diagnostic system for early detection of parkinson's disease. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 275-279. doi:10.1109/ComPE49325.2020.9200195 Retrieved from www.scopus.com
 - Saini, K., Kaushal, A., Gupta, S., & Kumar, D. (2020). PlcA-based nanofabricated electrochemical DNA biosensor for the detection of listeria monocytogenes in raw milk samples. *3 Biotech*, 10(7) doi:10.1007/s13205-020-02315-0
 - Saini, R., & Negi, S. (2020). Charge calculation studies done on an end-functionalized double-walled carbon nanotube using MOPAC. *Indian Journal of Physics*, 94(2), 189-194. doi:10.1007/s12648-019-01473-z
 - Saxena, S. K., & Khurana, S. M. P. (2020). NanoBioMedicine. *NanoBioMedicine* (pp. 1-517) doi:10.1007/978-981-32-9898-9 Retrieved from www.scopus.com
 - Saxena, S. K., & Khurana, S. M. P. (2020). Preface. *NanoBioMedicine*, ix-x. Retrieved from www.scopus.com
 - Sharma, A., Devi, S., & Verma, J. K. (2020). Braille book reader using raspberry pi. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 841-843. doi:10.1109/ComPE49325.2020.9200110 Retrieved from www.scopus.com
 - Sharma, A., Gupta, A., & Singh, H. (2020). Flow performance comparison along the centerline in straight and S-shaped diffuser. *Journal of Thermal Engineering*, 6(1), 59-71. doi:10.18186/THERMAL.671147
 - Sharma, A., Prasai, N., Ajmera, P., Yadav, S., & Madan, S. (2020). Challenges faced by medical tourists in india and its growth prospects (A descriptive study). *International Journal of Scientific and Technology Research*, 9(2), 5005-5011. Retrieved from www.scopus.com
 - Sharma, A. K., Bhatia, S., Al-Harrasi, A., Nandave, M., & Hagar, H. (2020). Correction to: Crosstalk between GSK-3 β -actuated molecular cascades and myocardial physiology (heart failure reviews, (2020), 25, 5, (895), 10.1007/s10741-020-09970-8). *Heart Failure Reviews*, 25(5), 895. doi:10.1007/s10741-020-09970-8
 - Sharma, A. K., Bhatia, S., Al-Harrasi, A., Nandave, M., & Hagar, H. (2020). Crosstalk between GSK-3 β -actuated molecular cascades and myocardial physiology. *Heart Failure Reviews*, doi:10.1007/s10741-020-09961-9
 - Sharma, A. K., Thanikachalam, P. V., & Bhatia, S. (2020). The signaling interplay of GSK-3 β in myocardial disorders. *Drug Discovery Today*, 25(4), 633-641. doi:10.1016/j.drudis.2020.01.017
 - Sharma, C., Srivastava, A. K., Sharma, K. N., & Joshi, R. K. (2020). Erratum: Half-sandwich (η 5-cp)rh(iii) complexes of pyrazolated organo-sulfur/selenium/tellurium ligands: Efficient catalysts for base/solvent free C-N coupling of chloroarenes under aerobic conditions (organic and biomolecular chemistry (2020) 18 (3599-3606) DOI: 10.1039/D0OB00538J). *Organic and Biomolecular Chemistry*, 18(25), 4872. doi:10.1039/d0ob90079f
 - Sharma, C., Srivastava, A. K., Sharma, K. N., & Joshi, R. K. (2020). Half-sandwich (η 5-cp)rh(iii) complexes of pyrazolated organo-sulfur/selenium/tellurium ligands: Efficient catalysts for base/solvent free C-N coupling of chloroarenes under aerobic conditions. *Organic and Biomolecular Chemistry*, 18(18), 3599-3606. doi:10.1039/d0ob00538j
 - Sharma, D., & Pal, H. (2020). Sustainable apparels: Examining the influence of environmental concern and environmental textile knowledge on attitude. *Journal of Textile and Apparel, Technology and Management*, 11(4), 1-15. Retrieved from www.scopus.com
 - Sharma, H., Kumar, K., & Rani, R. (2020). Water conservation and growth. *International Journal of Management*, 11(3), 220-226. doi:10.34218/IJM.11.3.2020.023
 - Sharma, J., Balakrishnan, L., Kaushik, S., & Kashyap, M. K. (2020). Editorial: Multi-omics approaches to

- study signaling pathways. *Frontiers in Bioengineering and Biotechnology*, 8 doi:10.3389/fbioe.2020.00829
- Sharma, L. (2020). Acceptability studies of a gluten free DRINK developed from amaranthus viridis and sesamum indicum. *International Journal of Scientific and Technology Research*, 9(4), 522-526. Retrieved from www.scopus.com
 - Sharma, L., Garg, S., & Yadav, A. (2020). Functional and sensory properties of papads developed with semolina and chia seeds. *International Journal of Scientific and Technology Research*, 9(1), 3607-3612. Retrieved from www.scopus.com
 - Sharma, M., Doila, S. N., Kumar, S., & Alvi, P. A. (2020). Role of mn doping in tailoring the magnetic properties of nanocrystalline SnO2 particles. Paper presented at the *Materials Today: Proceedings*, 27 227-230. doi:10.1016/j.matpr.2019.10.082 Retrieved from www.scopus.com
 - Sharma, M., Kumar, S., & Alvi, P. A. (2020). Role of fe (transition metal) in tuning the optical behavior of SnO2Nanoparticles. Paper presented at the *Proceedings - 2020 International Conference on Emerging Trends in Communication, Control and Computing, ICONC3 2020*, doi:10.1109/ICONC345789.2020.9117376 Retrieved from www.scopus.com
 - Sharma, S., Deep, A., Rana, A. C., Yadav, M., & Sharma, A. K. (2020). Possible biomarkers and therapeutic targets for the management of cervical cancer. *Current Cancer Therapy Reviews*, 16(1), 49-61. doi:10.2174/1573394715666190126142508
 - Sharma, S., Deep, A., & Sharma, A. K. (2020). Current treatment for cervical cancer: An update. *Anti-Cancer Agents in Medicinal Chemistry*, 20(15), 1768-1779. doi:10.2174/1871520620666200224093301
 - Sharma, S., Hameed, S., & Fatima, Z. (2020). Lipidomic insights to understand membrane dynamics in response to vanillin in mycobacterium smegmatis. *International Microbiology*, 23(2), 263-276. doi:10.1007/s10123-019-00099-9
 - Sharma, S., Hameed, S., & Fatima, Z. (2020). Monoterpenoid geraniol improves anti-mycobacterial drug efficiency by interfering with lipidome and virulence of mycobacteria. *Infectious Disorders - Drug Targets*, 20(4), 467-485. doi:10.2174/1871526519666190625113203
 - Shrivastva, N., Devi, S., & Verma, J. K. (2020). Digital money: The empowering new currency. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 837-840. doi:10.1109/ComPE49325.2020.9200036 Retrieved from www.scopus.com
 - Singh, A., Bhardwaj, N., & Prasad, R. (2020). Nanomaterial-assisted mass spectrometry: An evolving cutting-edge technique. *NanoBioMedicine* (pp. 453-464) doi:10.1007/978-981-32-9898-9_19 Retrieved from www.scopus.com
 - Singh, A. K., Chandra, D., Kattayat, S., Kumar, S., Alvi, P. A., & Rathi, A. (2020). Erratum to: First-principles investigation of electronic properties of GaAsx Sb1 – x ternary alloys (semiconductors, (2019), 53, 12, (1584-1592), 10.1134/S1063782619160267). *Semiconductors*, 54(1), 157. doi:10.1134/S1063782620010285
 - Singh, A. K., Solanki, A., Nayyar, A., & Qureshi, B. (2020). Elliptic curve signcryption-based mutual authentication protocol for smart cards. *Applied Sciences (Switzerland)*, 10(22), 1-27. doi:10.3390/app10228291
 - Singh, D., Kumar, A., Thakur, R. K., & Kumar, R. (2020). Elastic and ultrasonic properties of rare-earth lutetium mononictides. *Proceedings of the National Academy of Sciences India Section A - Physical Sciences*, 90(1), 177-183. doi:10.1007/s40010-018-0529-z
 - Singh, H., & Kumar, D. (2020). Effect of face width of spur gear on bending stress using AGMA and ANSYS. *International Journal for Simulation and Multidisciplinary Design Optimization*, 11 doi:10.1051/smdo/2020017
 - Singh, H., Patir, R., Vaishya, S., Miglani, R., & Kaur, A. (2020). External ventricular drain related complications-whether continuous CSF drainage via ommaya reservoir is the answer? *Neurology India*, 68(2), 458-461. doi:10.4103/0028-3886.284354
 - Singh, J. P., Dagar, M., Dagar, G., Kumar, S., Rawal, S., Sharma, R. D., . . . Bagchi, G. (2020). Activation of GPR56, a novel adhesion GPCR, is necessary for nuclear androgen receptor signaling in prostate cells. *PLoS ONE*, 15(9 September 2020) doi:10.1371/journal.pone.0226056
 - Singh, K. P., Malik, A. K., Sharma, J., & Yadav, M. (2020). Effect of laser polarization and target location on acceleration of electrons generated during ionization of gases by a laser pulse. *AIP Advances*, 10(6) doi:10.1063/5.0007265
 - Singh, R., Meena, N. K., Das, T., Sharma, R. D., Prakash, A., & Lynn, A. M. (2020). Delineating the conformational dynamics of intermediate structures on the unfolding pathway of β -lactoglobulin in aqueous urea and dimethyl sulfoxide. *Journal of Biomolecular Structure and Dynamics*, 38(17), 5027-5036. doi:10.1080/07391102.2019.1695669
 - Singh, R., Thakur, P., Thakur, A., Kumar, H., Chawla, P., V. Rohit, J., . . . Kumar, N. (2020). Colorimetric sensing approaches of surface-modified gold and silver nanoparticles for detection of residual pesticides: A review. *International Journal of Environmental Analytical Chemistry*, doi:10.1080/03067319.2020.1715382
 - Singh, R. K. (2020). Recent trends in the management of alzheimer's disease: Current therapeutic options and drug repurposing approaches. *Current Neuropharmacology*, 18(9), 868-882. doi:10.2174/1570159X18666200128121920
 - Singh, S., Fatima, Z., Ahmad, K., & Hameed, S. (2020). Repurposing of respiratory drug theophylline against candida albicans: Mechanistic insights unveil alterations in membrane properties and metabolic fitness. *Journal of Applied Microbiology*, 129(4), 860-875. doi:10.1111/jam.14669
 - Singh, S., Fatima, Z., & Hameed, S. (2020). Octyl gallate reduces ABC multidrug transporter CaCdr1p expression and leads to its mislocalisation in azole-resistant clinical isolates of candida albicans. *Journal of Global Antimicrobial Resistance*, 22, 497-503. doi:10.1016/j.jgar.2020.04.013
 - Singh, S., Rehman, S., Fatima, Z., & Hameed, S. (2020). Protein kinases as potential anticandidal drug targets. *Frontiers in Bioscience - Landmark*, 25(8), 1412-1432. doi:10.2741/4862
 - Singh, V., Kumari, G., Kumar, M., & Jha, R. K. (2020). Impact of complementary and integrative medicine in rehabilitation of coronary heart disease and type 2 diabetes mellitus patients. *International Journal of Scientific and Technology Research*, 9(1), 4321-4331. Retrieved from www.scopus.com
 - Singla, R., Hackett, T. A., Kumar, S., Sharma, J., & Kashyap, M. K. (2020). Curie temperature engineering in a novel 2D analog of iron ore (hematene): Via strain. *Nanoscale Advances*, 2(12), 5890-5896. doi:10.1039/d0na00556h
 - Sinha, S., Agrawal, A., Singh, A., & Raj, P. (2020). Transforming interactions: Mouse-based to voice-based interfaces. *Telecommunications and Radio Engineering (English Translation of Elektrosvyaz and Radiotekhnika)*, 79(14), 1259-1271. doi:10.1615/TelecomRadEng.v79.i14.60
 - Sinha, S., & Bansal, S. (2020). Computational intelligence approach to address the language barrier in healthcare. *Computational intelligence for machine learning and healthcare informatics* (pp. 53-76) doi:10.1515/9783110648195-004 Retrieved from www.scopus.com
 - Somisetti, K., Jain, C., Chugh, A., & Charaya, N. (2020). A comparative study of anti tremor devices. Paper presented at the *Proceedings of the 5th International Conference on Communication and Electronics Systems, ICCES 2020*, 1202-1207. doi:10.1109/ICCES48766.2020.09137943 Retrieved from www.scopus.com
 - Somisetti, K., Tripathi, K., & Verma, J. K. (2020). Design, implementation, and controlling of a humanoid robot. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 831-836. doi:10.1109/ComPE49325.2020.9200020 Retrieved from www.scopus.com
 - Suhag, D., Chauhan, M., Shakeel, A., & Das, S. (2020). Emerging trends in nanotheranostics. *NanoBioMedicine* (pp. 335-368) doi:10.1007/978-981-32-9898-9_14 Retrieved from www.scopus.com
 - Supreet, & Singh, G. (2020). Recent advances on cadmium free quantum dots-liquid crystal nanocomposites. *Applied Materials Today*, 21 doi:10.1016/j.apmt.2020.100840
 - Suryawanshi, R., Banjare, M. K., Behera, K., Banjare, R. K., Sahu, R., Saha, A., . . . Ghosh, K. K. (2020). Interaction of an acid functionalized magnetic ionic liquid with gemini surfactants. *Journal of Solution Chemistry*, 49(5), 715-731. doi:10.1007/s10953-020-00990-4
 - Swati, & Bhaskar Bajaj, S. (2020). Study of locking protocols in database management for increasing concurrency. Paper presented at the *Proceedings of the 4th International Conference on Trends in Electronics and Informatics, ICOEI 2020*, 556-560. doi:10.1109/ICOEI48184.2020.9142943 Retrieved from www.scopus.com
 - Thaha, R., Jogi, S. P., Rajan, S., Mahajan, V., Venugopal, V. K., Mehndiratta, A., & Singh, A. (2020).

