

Prasun Kumar, Ph.D.

Research Scientist



About

Dr. Prasun Kumar holds a Ph.D. in Biotechnology from CSIR-Institute of Genomics and Integrative Biology, Delhi, India. He is presently working as a Research Scientist at MNR-FRI, Telangana. Previously he worked as a Scientific Officer at DBT-IOC Center for Advanced Bioenergy Research, Faridabad. He has over seven years of experience in applied microbiological research including about 2 years of experience in industrial R&D. His main areas of research are biopolymers, microbial biodiversity, bioenergy, microbial biofilms, quorum sensing, quorum quenching, and genomics. He has strong research experience in various bio-products – Polyhydroxyalkanoates, Biolipids, Astaxanthin, Enzymes and Bio-hydrogen at lab and pilot scale. Developed fungal mutants and process for high titer hydrolytic enzyme production (continuous culture) using rice straw for on-site applications. Good knowledge on analytical instruments (HPLC, LC-MS, FTIR, UV-Vis and fluorescence, and optical microscopy) and characterization techniques. Good experience in project handling, management with team members and providing the time targeted deliverables. He has worked with 5, 30 and 150 Liter scale bioreactors, and industrial spray dryer. To his credit, there are over 35 articles in SCI journals, 7 books, and 16 chapters with international publishers. He has been serving the scientific society by reviewing articles for several SCI journals and delivering guest lectures. Publons awarded him the peer review award in the year 2018. He also serves as the editorial board member of a few international journals.

Experience

- 7+ Years

Qualification

- Ph.D Biotechnology

Awards and Recognition

- 2018 Publons Best Reviewer Award in the area of Biosciences- Clarivate Analytics (Web of Science group)
- 2016 D.S.Kothari-Postdoc fellowship by University Grant Commission, Government of India

- 2015 Prof. J.V. Bhatt Best Paper Award by Association of Microbiologists of India (AMI), India
- 2015 DST Travel grant by Dept. of Science & Technology, Govt. of India
- 2013 Best Poster award in 54th Annual Conference of AMI by Association of Microbiologists of India (AMI), India
- 2009 Qualified NET (National Eligibility Test), CSIR, India.



Selected Publications

[Google Scholar](#)

- S Sankhyan, **P Kumar***, M Sonkar, S Pandit, N Ranjan, S Ray (2024). Characterization of biosurfactant produced through co-utilization of substrates by the novel strain *Pseudomonas aeruginosa* NG4. ***Biocatalysis and Agricultural Biotechnology***, 102988.
- S Ray, C Kuppam, S Pandit, **P Kumar*** (2023). Biogas Upgrading by Hydrogenotrophic Methanogens: An Overview. ***Waste and Biomass Valorization***, 14:537–552
- **P Kumar**, JH Lee, J Lee (2021). Diverse roles of microbial indole compounds in eukaryotic systems. ***Biological Reviews***, 96(6):2522-2545.
- **P Kumar**, JH Lee, H Beyenal, J Lee (2020). Fatty acids as antibiofilm and antivirulence agents. ***Trends in Microbiology*** 28(9):753-768.
- **P Kumar**, BS Kim. (2018) Valorization of polyhydroxyalkanoates production process by co-synthesis of value-added products. ***Bioresource Technology*** 269:544-556
- **P Kumar**, K Chandrasekhar, A Kumari, E Sathiyamoorthi, BS Kim. (2018) Electro-fermentation in aid of bioenergy and biopolymers. ***Energies*** 11 (2), 343.
- **P Kumar**, HB Jun, BS Kim. (2018) Co-production of polyhydroxyalkanoates and carotenoids through bioconversion of glycerol by *Paracoccus* sp. strain LL1. ***International Journal of Biological Macromolecules*** 107:2552-2558.
- **P Kumar**, S Ray, VC Kalia. (2016) Production of co-polymers of polyhydroxyalkanoates by regulating the hydrolysis of biowastes. ***Bioresource Technology*** 200:413–419.
- **P Kumar**, S Ray, SKS Patel, JK Lee, VC Kalia. (2015) Bioconversion of crude glycerol to polyhydroxy-yalkanoate by *Bacillus thuringiensis* under non-limiting nitrogen conditions. ***International Journal of Biological Macromolecules*** 78:9-16.
- **P Kumar**, R Sharma, S Ray, S Mehariya, SKS Patel, JK Lee, VC Kalia. (2015) Dark fermentative bioconversion of glycerol to hydrogen by *Bacillus thuringiensis*. ***Bioresource Technology*** 182:383-388.

- SKS Patel, **P Kumar**, M Singh, JK Lee, VC Kalia. (2015) Integrative approach to produce hydrogen and polyhydroxybutyrate from biowaste using defined bacterial cultures. *Bioresource Technology* 176:136-141.
- **P Kumar**, DC Pant, S Mehariya, R Sharma, A Kansal, VC Kalia. (2014) Ecobiotechnological strategy to enhance efficiency of bioconversion of wastes into hydrogen and methane. *Indian Journal of Microbiology* 54(3):262-267.
- **P Kumar**, M Singh, S Mehariya, SKS Patel, JK Lee, VC Kalia. (2014) Ecobiotechnological approach for exploiting the abilities of *Bacillus* to produce co-polymer of polyhydroxyalkanoate. *Indian Journal of Microbiology* 54(2):151-157.
- **P Kumar**, SKS Patel, JK Lee, VC Kalia. (2013) Extending the limits of *Bacillus* for novel biotechnological applications. *Biotechnology Advances* 31:1543-1561.

