



Faculty Profile
Ram Lal Anand College, University of Delhi
Accredited by NAAC with A+ Grade
ISO 21001: 2018 and ISO 9001: 2015
NIRF 2025 AI Rank - 90



Title	Dr.	Name :	Sunila	
Department		Microbiology		
Designation		Assistant Professor		
Phone				
Email		Sunilahooda@gmail.com sunilahooda.micro@rla.du.ac.in		
Institutional Web page		https://rlacollege.edu.in/pdf-profile/microbiology/Microbiology_Sunila_Profile.pdf		
Google Scholar ID		https://scholar.google.com/citations?hl=en&user=SyAQ-4gAAAAJ		
Research Gate ID		https://www.researchgate.net/profile/Sunila-Hooda		
ORCID ID		https://orcid.org/0000-0002-8768-8367		
Scopus ID		57204089696		
Researcher ID		rid145995		
Vidwan ID		https://vidwan.inflibnet.ac.in/profile/394453		
Educational Qualifications				
Degree		Institution	Year	
Ph.D Biotechnology		Guru Gobind Singh Indraprastha University, New Delhi	2004-2011	

M.Sc Microbiology	Kurukshetra University, Kurukshetra	2000-2002			
Permanent/ Temporary/ Contractual/ Adhoc Teaching Experience					
Designation	Institution	Duration	From	To	Nature
Assistant Professor	Ram Lal Anand College, University of Delhi	—	11.04.2023	Till Date	Permanent
Assistant Professor	Ram Lal Anand College, University of Delhi	7.2 years	18.01.2016	10.04.2023	Ad-hoc
Industry Experience (If any)					
Designation	Company	Duration	From	To	
Research Experience					
Designation	Institution	From	To		
Principal Investigator (DBT-BioCARE)	School of Biotechnology, GGS Indraprastha University, New Delhi	Nov 2012	Jan 2016		
Research Associate	School of Biotechnology, GGS Indraprastha University, New Delhi	Sep 2010	Oct 2012		
Administrative Assignments					
Current: 1. Co-convener, criterion 6, NAAC Cycle II Steering Committee 2. Co-convener, College Event Management & Function Committee (2025-26) 3. Co-convener Yoga and Meditation Society (2025-26) 4. Member, Prospectus and Annual Report Committee (2025-26) 5. Internal auditor ISO Committee (2023-24), Conducted Pre-audit of all the departments and committees of the college for ISO 210001: 2018 6. Member Secretary, Institutional Biosafety Committee (IBSC), RLAC (2025-26) Previous: Co-convener, Prospectus Committee (2023-24; 2022-23) Convener, Mikrobiologika (2022-23 & 2024-25) Convener, Yoga and Meditation Society (2020-21)					

Member, Advisory Committee, DBT-Star College Scheme- RLA College (2020-2023) In addition, Member of various committees including Counseling and Placement Cell, Functions Committee, Alumni Committee, Women Welfare Advisory Committee, Debate and Quiz Society for the last ten years
Areas of Interest / Specialisation
1. Applied Microbiology and Functional Genomics 2. Microbial Biodegradation, Cyanobacteria
Subjects Taught
Bioinformatics, Molecular Biology, Bacteriology, Biosafety and Intellectual Property Rights, Instrumentation and Bio –techniques, Scientific Writing and Communications, Yoga Philosophy and Practice
Research Guidance (if any)
● Co-Supervisor, M. Tech thesis on “In-vivo and in-vitro interaction studies of NtcB and PII in <i>Arthrosira platensis</i> PCC 7345” submitted by Sunaina Verma, GGS Indraprastha University, Delhi ● Guided 8 students under DBT Star College Summer project “To perform genome sequence analysis for heavy metal resistance genes of bacteria by using bioinformatics tools” (1 June to 31st July 2020) ● Co-Supervised JRF in ICMR Funded Project: Ms. Shashi Prabha Kumari ● Guided 12 students in CRG project (2020-25) ● Supervising 4 students (4th Year Research Project)
Research Projects (Major Grants/Research Collaboration)
Ongoing Project: 1. Decoding the brain microbiome connection: Exploring the interplay of gut microbiota and mitochondrial dysfunction for development of novel biomarkers for Parkinson's disease. ICMR, Government of India, 3 years (2025-2028), PI: Dr. Nidhi Verma, Co-PI:Dr. Sunila