- Modified radial-search algorithm for segmentation of tibiofemoral cartilage in MR images of patients with subchondral lesion. *International Journal of Computer Assisted Radiology and Surgery*, 15(3), 403-413. doi:10.1007/s11548-020-02116-z
- Thakur, A., Sharma, N., Bhatti, M., Sharma, M., Trukhanov, A. V., Trukhanov, S. V., . . . Thakur, P. (2020). Synthesis of barium ferrite nanoparticles using rhizome extract of acorus calamus: Characterization and its efficacy against different plant phytopathogenic fungi. *Nano-Structures and Nano-Objects*, 24 doi:10.1016/j.nanoso.2020.100599
 - Thakur, B., Madan, S., & Satia, H. (2020). Management control framework in 5 corporate hospitals of delhi. *International Journal of Scientific and Technology Research*, 9(1), 409-415. Retrieved from www.scopus.com
 - Thakur, P., Chahar, D., Taneja, S., Bhalla, N., & Thakur, A. (2020). A review on MnZn ferrites: Synthesis, characterization and applications. *Ceramics International*, 46(10), 15740-15763. doi:10.1016/j.ceramint.2020.03.287
 - Thakur, P., Taneja, S., Sindhu, D., Lüders, U., Sharma, A., Ravelo, B., & Thakur, A. (2020). Manganese zinc ferrites: A short review on synthesis and characterization. *Journal of Superconductivity and Novel Magnetism*, 33(6), 1569-1584. doi:10.1007/s10948-020-05489-z
 - Tiwari, B. N., Thakran, D. S., Sejwal, P., Vats, A., & Yadav, S. (2020). Fractional order solutions to fractional order partial differential equations. *SeMA Journal*, 77(1), 27-46. doi:10.1007/s40324-019-00200-2
 - Uddin, A., Devi, S., & Verma, J. K. (2020). Qualitative software process management for developing countries-an exploratory study. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 548-552. doi:10.1109/ComPE49325.2020.9199995 Retrieved from www.scopus.com
 - Vadlakonda, L., Indracanti, M., Kalangi, S. K., Gayatri, B. M., Naidu, N. G., & Reddy, A. B. M. (2020). The role of pi, glutamine and the essential amino acids in modulating the metabolism in diabetes and cancer. *Journal of Diabetes and Metabolic Disorders*, 19(2), 1731-1775. doi:10.1007/s40200-020-00566-5
 - Vats, M., Kumar, R., Sharma, J., & Luwang, M. N. (2020). Magnetic and luminescent multifunctional nanohybrid: Fe₃O₄@CaF₂:Tb³⁺: A facile synthesis and characterization. *Indian Journal of Pure and Applied Physics*, 58(1), 31-35. Retrieved from www.scopus.com
 - Vatshayan, S., Haidri, R. A., & Verma, J. K. (2020). Design of hybrid cryptography system based on vigenère cipher and polybius cipher. Paper presented at the 2020 International Conference on Computational Performance Evaluation, ComPE 2020, 848-852. doi:10.1109/ComPE49325.2020.9199997 Retrieved from www.scopus.com
 - Vaya, D., & Surolia, P. K. (2020). Semiconductor based photocatalytic degradation of pesticides: An overview. *Environmental Technology and Innovation*, 20 doi:10.1016/j.eti.2020.101128
 - Venkata, S., Zeeshan, F., Kamal, A., Luqman, A. K., & Saif, H. (2020). Efficiency of vanillin in impeding metabolic adaptability and virulence of candida albicans by inhibiting glyoxylate cycle, morphogenesis, and biofilm formation. *Current Medical Mycology*, 6(1), 1-8. doi:10.18502/CMM.6.1.2501
 - Venkataraman, S., Reddy, V. S., & Khurana, S. M. P. (2020). Biomedical applications of viral nanoparticles in vaccine therapy. *NanoBioMedicine* (pp. 213-236) doi:10.1007/978-981-32-9898-9_9 Retrieved from www.scopus.com
 - Verma, A., Singh, K., & Rajendra, K. (2020). Synthesis and characterization of novel rice husk hydrogel and cross linked acrylic acid-rice husk hydrogel for the adsorption of chromium(VI) from wastewater. *Asian Journal of Chemistry*, 32(9), 2365-2370. doi:10.14233/ajchem.2020.22804
 - Verma, M., Kumar, A., Singh, K. P., Kumar, R., Kumar, V., Srivastava, C. M., . . . Kim, H. (2020). Graphene oxide-manganese ferrite (GO-MnFe₂O₄) nanocomposite: One-pot hydrothermal synthesis and its use for adsorptive removal of Pb²⁺ ions from aqueous medium. *Journal of Molecular Liquids*, 315 doi:10.1016/j.molliq.2020.113769
 - Verma, M., Singh, K. P., & Kumar, A. (2020). Reactive magnetron sputtering based synthesis of WO₃ nanoparticles and their use for the photocatalytic degradation of dyes. *Solid State Sciences*, 99 doi:10.1016/j.solidstatesciences.2019.02.008
 - Verma, V., Goyal, M., Kala, D., Gupta, S., Kumar, D., & Kaushal, A. (2020). Recent advances in the diagnosis of leptospirosis. *Frontiers in Bioscience - Landmark*, 25(9), 1655-1681. doi:10.2741/4872
 - Vijarana, M., Jaglan, V., & Mishra, B. K. (2020). The modelling of an energy efficient algorithm considering the temperature effect on the lifetime of a node in a wireless network. *International Journal of Grid and High Performance Computing*, 12(2), 87-101. doi:10.4018/IJGHPC.2020040105
 - Vijayakumar, K., Devara, P. C. S., Sonbawne, S. M., Giles, D. M., Holben, B. N., Rao, S. V. B., & Jayasankar, C. K. (2020). Solar radiometer sensing of multi-year aerosol features over a tropical urban station: Direct-sun and inversion products. *Atmospheric Measurement Techniques*, 13(10), 5569-5593. doi:10.5194/amt-13-5569-2020
 - Vyas, A., Diwan, A., & Sharma, R. (2020). Design, optimization and evaluation of snedds based system for orlistat: A quality by design approach with 23 factorial. *International Journal of Research in Pharmaceutical Sciences*, 11(4), 5517-5532. doi:10.26452/ijrps.v11i4.3186
 - Wan, F., Huang, X., Thakur, P., Thakur, A., Lalléchère, S., & Ravelo, B. (2020). Negative group delay experimentation with tee connector and cable structures. *EPJ Applied Physics*, 91(1) doi:10.1051/epjap/2020200016
 - Wan, F., Liu, B., Thakur, P., Thakur, A., Lallechere, S., Rahajandraibe, W., & Ravelo, B. (2020). OIO-shape PCB trace negative group-delay analysis. *IEEE Access*, 8, 97707-97717. doi:10.1109/ACCESS.2020.2997464
 - Yadav, A., Gulia, G., & Yadav, B. (2020). Development of mulberry enriched fruit jam by replacing refined sugar with mulberry fruit. *International Journal of Scientific and Technology Research*, 9(1), 4079-4083. Retrieved from www.scopus.com
 - Yadav, A., Vyas, A., Alvi, P. A., Sharma, M., Kumari, K., & Kumar, S. (2020). Structural and optical properties of cu codoped fe-CeO₂ nanoparticles. Paper presented at the AIP Conference Proceedings, , 2220 doi:10.1063/5.0001412 Retrieved from www.scopus.com
 - Yadav, B., Yadav, B., Tripathi, S., & Rohatgi, S. (2020). Optimization of analytical method for detecting pyrethroids by tlc and gc-ms in forensic sample. *Journal of South India Medicolegal Association*, 12(1), 34-39. Retrieved from www.scopus.com
 - Yadav, H., Das, S., & Majumder, S. (2020). Synthesis and characterisation of a nanoalloy for thermal applications. Paper presented at the Springer Proceedings in Physics, , 256 71-86. doi:10.1007/978-981-15-8625-5_8 Retrieved from www.scopus.com
 - Yepuri, V., Dubey, R. S., & Kumar, B. (2020). Fabrication and characterization of spectrally selective glazing dielectric multilayer structures. *Nanosystems: Physics, Chemistry, Mathematics*, 11(4), 488-492. doi:10.17586/2220-8054-2020-11-4-488-492
 - Yepuri, V., Dubey, R. S., & Kumar, B. (2020). Rapid and economic fabrication approach of dielectric reflectors for energy harvesting applications. *Scientific Reports*, 10(1) doi:10.1038/s41598-020-73052-w
 - Zaidi, B., Houaidji, N., Khadraoui, A., Gagui, S., Shekhar, C., Ozen, Y., . . . Hadjoudja, B. (2020). Structural, optical and electrical properties of Zn_xSn_{1-x}S thin films deposited by chemical spray pyrolysis. *Journal of Nano Research*, 61, 72-77. doi:10.4028/www.scientific.net/JNanoR.61.72
 - Zaidi, B., Shekhar, C., Kamli, K., Hadeef, Z., Belghit, S., & Ullah, M. S. (2020). Junction configuration effect on the performance of In₂S₃/CZTS solar cells. *Journal of Nano- and Electronic Physics*, (1) doi:10.21272/jnep.12(1).01024

2021

- Aarya, S., Kumar, P., Bhatia, M., Kumar, S., Sharma, J., & Siddhartha. (2021). Gamma rays induced modification in ultrahigh molecular weight polyethylene (UHMWPE). *Advances in Polymer Technology*, 2021 doi:10.1155/2021/7013154
- Abdul Azeez, E. P., Selvi, G. A., Sharma, G., & Senthil Kumar, A. P. (2021). What attracts and sustain urban poor to informal healthcare practitioners? A study on practitioners' perspectives and patients' experiences in an indian city. *International Journal of Health Planning and Management*, 36(1), 83-99. doi:10.1002/hpm.3068
- Agnihotri, A. S., Fatima, Z., Hameed, S., & Nidhin, M. (2021). Highly surface active anisotropic silver nanoparticles as antimicrobial agent against human pathogens, mycobacterium smegmatis and candida albicans. *ChemistrySelect*, 6(22), 5466-5473. doi:10.1002/slct.202101250
- Agrawal, A., Arora, R., Arora, R., & Agrawal, P. (2021). Applications of artificial intelligence and internet of