□ Conferences

- Invited to deliver an oral talk at “Practical Approaches of Bioinformatics: Basics to Advanced (PABA 2023)” organized by Department of Biotechnology, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh from 16th to 20th March, 2023.
- Invited to deliver an oral talk at “INTERNATIONAL e- CONFERENCE ON FRONTIERS IN INDUSTRIAL BIOTECHNOLOGY” (ICFIBT2020) organized by the Dept. of Biotech. St. Joseph’s College of Engineering, OMR, Chennai during 27th - 29th July, 2020.
- Invited to deliver an oral talk at Jamia Millia Islamia University, Delhi, India (27th November 2018).
- Invited to deliver an oral talk at Central University of Jharkhand, Ranchi, India (13th March 2018).
- XVth BRSI Convention, 22-25th November 2018, CSIR-IICT, Hyderabad, India
- 56th Annual Conference of AMI, 7-10th December 2015, JNU, New Delhi, India.
- 54th Annual Conference of AMI, 17-20th November 2013, MDU, Rohtak, India.
- 53rd Annual Conference of AMI, 22-25 November 2012, KIIT University, Bhubaneswar, India.
- MTC-IARI “Beneficial soil nematode biodiversity for managing insect pests and promoting agricultural sustainability” held at IARI, Delhi from 18-25th February 2014.
- “Discovery and genomic analysis of viruses infecting non-pathogenic *Mycobacterium*” held at DCRUST, Murthal from 20th February to 2nd March 2012.
- “Environmental and biosafety related issues in the field of biotechnology”, held at KIIT University, 29-30th September 2007.

Invited/Oral Talks

1. Invited to deliver an oral talk on "Biological Databases and Primer Designing" in Five Days Online National Workshop on "Practical Approaches of Bioinformatics: Basics to Advanced (PABA 2023)" organized by Department of Biotechnology, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh from 16th to 20th March, 2023.
2. Invited as a speaker to deliver a talk on "Common techniques and software used to communicate academic works" in the first Faculty Development Program organized by AIUSVVV Academic and Administrative Development Centre (AADC) on "Improving Teaching Learning Process through Technical Interventions" from 09-20th January 2023 organized by Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore.
3. Invited to deliver an oral talk on "Polyhydroxyalkanoates - Natural polyester" Online at "INTERNATIONAL e- CONFERENCE ON FRONTIERS IN INDUSTRIAL BIOTECHNOLOGY" (ICFIBT2020) on 28th July 2020 sponsored by AICTE, New Delhi, organized by the Dept. of Biotech. St. Joseph's College of Engineering, OMR, Chennai during 27th - 29th July, 2020.
4. Invited to deliver an oral talk on Online during one week e-FDP cum Workshop entitled "Waste-to-Bioenergy" on 28th June, 2020 organized by Sharda University, NCR, India and Maharashtra Institute of Technology, Aurangabad, India during 28th June - 04th July 2020.
5. Invited to deliver an oral talk on "Synthesis of organic polymers through the microbial conversion of inexpensive wastes" at Jamia Millia Islamia University, Delhi, India (27th November 2018).
6. Invited to deliver an oral talk on "Bioconversion of glycerol into copolymers of polyhydroxyalkanoate and carotenoids by *Paracoccus* sp. strain LL1" at Central University of Jharkhand, Ranchi, India (13th March 2018).
7. Invited to deliver oral talk on "Synthesis of bio-based polymers through the bioconversion of inexpensive wastes" at Ardour – 2018 event organized by BIOTS, BIT-Mesra, Ranchi, Jharkhand.

Certifications/Membership

- Life member of "The Biotech Research Society, INDIA".
- Life member of "Association of Microbiologist of INDIA".
- Life member of "The Indian Science Congress Association (ISCA)"
- Member of "Portuguese Society of Microbiology (SPM)"



Area of Interest

Kumar's lab is equipped with facilities for microbiological and molecular biology research. His research work is oriented toward valorizing lignocellulosic biowastes into value-added products such as:

- Microbial Biofilm, Quorum Sensing (QS), QS Inhibition
- In silico genomics for identification of genetic markers

- Microbial Diversity for Bioactive compounds, Bioenergy, and Biopolymers
- Fungal strain development - Cellulases and ligninolytic enzymes
- Bioconversion of Wastes to High-value Products
- Biomaterials based sensors

Ongoing Projects

- Integrating PHA production with astaxanthin and bioelectrochemical systems for maximum energy recovery
- Enzyme mimetic nanoparticles loaded with antibiofilm agents against *Acinetobacter baumannii*