Completed Projects :

1. Resistome metagenomic profiling of bioaerosols in the metro network in Delhi- NCR (Principal Investigator: Prof. R.K. Gupta, Co-investigators: **Dr Sunila**, Dr Prerna Diwan), INR 56 Lacs, 3 years (2021-2024). Funded by ICMR, Government of India.
2. DBT funded research project on "Molecular characterization of nitrate response and N metabolism in *A. platensis*" of 25.95 lakhs, (2012-2016), **PI: Dr. Sunila**
3. DBT- BBSRC UK funded research project on "Newton-Bhabha Virtual Centre on Nitrogen Efficiency of Whole-cropping Systems for improved performance and resilience in agriculture (NEWS India-UK)" as **Co-PI: Dr. Sunila** (2016-2018), 17 June 2016 – 16 Dec 2019
4. Isolation and screening of plastic degrading bacteria from soils collected from different landfill sites of Delhi, CRG Project 2020-22, **PI: Dr. Sunila**
5. Exploring the plastic degradation potential of microbial consortium isolated from landfill sites in Delhi, CRG project 2023-24. **PI: Dr. Sunila**

Internships Conducted:

2024-25: Satyam Shahi, Varsha Rai, Amrita Varshney, Disha Mendhe, Muskan (B.Sc Hons Microbiology, II year) on Scientific writing

2023-2024: Sakshi Verma (B.Sc Hons Microbiology, III year) on “Peroxidases in Plastic Degradation: Microbial Insights”

Publications

1. Kumari, S. P., **Hooda, S.**, Diwan, P., & Gupta, R. K. (2025). Seasonal variations and functional insights into the urban air microbiome across public transit environments at railway stations in Delhi, India. *Science of The Total Environment*, 1009, 181062. <https://doi.org/10.1016/j.scitotenv.2025.181062>. Impact Factor-8.0.
2. Kumari, S. P., Podia, M., **Hooda, S.**, Diwan, P., & Gupta, R. K. (2024). An efficient method for isolating bacterial DNA from bioaerosols for metagenomics. *Aerosol Science and Technology*, 1– 13. <https://doi.org/10.1080/02786826.2024.2410037> Impact Factor – 2.8
3. **Hooda, S.**, Malik, G., Saini, P., Grewall, A., & Pandey, V. C. (2023). Cyanobacteria as a potential bioasset for restoring degraded land. *Land Degradation & Development*, 1– 16. <https://doi.org/10.1002/ldr.4711>
4. Bahuguna, M, **Hooda, S.**, Mohan L, Gupta RK, Diwan P. (2023) Identifying oral microbiome alterations in adult betel quid chewing population of Delhi, India. *PLOS ONE* 18(1): e0278221. <https://doi.org/10.1371/journal.pone.0278221>
5. Saini, P., Grewall, A. **Hooda, S.** (2022). In silico approach for identification of polyethyleneterephthalate hydrolase (PETase)-like enzymes. *Bioremediation Journal*, <https://doi.org/10.1080/10889868.2022.2054931>