- things for detection and future directions to fight against COVID-19 doi:10.1007/978-3-030-60039-6_5 Retrieved from www.scopus.com
- Agrawal, P., Madaan, V., Roy, A., Kumari, R., & Deore, H. (2021). FOCOMO: Forecasting and monitoring the worldwide spread of COVID-19 using machine learning methods. *Journal of Interdisciplinary Mathematics*, 24(2), 443-466. doi:10.1080/09720502.2021.1885812
 - Ahanger, I. A., Bashir, S., Parray, Z. A., Alajmi, M. F., Hussain, A., Ahmad, F., . . . Sharma, A. (2021). Rationalizing the role of monosodium glutamate in the protein aggregation through biophysical approaches: Potential impact on neurodegeneration. *Frontiers in Neuroscience*, 15 doi:10.3389/fnins.2021.636454
 - Ahanger, I. A., Parray, Z. A., Nasreen, K., Ahmad, F., Hassan, M. I., Islam, A., & Sharma, A. (2021). Heparin accelerates the protein aggregation via the downhill polymerization mechanism: Multi-spectroscopic studies to delineate the implications on proteinopathies. *ACS Omega*, 6(3), 2328-2339. doi:10.1021/acsomega.0c05638
 - Aiwerioghene, E. M., Singh, M., & Ajmera, P. (2021). Modelling the factors affecting nigerian medical tourism sector using an interpretive structural modelling approach. *International Journal of Healthcare Management*, 14(2), 563-575. doi:10.1080/20479700.2019.1677036
 - Ajayi, L. K., Azeta, A., Misra, S., Odun-Ayo, I., Ajayi, P. T., Azeta, V., & Agrawal, A. (2021). Enhancing the low adoption rate of M-commerce in nigeria through yorùbá voice technology doi:10.1007/978-3-030-73050-5_52 Retrieved from www.scopus.com
 - Akash, Parida, A. P., Srivastava, A., Mathur, S., Sharma, A. K., & Kumar, R. (2021). Identification, evolutionary profiling, and expression analysis of F-box superfamily genes under phosphate deficiency in tomato. *Plant Physiology and Biochemistry*, 162, 349-362. doi:10.1016/j.plaphy.2021.03.002
 - Anand, M., & Singh, S. (2021). In vitro large scale clonal propagation of *Achyranthes aspera* L.: A high value medicinal plant. *Medicinal Plants*, 13(1), 91-98. doi:10.5958/0975-6892.2021.00010.1
 - Arora, A., Behl, T., Sehgal, A., Singh, S., Sharma, N., Bhatia, S., . . . Bungau, S. (2021). Unravelling the involvement of gut microbiota in type 2 diabetes mellitus. *Life Sciences*, 273 doi:10.1016/j.lfs.2021.119311
 - Arora, A., Oswal, P., Kumar Rao, G., Kumar, S., & Kumar, A. (2021). Organoselenium ligands for heterogeneous and nanocatalytic systems: Development and applications. *Dalton Transactions*, 50(25), 8628-8656. doi:10.1039/d1dt00082a
 - Arora, A., Oswal, P., Rao, G. K., Kumar, S., Singh, A. K., & Kumar, A. (2021). Catalytically active nanosized Pd₉Te₄(telluropalladinite) and PdTe (koteluskite) alloys: First precursor-architecture controlled synthesis using palladium complexes of organotellurium compounds as single source precursors. *RSC Advances*, 11(13), 7214-7224. doi:10.1039/d0ra08732g
 - Arora, A., Oswal, P., Singh, S., Nautiyal, D., Rao, G. K., Kumar, S., . . . Kumar, A. (2021). Organoselenium ligand-stabilized copper nanoparticles: Development of a magnetically separable catalytic system for efficient, room temperature and aqueous phase reduction of nitroarenes. *Inorganica Chimica Acta*, 522 doi:10.1016/j.ica.2021.120267
 - Arora, A., Singh, S., Oswal, P., Nautiyal, D., Rao, G. K., Kumar, S., & Kumar, A. (2021). Preformed molecular complexes of metals with organoselenium ligands: Syntheses and applications in catalysis. *Coordination Chemistry Reviews*, 438 doi:10.1016/j.ccr.2021.213885
 - Arora, R., Agrawal, A., Arora, R., Poonia, R. C., & Madaan, V. (2021). Prediction and forecasting of COVID-19 outbreak using regression and ARIMA models. *Journal of Interdisciplinary Mathematics*, 24(1), 227-243. doi:10.1080/09720502.2020.1840075
 - Arya, K. K., & Verma, D. M. (2021). CONTEMPORARY BOLLYWOOD'S TRYST WITH BOURGEOIS ROMANCES OF HINDI CINEMA. *Journal of Content, Community and Communication*, 13(7), 308-315. doi:10.31620/JCCC.06.21/26
 - Atale, N., Mishra, C. B., Kohli, S., Mongre, R. K., Prakash, A., Kumari, S., . . . Rani, V. (2021). Anti-inflammatory effects of *S. cumini* seed extract on gelatinase-B (MMP-9) regulation against hyperglycemic cardiomyocyte stress. *Oxidative Medicine and Cellular Longevity*, 2021 doi:10.1155/2021/8839479
 - Awasthi, K., Srivastava, A., Bhattacharya, S., & Bhattacharya, A. (2021). Tissue specific expression of sialic acid metabolic pathway: Role in GNE myopathy. *Journal of Muscle Research and Cell Motility*, 42(1), 99-116. doi:10.1007/s10974-020-09590-7
 - Azeez E P, A., Negi, D. P., & Choudhary, P. (2021). The customary practice of nata pratha in rajasthan, india: Is it freedom or captivity for women? *Journal of Divorce and Remarriage*, 62(2), 127-143. doi:10.1080/10502556.2021.1871837
 - Azeez E P, A., Negi, D. P., Rani, A., & A P, S. K. (2021). The impact of COVID-19 on migrant women workers in india. *Eurasian Geography and Economics*, 62(1), 93-112. doi:10.1080/15387216.2020.1843513
 - Azeez, E., & Anbuselvi, G. (2021). Is the kerala model of community-based palliative care operations sustainable? evidence from the field. *Indian Journal of Palliative Care*, 27(1), 18-22. doi:10.4103/IJPC.IJPC_45_20
 - Azeez, E., Siva, P., Kumar, A., & Negi, D. (2021). Are village health, sanitation, and nutrition committees functional? evidence from chhattisgarh and madhya pradesh. *Indian Journal of Community Medicine*, 46(1), 80-84. doi:10.4103/ijcm.IJCM_239_20
 - Bala, N., Vyas, R., Gupta, R., & Kumar, A. (2021). Iris recognition using improved xor-sum code doi:10.1007/978-981-33-6781-4_9 Retrieved from www.scopus.com
 - Banerjee, A., Moreno, A., Pata, J., Falson, P., & Prasad, R. (2021). ABCG: A new fold of ABC exporters and a whole new bag of riddles! doi:10.1016/bs.apcsb.2020.09.006 Retrieved from www.scopus.com
 - Banerjee, A., Pata, J., Sharma, S., Monk, B. C., Falson, P., & Prasad, R. (2021). Directed mutational strategies reveal drug binding and transport by the MDR transporters of *Candida albicans*. *Journal of Fungi*, 7(2), 1-16. doi:10.3390/jof7020068
 - Bansal, H., Kumar, V., & Mehta, R. (2021). Diagnostic comparison of biochemical profile in patients with covid-19, dengue and acute febrile illness: Implications for patient management. *Clinical Epidemiology and Global Health*, 12 doi:10.1016/j.cegh.2021.100844
 - Bashir, S., Ahanger, I. A., Shamsi, A., Alajmi, M. F., Hussain, A., Choudhry, H., . . . Islam, A. (2021). Trehalose restrains the fibril load towards α -lactalbumin aggregation and halts fibrillation in a concentration-dependent manner. *Biomolecules*, 11(3) doi:10.3390/biom11030414
 - Behera, K., Wani, F. A., Bhat, A. R., Juneja, S., Banjare, M. K., Pandey, S., & Patel, R. (2021). Behavior of lysozyme within ionic liquid-in-water microemulsions. *Journal of Molecular Liquids*, 326 doi:10.1016/j.molliq.2021.115350
 - Behl, T., Gupta, A., Sehgal, A., Sharma, S., Singh, S., Sharma, N., . . . Bungau, S. (2021). A spotlight on underlying the mechanism of AMPK in diabetes complications. *Inflammation Research*, doi:10.1007/s00011-021-01488-5
 - Behl, T., Kaur, I., Sehgal, A., Singh, S., Bhatia, S., Al-Harrasi, A., . . . Bungau, S. G. (2021). Bioinformatics accelerates the major tetrad: A real boost for the pharmaceutical industry. *International Journal of Molecular Sciences*, 22(12) doi:10.3390/ijms22126184
 - Behl, T., Kaur, I., Sehgal, A., Singh, S., Bhatia, S., Al-Harrasi, A., . . . Bungau, S. G. (2021). The footprint of kynurenine pathway in neurodegeneration: Janus-faced role in parkinson's disorder and therapeutic implications. *International Journal of Molecular Sciences*, 22(13) doi:10.3390/ijms22136737
 - Behl, T., Kumar, K., Singh, S., Sehgal, A., Sachdeva, M., Bhatia, S., . . . Bungau, S. (2021). Unveiling the role of polyphenols in diabetic retinopathy. *Journal of Functional Foods*, 85 doi:10.1016/j.jff.2021.104608
 - Behl, T., Sehgal, A., Grover, M., Singh, S., Sharma, N., Bhatia, S., . . . Bungau, S. (2021). Uncurtaining the pivotal role of ABC transporters in diabetes mellitus. *Environmental Science and Pollution Research*, doi:10.1007/s11356-021-14675-y
 - Benet, N., Krishna, R., & Kumar, V. (2021). Enhancement of processing capabilities of hippocampus lobe: A P300 based event related potential study. *Journal of Audiology and Otology*, 25(3), 119-123. doi:10.7874/jao.2021.00024
 - Benet, N., Rajalakshmi, K., & Kumar, V. (2021). Impact of more than three years of carnatic music training on the working memory: An ERP study. *Hearing, Balance and Communication*, doi:10.1080/21695717.2021.1943782
 - Bhardwaj, R., & Mani, N. (2021). Vibration of skew plate having exponential variation in young's modulus and density. *Journal of Theoretical and Applied Mechanics (Bulgaria)*, 51(1), 92-102. Retrieved from www.scopus.com
 - Bhardwaj, R., Mani, N., & Sharma, A. (2021). Time period of transverse vibration of skew plate with parabolic temperature variation. *JVC/Journal of Vibration and Control*, 27(3-4), 323-331. doi:10.1177/1077546320926887