6. Moring, A, **Hooda, S.**, Raghuram, N., Adhya, T.K. et al (2021). Nitrogen challenges and opportunities for agricultural and environmental science in India. *Frontiers in Sustainable Food Systems*, 5, 505347. doi: 10.3389/fsufs.2021.505347
7. **Lochab, S.**, Kumar, P.A. and Raghuram N. (2014). Molecular characterization of nitrate uptake and assimilatory pathway in *Arthrospira platensis* reveals nitrate induction and differential regulation. *Arch. Microbiol.* DOI 10.1007/s00203-014-0973-3.
8. Pathak, R.R and **Lochab, S.** (2010). A method for rapid isolation of total RNA of high purity and yield from *Arthrospira platensis*. *Canadian J. of Microbiol.* 56(7): 578-584.
9. **Lochab, S.**, Oberoi, H.S., Gothwal, M., Abbey, D. and Raghuram N. (2009). Nitrate assimilatory enzymes are more thermotolerant in *Spirulina (Arthrospira) platensis* than rice. *Physiol Mol Biol Plants* 15 (3): 277-280.
10. Pathak, R.R., Ahmad, A., **Lochab, S.** and Raghuram, N. (2008). Molecular physiology of plant N-use efficiency and biotechnological options for its enhancement. *Curr. Sci.* 94 (11): 1394-1403

Conference Proceedings:

1. Verma, Shikha & Kumawat, Hemraj & Sharan, Aditi & **Hooda, Sunila** & Verma, Nidhi. (2025). Unveiling Biomedical Insights: A Semantic Pipeline from Document Entities to Knowledge Graph Analysis of Hallmarks of Cancer. *Procedia Computer Science*. 258. 2200-2209. 10.1016/j.procs.2025.04.470.
2. Amrita Varshney, Syed Sahil Al Farish, Swati Mishra, Swagata Karmakar, Shalini Swami, and **Sunila Hooda** (2025). Synergistic Bioremediation of Plastics by Delhi Landfill Microbial Consortium: A Step Towards Sustainability (Accepted for publication in e proceedings)

Patents

Indian Patent Applied: 1

A Method for Extracting Metagenomic DNA from Bioaerosols, Application Number – 202411010372, Date 11/12/2024, Shashi Prabha Kumari, Mansi Podia, **Sunila Hooda**, Prerna Diwan and Rakesh Kumar Gupta.

Chapters in books and e-chapters (Published)

1. Raina, D., Kumar, D., Khata, A. S., Marwah, M., **Hooda, S.**, Swami, S. (2025). Mountainous Water Resources: Understanding Microbial Dynamics, Ecological Resilience, and Sustainable Management Strategies amidst Climatic Challenges. *Water Resources Management in Mountain Regions*, In: *Water Resources Management in Mountain Regions*, Editor(s): Virendra Bahadur Singh, pp pp181-206. Online ISBN:978-1-394-24958-9, John Wiley & Sons, Inc, <https://doi.org/10.1002/9781394249619.ch10>
2. Podia, Mansi, Yadav, Prerna, **Hooda, Sunila**, Diwan, Prerna, Gupta, Rakesh (2023). Microbial Weathering of Rocks in Natural Habitat: Genetic Basis and Omics-Based Exploration. In Singh VB, Madhav S, Pant PC, Shekhar R (Eds). *Weathering and Erosion Processes in the Natural Environment*, PP 265-302, Wiley, ISBN: 978-1-394-15735-8: 10.1002/9781394157365.ch11.