- Bharti, M. K., Chalia, S., Thakur, P., Hermosa, G. C., Aidan Sun, A. -, & Thakur, A. (2021). Low-loss characteristics and sustained magneto-dielectric behaviour of cobalt ferrite nanoparticles over 1–6 GHz frequency range. *Ceramics International*, doi:10.1016/j.ceramint.2021.04.239
- Bharti, M. K., Chalia, S., Thakur, P., Sridhara, S. N., Thakur, A., & Sharma, P. B. (2021). Nanoferrites heterogeneous catalysts for biodiesel production from soybean and canola oil: A review. *Environmental Chemistry Letters*, doi:10.1007/s10311-021-01247-2
- Bharti, M. K., Chalia, S., Thakur, P., & Thakur, A. (2021). Effect of lanthanum doping on microstructural, dielectric and magnetic properties of Mn_{0.4}Zn_{0.6}Cd_{0.2}LaxFe_{1.8-x}O₄ (0.0 ≤ x ≤ 0.4). *Journal of Superconductivity and Novel Magnetism*, doi:10.1007/s10948-021-05908-9
- Bhatia, S., Sharma, A. K., De La Cruz, C. B. V., Chaugule, B., & Al-Harrasi, A. (2021). Nutraceutical, antioxidant, antimicrobial properties of *pyropia vietnamensis* (tanaka et pham-hong ho) j.e. sutherl. et monotilla. *Current Bioactive Compounds*, 17(2), 151-164. doi:10.2174/1573407216666200227094935
- Bhatt, S., Kanoujia, J., Dhar, A. K., Singh, R. K., & Rajangam, J. (2021). Current and future scenario of immunotherapy for the treatment of hepatocellular carcinoma. *Current Cancer Therapy Reviews*, 17(2), 148-158. doi:10.2174/1573394716999200818103724
- Bhattacharya, A., Champramary, S., Tripathi, T., Thakur, D., Ioshikhes, I., Singh, S. K., & Nandi, S. (2021). Identification of the conserved long non-coding RNAs in myogenesis. *BMC Genomics*, 22(1) doi:10.1186/s12864-021-07615-0
- Bhowmik, D., Nandi, R., Prakash, A., & Kumar, D. (2021). Evaluation of flavonoids as 2019-nCoV cell entry inhibitor through molecular docking and pharmacological analysis. *Heliyon*, 7(3) doi:10.1016/j.heliyon.2021.e06515
- Bhowmik, D., Sharma, R. D., Prakash, A., & Kumar, D. (2021). "Identification of nafamostat and VR23 as COVID-19 drug candidates by targeting 3CLpro and PLpro.". *Journal of Molecular Structure*, 1233 doi:10.1016/j.molstruc.2021.130094
- Billamboz, M., Fatima, Z., Hameed, S., & Jawhara, S. (2021). Promising drug candidates and new strategies for fighting against the emerging superbug candida auris. *Microorganisms*, 9(3), 1-39. doi:10.3390/microorganisms9030634
- Bouarroudj, T., Aoudjit, L., Djahida, L., Zaidi, B., Ouraghi, M., Zioui, D., . . . Bachari, K. (2021). Photodegradation of tartrazine dye favored by natural sunlight on pure and (ce, ag) co-doped ZnO catalysts. *Water Science and Technology*, 83(9), 2118-2134. doi:10.2166/wst.2021.106
- Chahar, D., Taneja, S., Bisht, S., Kesarwani, S., Thakur, P., Thakur, A., & Sharma, P. B. (2021). Photocatalytic activity of cobalt substituted zinc ferrite for the degradation of methylene blue dye under visible light irradiation. *Journal of Alloys and Compounds*, 851 doi:10.1016/j.jallcom.2020.156878
- Chakravarty, U., Chand, G., & Singh, U. N. (2021). Millennial travel vlogs: Emergence of a new form of virtual tourism in the post-pandemic era? *Worldwide Hospitality and Tourism Themes*, doi:10.1108/WHATT-05-2021-0077
- Chalia, S., Bharti, M. K., Thakur, P., Thakur, A., & Sridhara, S. N. (2021). An overview of ceramic materials and their composites in porous media burner applications. *Ceramics International*, 47(8), 10426-10441. doi:10.1016/j.ceramint.2020.12.202
- Charaya, N., Kumar, A., & Singh, P. (2021). Dorsal hand vein extraction in uncontrolled environment. *International Journal of Advanced Computer Science and Applications*, 12(6), 563-568. doi:10.14569/IJACSA.2021.0120665
- Chatterji, N., & Kiran, R. (2021). Intellectual capital and intellectual imperatives of higher education sector: An emerging economy perspective. *International Journal of Learning and Intellectual Capital*, 18(1), 45-68. doi:10.1504/IJLIC.2021.113660
- Chaudhry, M., Sah, S. P., Sharma, I. P., & Mondal, S. (2021). Does offering only the spherical contact lens trial to the low astigmats mislead the practitioners? *International Journal of Ophthalmology*, 14(8), 1281-1284. doi:10.18240/ijo.2021.08.21
- Chhabra, A., Munjal, M., Mishra, P. C., Singh, K., Das, D., Kuhar, N., & Vats, M. (2021). Medical tourism in the COVID-19 era: Opportunities, challenges and the way ahead. *Worldwide Hospitality and Tourism Themes*, doi:10.1108/WHATT-05-2021-0078
- Chigurupati, S., Abdul Rahman Alharbi, N., Sharma, A. K., Alhowail, A., Vardharajula, V. R., Vijayabalan, S., . . . Amin, E. (2021). Pharmacological and pharmacognostical valuation of canna indica leaves extract by quantifying safety profile and neuroprotective potential. *Saudi Journal of Biological Sciences*, doi:10.1016/j.sjbs.2021.05.072
- Chiteka, K., Arora, R., & Jain, V. (2021). CFD prediction of dust deposition and installation parametric optimisation for soiling mitigation in non-tracking solar PV modules. *International Journal of Ambient Energy*, 42(11), 1307-1320. doi:10.1080/01430750.2019.1594373
- Chiteka, K., Arora, R., Sridhara, S. N., & Enweremadu, C. C. (2021). Influence of irradiance incidence angle and installation configuration on the deposition of dust and dust-shading of a photovoltaic array. *Energy*, 216 doi:10.1016/j.energy.2020.119289
- Chiteka, K., Arora, R., Sridhara, S. N., & Enweremadu, C. C. (2021). Optimizing wind barrier and photovoltaic array configuration in soiling mitigation. *Renewable Energy*, 163, 225-236. doi:10.1016/j.renene.2020.08.155
- Chugh, A., Sharma, V. K., Kumar, S., Nayyar, A., Qureshi, B., Bhatia, M. K., & Jain, C. (2021). Spider monkey crow optimization algorithm with deep learning for sentiment classification and information retrieval. *IEEE Access*, 9, 24249-24262. doi:10.1109/ACCESS.2021.3055507
- Chundawat, T. S., Verma, N., & Vaya, D. (2021). Development in synthesis and coating applications of polyurethane. *Journal of the Chilean Chemical Society*, 66(2), 5142-5148. doi:10.4067/S0717-97072021000205142
- Dagar, G., & Bagchi, G. (2021). Novel use of coactivators to enhance sensitivity of SEAP-based reporter assay system for visual monitoring and quantitation of androgens and antiandrogens in water. *Science of the Total Environment*, 771 doi:10.1016/j.scitotenv.2020.144514
- Das, A., Yadav, N., Manchala, S., Bungla, M., & Ganguli, A. K. (2021). Mechanistic investigations of growth of anisotropic nanostructures in reverse micelles. *ACS Omega*, 6(2), 1007-1029. doi:10.1021/acsomega.0c04033
- Deeba, F., Kumar, A., Mukherjee, M., Sharma, A. K., & Sharma, M. (2021). Targeting the endocannabinoid system in diabetes: Fact or fiction? *Drug Discovery Today*, doi:10.1016/j.drudis.2021.03.022
- Dhar, S., Singh, P., Singh, J., & Yadav, A. K. (2021). Optimization of discharge patterns in parkinson condition in external globus pallidus model of basal ganglia using particle swarm optimization algorithm doi:10.1007/978-981-15-5414-8_23 Retrieved from www.scopus.com
- Dhar, S., Singh, P., Singh, J., Yadav, A. K., & Yadav, S. (2021). Analysis of discharge patterns of subthalamic nucleus and external globus pallidus coupling in parkinson condition using particle swarm optimization algorithm. *Dynamics of Continuous, Discrete and Impulsive Systems Series B: Applications and Algorithms*, 28(1), 25-40. Retrieved from www.scopus.com
- Dhiman, S., Yadav, A., Debnath, N., & Das, S. (2021). Application of Core/Shell nanoparticles in smart farming: A paradigm shift for making the agriculture sector more sustainable. *Journal of Agricultural and Food Chemistry*, 69(11), 3267-3283. doi:10.1021/acs.jafc.0c05403
- Dhingra, D., Behera, K., Bhawna, & Pandey, S. (2021). Formation of water-in-oil microemulsions within a hydrophobic deep eutectic solvent. *Physical Chemistry Chemical Physics*, 23(17), 10629-10635. doi:10.1039/d0cp06716d
- Dudeja, J. P. (2021). Laser technology for analysis, cleaning and restoration of ancient painted artworks. *Lasers in Engineering*, 48(1), 1-15. Retrieved from www.scopus.com
- Dutta, J., & Devi, N. (2021). Preparation, optimization, and characterization of chitosan-sepiolite nanocomposite films for wound healing. *International Journal of Biological Macromolecules*, 186, 244-254. doi:10.1016/j.ijbiomac.2021.07.020
- Fatima, N. (2021). Solution of gas dynamic and wave equations with VIM doi:10.1007/978-981-15-4308-1_6 Retrieved from www.scopus.com
- Gandhi, D. H., Vaidya, F. U., Pathak, C., Patel, T. N., & Bhatt, B. S. (2021). Mechanistic insight of cell anti-proliferative activity of fluoroquinolone drug-based cu(II) complexes. *Molecular Diversity*, doi:10.1007/s11030-021-10199-2
- Gandhi, H., Tomar, A., & Singh, D. (2021). A predicted mathematical cancer tumor growth model of brain and its analytical solution by reduced differential transform method doi:10.1007/978-981-15-5414-8_17 Retrieved from www.scopus.com
- Gandhi, H., Tomar, A., & Singh, D. (2021). Lie symmetry analysis to general fifth-order time-fractional korteweg-de-vries equation and its explicit solution doi:10.1007/978-981-15-5414-8_16 Retrieved from www.scopus.com

- Garg, A., Negi, A., & Jindal, P. (2021). Structure preservation of image using an efficient content-aware image retargeting technique. *Signal, Image and Video Processing*, 15(1), 185-193. doi:10.1007/s11760-020-01736-x
- Ghosh, S. (2021). Immersed boundary simulations of fluid shear-induced deformation of a cantilever beam. *Mathematics and Computers in Simulation*, 185, 384-402. doi:10.1016/j.matcom.2021.01.001
- Grover, M., Behl, T., Virmani, T., Bhatia, S., Al-Harrasi, A., & Aleya, L. (2021). *Chrysopogon zizanioides*—a review on its pharmacognosy, chemical composition and pharmacological activities. *Environmental Science and Pollution Research*, doi:10.1007/s11356-021-15145-1
- Gu, T., Wan, F., Thakur, P., Thakur, A., Lalléchére, S., Rahajandraibe, W., & Ravelo, B. (2021). Dielectric resonator negative group delay circuit. *Radio Science*, 56(4) doi:10.1029/2020RS007254
- Gupta, A., Sharma, A., Singh, H., & Rajoria, C. S. (2021). Computational and statistical analysis on the U-tube heat exchanger with different passes configuration: Taguchi method. *Heat Transfer*, 50(2), 1712-1732. doi:10.1002/htj.21949
- Gupta, J., Rathour, R., Maheshwari, N., & Shekhar Thakur, I. (2021). Integrated analysis of whole genome sequencing and life cycle assessment for polyhydroxyalkanoates production by *Cupriavidus* sp. ISTL7. *Bioresource Technology*, 337 doi:10.1016/j.biortech.2021.125418
- Gupta, N., & Kumar, P. (2021). Elicitation of scattering parameters of dual-halo dual-dielectric triple-material surrounding gate (DH-DD-TM-SG) MOSFET for microwave frequency applications. *Advances in Electrical and Electronic Engineering*, 19(1), 66-73. doi:10.15598/aeer.v19i1.3788
- Gupta, R., Shah, J., Das, R., Saini, S., & Kotnala, R. K. (2021). Defect-mediated ionic hopping and green electricity generation in Al₂-xMg_xO₃-based hydroelectric cell. *Journal of Materials Science*, 56(2), 1600-1611. doi:10.1007/s10853-020-05280-4
- Gupta, V., Mani, N., & Sharma, A. (2021). Some novel fixed-point theorems in hausdorff spaces. *Journal of Applied Research and Technology*, 19(1), 35-40. doi:10.22201/icat.24486736e.2021.19.1.1490
- Hameed, S., Hans, S., Monasky, R., Thangamani, S., & Fatima, Z. (2021). Understanding human microbiota offers novel and promising therapeutic options against candida infections. *Pathogens*, 10(2), 1-15. doi:10.3390/pathogens10020183
- Hameed, S., Hans, S., Nandan, S., & Fatima, Z. (2021). Mechanistic insights into the antimycobacterial action of unani formulation, qurs sartan kafoori. *Journal of Traditional and Complementary Medicine*, doi:10.1016/j.jtcme.2021.07.009
- Hameed, S., Hans, S., Singh, S., Dhiman, R., Monasky, R., Pandey, R. P., . . . Fatima, Z. (2021). Revisiting the vital drivers and mechanisms of β -glucan masking in human fungal pathogen, candida albicans. *Pathogens*, 10(8) doi:10.3390/pathogens10080942
- Hans, S., Fatima, Z., & Hameed, S. (2021). Insights into the modulatory effect of magnesium on efflux mechanisms of candida albicans reveal inhibition of ATP binding cassette multidrug transporters and dysfunctional mitochondria. *BioMetals*, 34(2), 329-339. doi:10.1007/s10534-020-00282-w
- Hans, S., Fatima, Z., & Hameed, S. (2021). Metabolic fitness of candida albicans is indispensable for functional drug efflux, ergosterol, and chitin biosynthesis. *Current Medical Mycology*, 6(3), 9-14. doi:10.18502/CMM.6.3.3980
- Jain, M., Manju, Vij, A., & Thakur, A. (2021). Synthesis methods of spinel based luminescent materials. *Phosphors for display, forensic and biomedical application* (pp. 47-81) Retrieved from www.scopus.com
- Jain, S., Roy, S. B., Panda, J., & Rath, S. S. (2021). Modeling of land-use and land-cover change impact on summertime near-surface temperature variability over the Delhi–Mumbai industrial corridor. *Modeling Earth Systems and Environment*, 7(2), 1309-1319. doi:10.1007/s40808-020-00959-8
- Jaiswara, P. K., Gupta, V. K., Sonker, P., Rawat, S. G., Tiwari, R. K., Pathak, C., . . . Kumar, A. (2021). Nimbolide induces cell death in T lymphoma cells: Implication of altered apoptosis and glucose metabolism. *Environmental Toxicology*, 36(4), 628-641. doi:10.1002/tox.23067
- Jogi, S. P., Thaha, R., Rajan, S., Mahajan, V., Venugopal, V. K., Singh, A., & Mehndiratta, A. (2021). Model for in-vivo estimation of stiffness of tibiofemoral joint using MR imaging and FEM analysis. *Journal of Translational Medicine*, 19(1) doi:10.1186/s12967-021-02977-1
- Joon, A., Tyagi, R. K., & Chillar, K. (2021). Literature review: Predicting faults in object-oriented software doi:10.1007/978-981-15-9938-5_30 Retrieved from www.scopus.com
- Joon, I., Das, S., & Srivastava, C. M. (2021). Fabrication of metal-doped polymer to study its thermal and mechanical properties doi:10.1007/978-981-15-9678-0_3 Retrieved from www.scopus.com
- Joshi, S., Yadav, D., & Yadav, R. (2021). Fluoroquinolones: A review on anti-tubercular activity. *Monatshefte Fur Chemie*, doi:10.1007/s00706-021-02806-7
- Joshi, T., Sharma, R., Parkash, O., & Gupta, A. (2021). Design and analysis of metal-to-metal contact bolted flange joint using FEA tool doi:10.1007/978-981-33-4684-0_32 Retrieved from www.scopus.com
- Joshi, V. A., & Gupta, I. (2021). Assessing the impact of the COVID-19 pandemic on hospitality and tourism education in india and preparing for the new normal. *Worldwide Hospitality and Tourism Themes*, doi:10.1108/WHATT-05-2021-0068
- Kala, D., Sharma, T. K., Gupta, S., Verma, V., Thakur, A., Kaushal, A., . . . Trukhanov, S. V. (2021). Graphene oxide nanoparticles modified paper electrode as a biosensing platform for detection of the htra gene of *o. tsutsugamushi*. *Sensors*, 21(13) doi:10.3390/s21134366
- Kalpana, G., Prasad, D. P., & Manoranjan, M. (2021). Synthetic surface growth and its effect on ambient particulate matter in delhi-NCR region: A geospatial investigation. *Research Journal of Chemistry and Environment*, 25(1), 40-47. Retrieved from www.scopus.com
- Kant, S., Joshi, T., & Sharma, R. (2021). Modeling and analysis of composite bullet-resistant jacket doi:10.1007/978-981-33-4684-0_38 Retrieved from www.scopus.com
- Kanyowa, T., Victor Nyakujara, G., Ndala, E., & Das, S. (2021). Performance analysis of scheffler dish type solar thermal cooking system cooking 6000 meals per day. *Solar Energy*, 218, 563-570. doi:10.1016/j.solener.2021.03.019
- Karkra, S., Singh, P., Kaur, K., & Sharma, R. (2021). Deep learning architectures: A hierarchy in convolution neural network technologies doi:10.1007/978-981-15-5463-6_39 Retrieved from www.scopus.com
- Kaur, J., Kaur, J., Kapoor, S., & Singh, H. (2021). Design & development of customizable web API for interoperability of antimicrobial resistance data. *Scientific Reports*, 11(1) doi:10.1038/s41598-021-90601-z
- Kaur, K., & Kumar, A. (2021). Role of self phase modulation and cross phase modulation on quality of signal in optical links. *Recent Advances in Computer Science and Communications*, 14(1), 109-121. doi:10.2174/2666255813666191127105440
- Kaushik, A., & Thada, V. (2021). VG4 cipher: Digital image encryption standard. *International Journal of Advanced Computer Science and Applications*, 12(4), 127-133. doi:10.14569/IJACSA.2021.0120417
- Khandaka, H., Sharma, K. N., & Joshi, R. K. (2021). Aerobic cu and amine free sonogashira and stille couplings of aryl bromides/chlorides with a magnetically recoverable Fe₃O₄@SiO₂ immobilized pd(II)-thioether containing NHC. *Tetrahedron Letters*, 67 doi:10.1016/j.tetlet.2021.152844
- Khater, S., Kumar, P., Dasgupta, N., Das, G., Ray, S., & Prakash, A. (2021). Combining SARS-CoV-2 proofreading exonuclease and RNA-dependent RNA polymerase inhibitors as a strategy to combat COVID-19: A high-throughput in silico screening. *Frontiers in Microbiology*, 12 doi:10.3389/fmicb.2021.647693
- Kirtonia, A., Gala, K., Fernandes, S. G., Pandya, G., Pandey, A. K., Sethi, G., . . . Garg, M. (2021). Repurposing of drugs: An attractive pharmacological strategy for cancer therapeutics. *Seminars in Cancer Biology*, 68, 258-278. doi:10.1016/j.semcancer.2020.04.006
- Koul, R., Kumar, N., & Singh, R. C. (2021). A review on the production and physicochemical properties of renewable diesel and its comparison with biodiesel. *Energy Sources, Part A: Recovery, Utilization and Environmental Effects*, 43(18), 2235-2255. doi:10.1080/15567036.2019.1646355
- Koul, R., Kumar, N., & Singh, R. C. (2021). Emission characteristics of renewable diesel and its comparison with the diesel fuel on single-cylinder diesel engine doi:10.1007/978-981-16-0159-0_52 Retrieved from www.scopus.com
- Kumar, A., & Kaur, K. (2021). Impact of system parameters of optical fiber link on four wave mixing. *Recent Advances in Computer Science and Communications*, 14(1), 122-133.

- doi:10.2174/2666255813666191227143529
- Kumar, A., Pandit, V., & Nagaich, U. (2021). Preparation and evaluation of copper nanoparticles loaded hydrogel for burns. *International Journal of Applied Pharmaceutics*, 13(2), 180-189. doi:10.22159/ijap.2021v13i2.40558
 - Kumar, A., Sarkar, P., & Chattopadhyay, A. (2021). Metabolic depletion of sphingolipids reduces cell surface population of the human Serotonin1AReceptor due to impaired trafficking. *ACS Chemical Neuroscience*, 12(7), 1189-1196. doi:10.1021/acscchemneuro.1c00017
 - Kumar, D., Vaya, D., & Chundawat, T. S. (2021). Total synthesis of 6-hydroxymetatacarboline- d discovered from mycena metata via the pictet-spengler reaction followed by the horner-wadsworth-emmons reaction. *ACS Omega*, 6(13), 8933-8941. doi:10.1021/acsomega.0c06202
 - Kumar, G., Deep, A., Kumar, S., Nandal, R., Singh, I., Kaushik, M., . . . Wadhwa, D. (2021). Phytochemical screening, antimalarial, antioxidant, anti-inflammatory, and antimicrobial potential of ananas comosus extract. *Anti-Infective Agents*, 19(1), 49-56. doi:10.2174/2211352518999200429110222
 - Kumar, J., Kumar, R., Singh, M., Kumar, S., Kumar, R., Won, S. O., . . . Vij, A. (2021). Structural, diffuse reflectance and luminescence study of t-Mg₂B₂O₅ nanostructures. *Applied Physics A: Materials Science and Processing*, 127(8) doi:10.1007/s00339-021-04761-w
 - Kumar, K., & Chen, S. -. (2021). Multiattribute decision making based on converted decision matrices, probability density functions, and interval-valued intuitionistic fuzzy values. *Information Sciences*, 554, 313-324. doi:10.1016/j.ins.2020.12.029
 - Kumar, K., & Chen, S. -. (2021). Multiattribute decision making based on interval-valued intuitionistic fuzzy values, score function of connection numbers, and the set pair analysis theory. *Information Sciences*, 551, 100-112. doi:10.1016/j.ins.2020.11.032
 - Kumar, K., & Chen, S. -. (2021). Multiattribute decision making based on the improved intuitionistic fuzzy einstein weighted averaging operator of intuitionistic fuzzy values. *Information Sciences*, 568, 369-383. doi:10.1016/j.ins.2021.03.020
 - Kumar, K. N. S., Sharma, S., Mourad, A. -. I., & Sharma, P. B. (2021). A literature review for development of advanced composites materials by reinforcement of epoxy composites with graphene and natural silk doi:10.1007/978-981-33-6029-7_32 Retrieved from www.scopus.com
 - Kumar, M., & Ramamoorthy, M. (2021). A control technique based on TRFT for interconnection of smart DC and AC microgrids. *International Journal of Power and Energy Systems*, 41(3), 162-174. doi:10.2316/J.2021.203-0310
 - Kumar, M., Singh, A., Kumari, S., Kumar, P., Wasi, M., Mondal, A. K., . . . Prasad, R. (2021). Sphingolipidomics of drug resistant candida auris clinical isolates reveal distinct sphingolipid species signatures. *Biochimica Et Biophysica Acta - Molecular and Cell Biology of Lipids*, 1866(1) doi:10.1016/j.bbailip.2020.158815
 - Kumar, N., Khurana, S. M. P., & Pandey, V. N. (2021). Application of clove and dill oils as an alternative of salphos for chickpea food seed storage. *Scientific Reports*, 11(1) doi:10.1038/s41598-021-89936-4
 - Kumar, N., Shala, A. Y., & Paul Khurana, S. M. (2021). Antiviral and immuno-boosting potential of ashwagandha (withania somnifera l.). *Medicinal Plants*, 13(2), 237-244. doi:10.5958/0975-6892.2021.00026.5
 - Kumar, N., Sonthalia, A., Tomar, M., & Koul, R. (2021). An experimental investigation on spray, performance and emission of hydrotreated waste cooking oil blends in an agricultural engine. *International Journal of Engine Research*, 22(7), 2305-2317. doi:10.1177/1468087420928734
 - Kumar, P., & Dudeja, C. (2021). Shadowed type 2 fuzzy-based markov model to predict shortest path with optimized waiting time. *Soft Computing*, 25(2), 995-1005. doi:10.1007/s00500-020-05194-y
 - Kumar, P., Sah, A. K., Tripathi, G., Kashyap, A., Tripathi, A., Rao, R., . . . Kashyap, M. K. (2021). Role of ACE2 receptor and the landscape of treatment options from convalescent plasma therapy to the drug repurposing in COVID-19. *Molecular and Cellular Biochemistry*, 476(2), 553-574. doi:10.1007/s11010-020-03924-2
 - Kumar, P., Vashishath, M., & Gupta, N. (2021). Analytical modeling and performance analysis of surface potential for junctionless MOSFET. Paper presented at the *Journal of Physics: Conference Series*, 1916(1) doi:10.1088/1742-6596/1916/1/012026 Retrieved from www.scopus.com
 - Kumar, P., Vashishath, M., Gupta, N., & Gupta, R. (2021). Low power sub-threshold domino and gate. Paper presented at the *Journal of Physics: Conference Series*, , 1854(1) doi:10.1088/1742-6596/1854/1/012031 Retrieved from www.scopus.com
 - Kumar, S., Ashraf, M. U., Kumar, A., & Bae, Y. -. (2021). Therapeutic potential of microRNA against th2-associated immune disorders. *Current Topics in Medicinal Chemistry*, 21(8), 753-766. doi:10.2174/1568026621666210303150235
 - Kumar, S., Bhagat, D. S., & Bumrah, G. S. (2021). 1,2-indanedione (ind) reagent for the detection of latent fingerprints: A review. *Arab Journal of Forensic Sciences and Forensic Medicine*, 3(1), 77-93. doi:10.26735/NRYD9355
 - Kumar, V., Pandey, S., & Behera, K. (2021). Aggregation behavior of a model carbocyanine dye: Polar organic solvent versus ionic liquid mixture. *Journal of Molecular Liquids*, 322 doi:10.1016/j.molliq.2020.114985
 - Kumar, V., Srivastava, S., & Thakur, I. S. (2021). Enhanced recovery of polyhydroxyalkanoates from secondary wastewater sludge of sewage treatment plant: Analysis and process parameters optimization. *Bioresource Technology Reports*, 15 doi:10.1016/j.biteb.2021.100783
 - Kumari, A., Kumari, K., Ahmed, F., Alshoaibi, A., Alvi, P. A., Dalela, S., . . . Kumar, S. (2021). Influence of sm doping on structural, ferroelectric, electrical, optical and magnetic properties of BaTiO₃. *Vacuum*, 184 doi:10.1016/j.vacuum.2020.109872
 - Kumari, A., Kumari, K., Aljawfi, R. N., Alvi, P. A., Dalela, S., Ahmad, M. M., . . . Kumar, S. (2021). Role of la substitution on structural, optical, and multiferroic properties of BiFeO₃ nanoparticles. *Applied Nanoscience (Switzerland)*, doi:10.1007/s13204-021-01844-1
 - Kumari, G., Singh, V., Chhajer, B., & Jhingan, A. K. (2021). Effect of lifestyle intervention holistic approach on blood glucose levels, health-related quality of life and medical treatment cost in type 2 diabetes mellitus patients. *Acta Scientiarum - Health Sciences*, 43doi:10.4025/ACTASCIHEALTHSCI.V43I1.53729
 - Kumari, S., Kumar, M., Gaur, N. A., & Prasad, R. (2021). Multiple roles of ABC transporters in yeast. *Fungal Genetics and Biology*, 150 doi:10.1016/j.fgb.2021.103550
 - Kumari, S., Kumar, M., Khandelwal, N. K., Pandey, A. K., Bhakt, P., Kaur, R., . . . Gaur, N. A. (2021). A homologous overexpression system to study roles of drug transporters in candida glabrata. *FEMS Yeast Research*, 20(4) doi:10.1093/FEMSYR/FOAA032
 - Kumawat, S. (2021). Chinese postman problem: A petri net based approach doi:10.1007/978-981-15-7907-3_16 Retrieved from www.scopus.com
 - Kumawat, S., Dudeja, C., & Kumar, P. (2021). An extensive review of shortest path problem solving algorithms. Paper presented at the *Proceedings - 5th International Conference on Intelligent Computing and Control Systems*, ICICCS 2021, 176-184. doi:10.1109/ICICCS51141.2021.9432275 Retrieved from www.scopus.com
 - Lahariya, V., Pandey, K. K., & Dhoble, S. J. (2021). Structural characterization of starch capped ZnO nanoparticles. Paper presented at the *Journal of Physics: Conference Series*, , 1913(1) doi:10.1088/1742-6596/1913/1/012043 Retrieved from www.scopus.com
 - Lal, S., Shekher, A., Puneet, Narula, A. S., Abrahamse, H., & Gupta, S. C. (2021). Cannabis and its constituents for cancer: History, biogenesis, chemistry and pharmacological activities. *Pharmacological Research*, 163 doi:10.1016/j.phrs.2020.105302
 - Lal, S., & Snape, T. J. (2021). A therapeutic update on PARP inhibitors: Implications in the treatment of glioma. *Drug Discovery Today*, 26(2), 532-541. doi:10.1016/j.drudis.2020.10.029
 - Mahamood, M., Javed, M., Alhewairini, S. S., Zahir, F., Sah, A. K., & Ahmad, M. I. (2021). Labeo rohita, a bioindicator for water quality and associated biomarkers of heavy metal toxicity. *Npj Clean Water*, 4(1) doi:10.1038/s41545-021-00107-4
 - Malhotra, B., Kulkarni, G. T., Dhiman, N., Joshi, D. D., Chander, S., Kharkwal, A., . . . Kharkwal, H. (2021). Recent advances on berberis aristata emphasizing berberine alkaloid including phytochemistry, pharmacology and drug delivery system. *Journal of Herbal Medicine*, 27doi:10.1016/j.hermed.2021.100433
 - Malhotra, R., & Chandramowliswaran, N. (2021). Key distribution using graphs for secret sharing. *Turkish World Mathematical Society Journal of Applied and Engineering Mathematics*, 11, 63-74. Retrieved from www.scopus.com

- Malik, N., Gupta, S., Jaglan, V., & Vijarania, M. (2021). Searching sub-classes within type Ia supernova using DBSCAN doi:10.1007/978-981-16-3660-8_8 Retrieved from www.scopus.com
- Mandal, B., Madan, S., Ahmad, S., Sharma, A. K., & Ansari, M. H. R. (2021). Anti-urolithic efficacy of a phenolic rich ethyl acetate fraction of the aerial parts of *Aerva lanata* (Linn) Juss. ex Schult. in ethylene glycol induced urolithic rats. *The Journal of Pharmacy and Pharmacology*, 73(4), 560-572. doi:10.1093/jpp/rgaa071
- Mandpe, A., Yadav, N., Paliya, S., Tyagi, L., Ram Yadav, B., Singh, L., . . . Kumar, R. (2021). Exploring the synergic effect of fly ash and garbage enzymes on biotransformation of organic wastes in in-vessel composting system. *Bioresource Technology*, 322 doi:10.1016/j.biortech.2020.124557
- Manju, Jain, M., Vashishtha, P., Gupta, G., Sharma, A., Won, S. O., . . . Thakur, A. (2021). Switchable cool and cold white emission from dysprosium doped SrZnO₂. *Journal of Physics Condensed Matter*, 33(3) doi:10.1088/1361-648X/abbc9c
- Maruthi, M., & Kalangi, S. K. (2021). Advances in aggregation induced emission (AIE) materials in biosensing and imaging of bacteria doi:10.1016/bs.pmbts.2021.06.015 Retrieved from www.scopus.com
- Mehta, K., & Sharma, S. (2021). Analyzing employee perspectives on the impact of COVID-19 on sustainable practices: A study of five-star hotels in India. *Worldwide Hospitality and Tourism Themes*, doi:10.1108/WHATT-05-2021-0073
- Midha, S., & Tripathi, K. (2021). Extended security in heterogeneous distributed SDN architecture doi:10.1007/978-981-15-5341-7_75 Retrieved from www.scopus.com
- Midha, S., Tripathi, K., & Sharma, M. K. (2021). Practical implications of using dockers on virtualized SDN. *Webology*, 18(SpecialIssue1), 312-330. doi:10.14704/WEB/V18SI01/WEB18062
- Mishra, C. B., Mongre, R. K., Prakash, A., Jeon, R., Supuran, C. T., & Lee, M. -. (2021). Anti-breast cancer action of carbonic anhydrase IX inhibitor 4-[4-(4-benzo[1,3]dioxol-5-ylmethyl-piperazin-1-yl)-benzylidene-hydrazinocarbonyl]-benzenesulfonamide (BSM-0004): In vitro and in vivo studies. *Journal of Enzyme Inhibition and Medicinal Chemistry*, 36(1), 954-963. doi:10.1080/14756366.2021.1909580
- Mishra, C. B., Pandey, P., Sharma, R. D., Malik, M. Z., Mongre, R. K., Lynn, A. M., . . . Prakash, A. (2021). Identifying the natural polyphenol catechin as a multi-targeted agent against SARS-CoV-2 for the plausible therapy of COVID-19: An integrated computational approach. *Briefings in Bioinformatics*, 22(2), 1346-1360. doi:10.1093/bib/bbaa378
- Mishra, L., & Kaushik, V. (2021). Application of blockchain in dealing with sustainability issues and challenges of financial sector. *Journal of Sustainable Finance and Investment*, doi:10.1080/20430795.2021.1940805
- Momand, M. D., Khan Mohsin, M., & Ihsanulhaq. (2021). Machine learning-based multiple attack detection in RPL over IoT. Paper presented at the 2021 International Conference on Computer Communication and Informatics, ICCCI 2021, doi:10.1109/ICCCI50826.2021.9402388 Retrieved from www.scopus.com
- Morya, R., Kumar, M., Kumar, V., & Thakur, I. S. (2021). Biovalorization of lignin derived compounds with molasses as co-substrate for polyhydroxyalkanoate production. *Environmental Technology and Innovation*, 23 doi:10.1016/j.eti.2021.101695
- Morya, R., Kumar, M., & Shekhar Thakur, I. (2021). Bioconversion of syringyl lignin into malic acid by *Burkholderia* sp. ISTR5. *Bioresource Technology*, 330 doi:10.1016/j.biortech.2021.124981
- Morya, R., Kumar, M., & Thakur, I. S. (2021). Bioconversion of guaiacylglycerol- β -guaiacyl ether into vanillin by *Burkholderia* sp. ISTR5: A genomic and proteomic approach. *International Biodeterioration and Biodegradation*, 161 doi:10.1016/j.ibiod.2021.105231
- Mukherjee, T., Behl, T., Sehgal, A., Bhatia, S., Singh, H., & Bungau, S. (2021). Exploring the molecular role of endostatin in diabetic neuropathy. *Molecular Biology Reports*, 48(2), 1819-1836. doi:10.1007/s11033-021-06205-3
- Nanda, A., & Jatani, A. (2021). Analysis of breast cancer detection techniques using RapidMiner doi:10.1007/978-981-15-4992-2_1 Retrieved from www.scopus.com
- Narayanan, A., Vadnala, R. N., Ganguly, P., Selvakumar, P., Rudramurthy, S. M., Prasad, R., . . . Sanyal, K. (2021). Functional and comparative analysis of centromeres reveals clade-specific genome rearrangements in *Candida auris* and a chromosome number change in related species. *MBio*, 12(3) doi:10.1128/mBio.00905-21
- Negi, D. P., Abdul Azeez, E. P., Kaini, A., & Jabir, P. (2021). 'Forced to choose': Bacchara Women's experiences in sex work. *Sexuality and Culture*, doi:10.1007/s12119-021-09838-5
- Nirajan Kumar, Srivastava, R., Prakash, A., & Lynn, A. M. (2021). Virtual screening and free energy estimation for identifying mycobacterium tuberculosis flavoenzyme DprE1 inhibitors. *Journal of Molecular Graphics and Modelling*, 102 doi:10.1016/j.jmgm.2020.107770
- Oswal, P., Arora, A., Singh, S., Rao, G. K., Kumar, S., Singh, A. K., & Kumar, A. (2021). Easily synthesizable benzothiazole based designers palladium complexes for catalysis of Suzuki coupling: Controlling effect of aryl substituent of ligand on role and composition of insitu generated binary nanomaterial (PdS or Pd16S7). *Catalysis Communications*, 149 doi:10.1016/j.catcom.2020.106242
- Pal, S., Mehta, D., Dasgupta, U., & Bajaj, A. (2021). Advances in engineering of low molecular weight hydrogels for chemotherapeutic applications. *Biomedical Materials (Bristol)*, 16(2) doi:10.1088/1748-605X/abdce1
- Pandey, A., & Kulshrestha, R. (2021). Service blueprint 4.0: A service design for hotels beyond COVID-19. *Worldwide Hospitality and Tourism Themes*, doi:10.1108/WHATT-05-2021-0076
- Pandya, G., Kirtonia, A., Singh, A., Goel, A., Mohan, C. D., Rangappa, K. S., . . . Garg, M. (2021). A comprehensive review of the multifaceted role of the microbiota in human pancreatic carcinoma. *Seminars in Cancer Biology*, doi:10.1016/j.semcancer.2021.05.027
- Pani, T., Rajput, K., Kar, A., Sharma, H., Basak, R., Medatwal, N., . . . Dasgupta, U. (2021). Alternative splicing of ceramide synthase 2 alters levels of specific ceramides and modulates cancer cell proliferation and migration in luminal B breast cancer subtype. *Cell Death and Disease*, 12(2) doi:10.1038/s41419-021-03436-x
- Parkash, O., Kumar, A., & Sikarwar, B. S. (2021). CFD modeling of slurry pipeline at different prandtl numbers. *Journal of Thermal Engineering*, 7(4), 952-969. doi:10.18186/thermal.930932
- Patel, R., Singh, B., Sharma, A., Saraswat, J., Dohare, N., Parray, M. U. D., . . . Khan, A. A. (2021). Interaction and esterase activity of albumin serums with orphenadrine: A spectroscopic and computational approach. *Journal of Molecular Structure*, 1239 doi:10.1016/j.molstruc.2021.130522
- Pattanayak, S., Malik, F., & Verma, M. (2021). Viability of mobile phone cameras in professional broadcasting: A case study of camera efficiency of apple iPhone 11. Paper presented at the Proceedings of 2nd IEEE International Conference on Computational Intelligence and Knowledge Economy, ICCIKE 2021, 452-456. doi:10.1109/ICCIKE51210.2021.9410774 Retrieved from www.scopus.com
- Paul Khurana, S. M., & Kumar, N. (2021). Agricultural sustainability can be ensured by adopting dynamic plant pathology, pedagogy. *Indian Phytopathology*, 74(2), 509-518. doi:10.1007/s42360-021-00377-5
- Pradhan, S., Singh, H., & Parkarsha, O. (2021). Bending strength analysis of involute helical gear using FEA software doi:10.1007/978-981-33-4684-0_66 Retrieved from www.scopus.com
- Prakash, A., Kumar, V., Banerjee, A., Lynn, A. M., & Prasad, R. (2021). Structural heterogeneity in RNA recognition motif 2 (RRM2) of TAR DNA-binding protein 43 (TDP-43): Clue to amyotrophic lateral sclerosis. *Journal of Biomolecular Structure and Dynamics*, 39(1), 357-367. doi:10.1080/07391102.2020.1714481
- Prasad, D. P., Neenu, Y., & Kalpana, G. (2021). Climatic influence on aerosol distribution in a suburban national capital region, India. *Research Journal of Chemistry and Environment*, 24(11), 110-115. Retrieved from www.scopus.com
- Punia, P., Bharti, M. K., Chalia, S., Dhar, R., Ravelo, B., Thakur, P., & Thakur, A. (2021). Recent advances in synthesis, characterization, and applications of nanoparticles for contaminated water treatment- A review. *Ceramics International*, 47(2), 1526-1550. doi:10.1016/j.ceramint.2020.09.050
- Punia, P., Dhar, R., Ravelo, B., Trukhanov, A. V., Panina, L. V., Thakur, P., & Thakur, A. (2021). Microstructural, optical and magnetic study of Ni-Zn

- nanoferrites. *Journal of Superconductivity and Novel Magnetism*, doi:10.1007/s10948-021-05967-y
- Pursuwani, B. H., Bhatt, B. S., Raval, D. B., Thakkar, V. R., Sharma, J., Pathak, C., & Patel, M. N. (2021). Synthesis, characterization, and biological applications of pyrazole moiety bearing osmium(IV) complexes. *Nucleosides, Nucleotides and Nucleic Acids*, 40(6), 593-618. doi:10.1080/15257770.2021.1921795
 - Ramjiram Thakur, S., Naveen, B. P., & Tegar, J. P. (2021). Improvement in CBR value of soil reinforced with nonwoven geotextile sheets. *International Journal of Geo-Engineering*, 12(1) doi:10.1186/s40703-020-00138-9
 - Raul, B., Bhattacharjee, O., Tembhare, K., Khanna, T., Shaheen, T., Sinharoy, S., & Bandyopadhyay, K. (2021). Genome-wide identification of auxin response factors (ARFs) in three different species of arachis. *Plant Biotechnology Reports*, 15(2), 229-239. doi:10.1007/s11816-021-00671-8
 - Ravelo, B., Wan, F., Li, N., Xu, Z., Thakur, P., & Thakur, A. (2021). Diakoptics modelling applied to flying bird-shape NGD microstrip circuit. *IEEE Transactions on Circuits and Systems II: Express Briefs*, 68(2), 637-641. doi:10.1109/TCSII.2020.3012959
 - Reddy, B. S., Narayana, P. L., Maurya, A. K., Gupta, V., Reddy, Y. H., Alrefaei, A. F., . . . Reddy, N. S. (2021). Modeling cyclic volatile methylsiloxanes removal efficiency from wastewater by ZnO-coated aluminum anode using artificial neural networks. *Journal of King Saud University - Science*, 33(2) doi:10.1016/j.jksus.2020.101339
 - Ritika, A., Namrata, D., Rita, S., & Aman, J. (2021). Genome-wide evolutionary analysis of precursor sequences of MIR156 and MIR172 family members in brassica species. *Research Journal of Biotechnology*, 16(4), 81-92. Retrieved from www.scopus.com
 - Saha, S., Nandi, R., Vishwakarma, P., Prakash, A., & Kumar, D. (2021). Discovering potential RNA dependent RNA polymerase inhibitors as prospective drugs against COVID-19: An in silico approach. *Frontiers in Pharmacology*, 12 doi:10.3389/fphar.2021.634047
 - Saibabu, V., Fatima, Z., Khan, L. A., & Hameed, S. (2021). Mechanistic insights into the anticandidal action of vanillin reveal disruption of cell surface integrity and mitochondrial functioning. *Infectious Disorders - Drug Targets*, 21(3), 405-415. doi:10.2174/1871526520666200702134110
 - Saini, S., Sameer, Rana, A., & Yadav, B. (2021). Diatomological mapping of bhakra nangal damand pong dam (himachal pradesh, india). *Journal of South India Medicolegal Association*, 13(1), 1-5. Retrieved from www.scopus.com
 - Sanjeev, G. M., & Tiwari, S. (2021). Responding to the coronavirus pandemic: Emerging issues and challenges for indian hospitality and tourism businesses. *Worldwide Hospitality and Tourism Themes*, doi:10.1108/WHATT-06-2021-0088
 - Sarkar, A., Das, A., Ash, S., Shankar P N, R., Bhattacharyya, K., & Ganguli, A. K. (2021). Structural and magnetic properties of R_{0.5}Sr_{0.5}Fe_{0.5}Mn_{0.5}O₃ (R = gd, nd or pr) perovskites. *Journal of Alloys and Compounds*, 882 doi:10.1016/j.jallcom.2021.160747
 - Satvika, S., Thada, V., & Singh, J. (2021). A contemporary ensemble aspect-based opinion mining approach for twitter data. *International Journal of Advanced Computer Science and Applications*, 12(5), 196-202. doi:10.14569/IJACSA.2021.0120524
 - Saxena, P. (2021). Effectiveness of social media promotion for online shopping sites: A study on buying behavior of consumer. *Journal of Content, Community and Communication*, 13(7), 351-359. doi:10.31620/JCCC.06.21/29
 - Seth, B., Dalal, S., Le, D. -, Jaglan, V., Dahiya, N., Agrawal, A., . . . Verma, K. D. (2021). Secure cloud data storage system using hybrid paillierblowfish algorithm. *Computers, Materials and Continua*, 67(1), 779-798. doi:10.32604/cmc.2021.014466
 - Shahdeo, D., Kesarwani, V., Suhag, D., Ahmed, J., Alshehri, S. M., & Gandhi, S. (2021). Self-assembled chitosan polymer intercalating peptide functionalized gold nanoparticles as nanoprobe for efficient imaging of urokinase plasminogen activator receptor in cancer diagnostics. *Carbohydrate Polymers*, 266 doi:10.1016/j.carbpol.2021.118138
 - Shandilya, M., Kumar, G., Gomkale, R., Singh, S., Khan, M. A., Kateriya, S., & Kundu, S. (2021). Multiple putative methemoglobin reductases in *C. reinhardtii* may support enzymatic functions for its multiple hemoglobins. *International Journal of Biological Macromolecules*, 171, 465-479. doi:10.1016/j.ijbiomac.2021.01.023
 - Sharma, I. P., Bakshi, R., & Chaudhry, M. (2021). Corneal collagen cross-linking with and without simultaneous intrastromal corneal ring segment implantation: One-year pilot study. *European Journal of Ophthalmology*, 31(1), 61-68. doi:10.1177/1120672119887874
 - Sharma, J., Sharma, S. C., & Gahlot, A. (2021). Kinetic theory of effect of dust charge fluctuations on the parametric decay of lower hybrid wave instability by relativistic runaway electrons in tokamak. *Physics of Plasmas*, 28(4) doi:10.1063/5.0041282
 - Sharma, N., Arora, Y., & Makkar, P. (2021). Bitcoin cost prediction using neural networks doi:10.1007/978-981-15-7106-0_59 Retrieved from www.scopus.com
 - Sharma, N., Arora, Y., Makkar, P., Sharma, V., & Gupta, H. (2021). Real estate Price's forecasting through predictive modelling doi:10.1007/978-981-15-7106-0_58 Retrieved from www.scopus.com
 - Sharma, P., Kumari, S., Ghosh, D., Yadav, V., Vij, A., Rawat, P., . . . Majumder, S. (2021). Capping agent-induced variation of physicochemical and biological properties of α -Fe₂O₃ nanoparticles. *Materials Chemistry and Physics*, 258 doi:10.1016/j.matchemphys.2020.123899
 - Sharma, P., Singh, A., Singh, K. K., & Dhull, A. (2021). Vehicle identification using modified region based convolution network for intelligent transportation system. *Multimedia Tools and Applications*, doi:10.1007/s11042-020-10366-x
 - Sharma, P., Yadav, V., Kumari, S., Ghosh, D., Rawat, P., Vij, A., . . . Majumder, S. (2021). Deciphering the potent application of nanobentonite and α -Fe₂O₃/bentonite nanocomposite in dye removal: Revisiting the insights of adsorption mechanism. *Applied Nanoscience (Switzerland)*, doi:10.1007/s13204-021-01927-z
 - Sikka, P., Behl, T., Sharma, S., Sehgal, A., Bhatia, S., Al-Harrasi, A., . . . Aleya, L. (2021). Exploring the therapeutic potential of omega-3 fatty acids in depression. *Environmental Science and Pollution Research*, 28(32), 43021-43034. doi:10.1007/s11356-021-14884-5
 - Singh, A., Handa, M., Ruwali, M., Flora, S. J. S., Shukla, R., & Kesharwani, P. (2021). Nanocarrier mediated autophagy: An emerging trend for cancer therapy. *Process Biochemistry*, 109, 198-206. doi:10.1016/j.procbio.2021.07.011
 - Singh, A. K., & Patro, B. D. K. (2021). Security attacks on RFID and their countermeasures doi:10.1007/978-981-16-0980-0_49 Retrieved from www.scopus.com
 - Singh, M., Vaya, D., Kumar, R., & Das, B. K. (2021). Role of EDTA capped cobalt oxide nanomaterial in photocatalytic degradation of dyes. *Journal of the Serbian Chemical Society*, 86(3), 327-340. doi:10.2298/JSC200711074S
 - Singh, P., Gupta, N., & Rathi, R. (2021). Blood pattern analysis—a review and new findings. *Egyptian Journal of Forensic Sciences*, 11(1) doi:10.1186/s41935-021-00224-8
 - Singh, P., Kumar, R., Yadav, A. K., & Singh, K. (2021). Security analysis and modified attack algorithms for a nonlinear optical cryptosystem based on DRPE. *Optics and Lasers in Engineering*, 139 doi:10.1016/j.optlaseng.2020.106501
 - Singh, R., Kumar, N., Mehra, R., Walia, A., Kumar, H., Sharma, K., & Thakur, A. (2021). Colorimetric assay for visual determination of imidacloprid in water and fruit samples using asparagine modified gold nanoparticles. *Journal of the Iranian Chemical Society*, doi:10.1007/s13738-021-02334-5
 - Singh, R., Mehra, R., Walia, A., Gupta, S., Chawla, P., kumar, H., . . . Kumar, N. (2021). Colorimetric sensing approaches based on silver nanoparticles aggregation for determination of toxic metal ions in water sample: A review. *International Journal of Environmental Analytical Chemistry*, doi:10.1080/03067319.2021.1873315
 - Singh, V., Kumar, K., Purohit, D., Verma, R., Pandey, P., Bhatia, S., . . . Kaushik, D. (2021). Exploration of therapeutic applicability and different signaling mechanism of various phytopharmacological agents for treatment of breast cancer. *Biomedicine and Pharmacotherapy*, 139 doi:10.1016/j.biopha.2021.111584
 - Singhal, C., Bruno, J. G., Kaushal, A., & Sharma, T. K. (2021). Recent advances and a roadmap to aptamer-based sensors for bloodstream infections. *ACS Applied Bio Materials*, 4(5), 3962-3984. doi:10.1021/acsabm.0c01358
 - Sinha, S., Dhamiwal, A., & Sharma, P. (2021). Cluster-based approaches for energy efficiency in wireless sensor network doi:10.1007/978-981-33-4501-0_61 Retrieved from www.scopus.com
 - Sonbawne, S. M., Devara, P. C. S., & Bhojar, P. D. (2021). Multisite characterization of concurrent black carbon and biomass burning around COVID-19

- lockdown period. *Urban Climate*, 39 doi:10.1016/j.uclim.2021.100929
- Sreekanth, V., Kar, A., Kumar, S., Pal, S., Yadav, P., Sharma, Y., . . . Bajaj, A. (2021). Bile acid tethered docetaxel-based nanomicelles mitigate tumor progression through epigenetic changes. *Angewandte Chemie - International Edition*, 60(10), 5394-5399. doi:10.1002/anie.202015173
 - Srivastava, A. K., Bhojar, P. D., Kanawade, V. P., Devara, P. C. S., Thomas, A., & Soni, V. K. (2021). Improved air quality during COVID-19 at an urban megacity over the indo-gangetic basin: From stringent to relaxed lockdown phases. *Urban Climate*, 36 doi:10.1016/j.uclim.2021.100791
 - Taneja, G., Sharma, A. K., Khanna, D., & Rajput, S. K. (2021). Effect of pantoprazole on I-R-induced myocardial injury in diabetic rats targeting inflammatory cytokine release and oxidative stress. *Iranian Journal of Basic Medical Sciences*, 24(5), 615-622. doi:10.22038/IJBMS.2021.51624.11714
 - Taneja, S., Chahar, D., Thakur, P., & Thakur, A. (2021). Influence of bismuth doping on structural, electrical and dielectric properties of Ni-Zn nanoferrites. *Journal of Alloys and Compounds*, 859 doi:10.1016/j.jallcom.2020.157760
 - Thaha, R., Jogi, S. P., Rajan, S., Mahajan, V., Mehndiratta, A., & Singh, A. (2021). A semi-automatic framework based upon quantitative analysis of MR-images for classification of femur cartilage into asymptomatic, early OA, and advanced-OA groups. *Journal of Orthopaedic Research*, doi:10.1002/jor.25109
 - Thakur, P., Taneja, S., Chahar, D., Ravelo, B., & Thakur, A. (2021). Recent advances on synthesis, characterization and high frequency applications of ni-zn ferrite nanoparticles. *Journal of Magnetism and Magnetic Materials*, 530 doi:10.1016/j.jmmm.2021.167925
 - Thapa, R., Sai, K., Saha, D., Kushwaha, D., Aswal, V. K., Ghosh Moulick, R., . . . Bhattaharya, J. (2021). Synthesis and characterization of a nanoemulsion system for solubility enhancement of poorly water soluble non-steroidal anti-inflammatory drugs. *Journal of Molecular Liquids*, 334 doi:10.1016/j.molliq.2021.115998
 - Tiwari, S., & Sanjeev, G. M. (2021). Conclusion: Emerging issues for indian hospitality and tourism businesses: How are managers responding to the COVID-19 pandemic? *Worldwide Hospitality and Tourism Themes*, doi:10.1108/WHATT-06-2021-0085
 - Tripathi, A., Kashyap, A., Tripathi, G., Yadav, J., Bibban, R., Aggarwal, N., . . . Kashyap, M. K. (2021). Tumor reversion: A dream or a reality. *Biomarker Research*, 9(1) doi:10.1186/s40364-021-00280-1
 - Tripathy, G., Goswami, S., & Das, P. P. (2021). Late permian species diversity of the genus glossopteris in and around himgir, ib river basin, odisha, india, with a clue on palaeoclimate and palaeoenvironment. *Arabian Journal of Geosciences*, 14(8) doi:10.1007/s12517-021-07019-0
 - Vats, M., Bhardwaj, S., & Chhabra, A. (2021). Green synthesis of copper oxide nanoparticles using cucumis sativus (cucumber) extracts and their biophysical and biochemical characterization for cosmetic and dermatologic applications. *Endocrine, Metabolic and Immune Disorders - Drug Targets*, 21(4), 726-733. doi:10.2174/1871530320666200705212107
 - Verma, M., Mitan, M., Kim, H., & Vaya, D. (2021). Efficient photocatalytic degradation of malachite green dye using facilely synthesized cobalt oxide nanomaterials using citric acid and oleic acid. *Journal of Physics and Chemistry of Solids*, 155 doi:10.1016/j.jpcs.2021.110125
 - Verma, M., Tyagi, I., Kumar, V., Goel, S., Vaya, D., & Kim, H. (2021). Fabrication of GO-MnO₂ nanocomposite using hydrothermal process for cationic and anionic dyes adsorption: Kinetics, isotherm, and reusability. *Journal of Environmental Chemical Engineering*, 9(5) doi:10.1016/j.jece.2021.106045
 - Verma, R. M. (2021). Digital media and the academic world. *Journal of Content, Community and Communication*, 13(7), 1-1. doi:10.31620/JCCC.06.21/01
 - Vishwakarma, P., Meena, N. K., Prasad, R., Lynn, A. M., & Banerjee, A. (2021). ABC-finder: A containerized web server for the identification and topology prediction of ABC proteins. *Biochimica Et Biophysica Acta - Biomembranes*, 1863(8) doi:10.1016/j.bbamem.2021.183640
 - Waghela, B. N., Vaidya, F. U., & Pathak, C. (2021). Upregulation of NOX-2 and nrf-2 promotes 5-fluorouracil resistance of human colon carcinoma (HCT-116) cells. *Biochemistry (Moscow)*, 86(3), 262-274. doi:10.1134/S0006297921030044
 - Wahengbam, K., Singh, M. P., Nongmeikapam, K., & Singh, A. D. (2021). A group decision optimization analogy-based deep learning architecture for multiclass pathology classification in a voice signal. *IEEE Sensors Journal*, 21(6), 8100-8116. doi:10.1109/JSEN.2021.3049277
 - Wan, F., Gu, T., Lallechere, S., Thakur, P., Thakura, A., Rahajandraibe, W., & Ravelo, B. (2021). Design and test of innovative three couplers-based bandpass negative group delay active circuit. *IEEE Design and Test*, doi:10.1109/MDAT.2021.3079178
 - Yadav, A., Das, S., Biswas, S., Yadav, A., & Debnath, N. (2021). Effect of synthetic route in particle size distribution of zinc oxide, silver and carbon nanoparticles and its role in controlling phytopathogenic fungus alternaria solani. *Archives of Phytopathology and Plant Protection*, doi:10.1080/03235408.2021.1936868
 - Yadav, B., Pal, S., Rubstov, Y., Goel, A., Garg, M., Pavlyukov, M., & Pandey, A. K. (2021). LncRNAs associated with glioblastoma: From transcriptional noise to novel regulators with a promising role in therapeutics. *Molecular Therapy - Nucleic Acids*, 24, 728-742. doi:10.1016/j.omtn.2021.03.018
 - Yadav, P., Suroolia, P. K., & Vaya, D. (2021). Synthesis and application of copper ferrite-graphene oxide nanocomposite photocatalyst for the degradation of malachite green. Paper presented at the *Materials Today: Proceedings*, , 43 2949-2953. doi:10.1016/j.matpr.2021.01.301 Retrieved from www.scopus.com
 - Yepuri, V., Dubey, R. S., & Kumar, B. (2021). Prohibition of infrared electromagnetic waves through optical coatings on plain glasses. Paper presented at the *Materials Today: Proceedings*, 45 2883-2886. doi:10.1016/j.matpr.2020.11.857 Retrieved from www.scopus.com
 - Zaidi, B., Shekhar, C., Gagui, S., Kamli, K., Hadeef, Z., Hadjoudja, B., & Chouial, B. (2021). Annealing and hydrogenation effects on the electrical properties of polysilicon thin films. *Nanosistemi, Nanomateriali, Nanotehnologii*, 19(1), 133-138. Retrieved from www.scopus.com
 - Zaidi, B., Shekhar, C., Hadjoudja, B., Gagui, S., & Saeed, M. A. (2021). Efficiency enhancement of transition metal dichalcogenide based solar cells. *Transactions on Electrical and Electronic Materials*, doi:10.1007/s42341-021-00284-

GLIMPSE OF KEY EVENTS



Molecular Medicine Conference "From Bench to Bedside and Beyond"



Sensitization seminar on Good Laboratory Practice for Students 10th and 11th June 2019



LMS Training Program 1-July 2019 - 3-July-2019



Conference on Mediating Multilingualism: An Indo-Scottish International Colloquium (18-19 March-19)



National Conference On Forensic Science And Crime Scene Investigation Competition – 2019 (18th-19th October 2019)



Faculty Development Program On Environmental Laws And Policy Development 4 July 2019



Conference Biannual Meeting-AUH Chapter, Protein Society India 18-Jan-20



Webinar Future of Litigation in India and e-Courts 08 May 2020, Webinar Judicial Independence vis-à-vis Judicial Activism/outreach 3 June 2020, Safety Of Women With Rising Cyber Crimes' Webinar 19-May-20



Webinar The Environment in the post COVID world 17-Jun-20



An International Symposium on Current trends in Computational Biology & Data Science 04/11/2020



Webinar Towards a Compassionate and Peaceful World 26-Jun-20, Advances in Cancer Biology: Basic to Translational Research Webinar 30-Oct-20



NATIONAL WEBINAR

Advances in Cancer Biology: Basic to Translational Research

DATE: OCTOBER 30, 2020 (FRIDAY) TIME: 4.45 - 7.15 PM

SPEAKERS	CHAIRMAN	CONVENOR
Prof. Gopal C Kumbh Dr. Sanjay Gupta Dr. Suresh Chaudhri	Prof. Rajendra Prasad	Dr. Chandrajani Pathak
PANELISTS	ORGANISERS	
Dr. Gargi Bagchi Dr. Manjiv Singh Dr. Vijini Deshpande	Dr. Anil Kumar Pandey Dr. Manjiv Singh	

AMITY UNIVERSITY HARYANA

WORLD CANCER DAY

WEBINAR

CANCER PREVENTION & THERAPY

AMITY INSTITUTE OF BIOTECHNOLOGY
AMITY UNIVERSITY HARYANA, GURGAON

APPLICATION OF NOVEL GOLD NANOSTRUCTURE FOR PHOTOTHERMAL THERAPY IN CANCER
4th Feb 2021

Symposium on Data Science and its Industrial Applications 15/04/2021

Advancements and Modern Innovations in Engineering and Technology (AMIET – 2020) Conference 15-Sep-20

AMITY INSTITUTE OF BIOTECHNOLOGY
AMITY INSTITUTE OF INTEGRATIVE SCIENCES AND HEALTH

FDP Multidimensionality in Forensic Science Education Dec 26 to Dec 30, 2020.

National Conference (Virtual)
Advancements and Modern Innovations in Engineering and Technology (AMIET – 2020) 15-09-2020

National Conference On Forensic Science and Crime Scene Investigation Competition – 2019 (18th-19th October 2019)

Webinar Use of ICT and Youth for Agriculture Development: Need of the Hour April 08th, 2021