3. **Hooda S**, George AJ, Sharma V, Gupta V. (2023) Mycotoxins: Detection Methods and Strategies for Management, In: Fungal Resources for Sustainable Economy, Editor: Singh I, Chapter 19, pp:509-530, Springer International DOI: <https://doi.org/10.1007/978-981-19-9103-5>. ISBN 978- 981-19-9105-9
4. Khurana, R., Maurya, M., Swami, S., **Hooda, S.** (2022). Anticancer Compounds from Selected Medicinal Plants: An update, In: Medicinal Plants: Ethnomedicine, Pharmacognosy and Therapeutic Values, Editor(s): (AmitaSharma, Garima Malik, Sanyogita Kumar, pp: 182-205, ISBN: 978-93-90879-31-1, Anu Books, India., DOI: <https://doi.org/10.31995/Book.AB220-A22>.
5. Malik, G., **Hooda, S.**, Majeed, S., Pandey, VC (2022). Understanding assisted phytoremediation: Potential tools to enhance plant performance, In: Assisted Phytoremediation, Editor(s): Vimal Pandey, Elsevier, 2022, Pages 1-24, ISBN 9780128228937, <https://doi.org/10.1016/B978-0-12-822893-7.00015-X>
6. Malik, G., Chugh, S., **Hooda, S.**, Chaturvedi, R. (2022). Plant Growth Promoting Rhizobacteria (PGPR)-Assisted Phytoremediation of Contaminated Soils. In: Singh, A.K., Tripathi, V., Shukla, A.K., Kumar, P. (eds) Bacterial Endophytes for Sustainable Agriculture and Environmental Management. Springer, Singapore. Pp71-93, Print ISBN: 978-981-16-4496-2, Online ISBN: 978-981-16-4497-9 https://doi.org/10.1007/978-981-16-4497-9_4
7. Malik, G., Chaturvedi, R, **Hooda, S.** (2021). Role of herbivore-associated molecular patterns (hamps) in modulating plant defenses. In: Singh I.K., Singh A. (eds) Plant-Pest Interactions: From molecular mechanisms to chemical ecology. Springer, Singapore. ISBN (978-981-15-2466-0), Online ISBN (978-981-15-2467-7). https://doi.org/10.1007/978-981-15-2467-7_1
8. Malik G., Singh N., **Hooda S.** (2020). Nitrogen Stress in Plants and the Role of Phytomicrobiome. In: Kumar M., Kumar V., Prasad R. (eds) Phyto-Microbiome in Stress Regulation. Environmental and Microbial Biotechnology, Springer, Singapore Print ISBN: 978-981-15-2575-9, Online ISBN: 978-981-15- 2576-6
9. Sutton, M. A., Drewer, J., Moring, A., Adhya, T., Ahmad A., Bhatia, A., Brownlie, W., Dragosits, U., Ghude, S. D., Hillier, J., **Hooda, S.**, ... and Raghuram, N. (2018). The Indian nitrogen challenge in a global perspective. In: The Indian Nitrogen Assessment: Sources of Reactive Nitrogen, Environmental and Climate Effects, Management Options, and Policies...: Abrol, Y. P., Adhya, T. K., Aneja, V. P., Raghuram, N., Pathak, H., Kulshrestha, U., Sharma, C. and Singh, B. (Eds) Elsevier, UK. ISBN: 978-0-12-811836-8. Pp. 9-28
10. Pathak, R.R., **Lochab, S.** and Raghuram N (2011). Improving nitrogen use efficiency. In: Comprehensive Biotechnology 2nd Edition **Vol 4**, pp.209-218, Elsevier, Oxford. ISBN: 978-0-08-088504- 9
11. **Lochab, S.**, Ali, A. Jha, P., Sharma, V., Abbey, D. and Raghuram, N. (2010). Assay methods for nitrate assimilatory enzymes in *Spirulina (Arthrospira)*. In Protocols in Algal Research, Bagchi, S.N. Mohanty, P. and Kleinber, D. (Eds). Narosa, pp.179-189. ISBN: 978-81-8487-059-6.
12. **Lochab, S.**, Pathak, R. R. and Raghuram, N. (2007). Molecular approaches for enhancement of nitrogen use efficiency in plants. In Agricultural Nitrogen use & its Environmental Implications, Y.P. Abrol, N. Raghuram and M.S. Sachdev (Eds). IK International, Delhi. Pp. 327-350. ISBN: 978-81-8986

Sequence submissions in GenBank (NCBI): 16

Conference Organisation/ Presentations

Invited talks:

1. Resource Person, “one-week Hands-on workshop on Basic Techniques in Microbiology jointly organized by Ram Lal Anand College, Centre for Innovation in Infectious Disease Research, Education and training (CIIDRET) & Delhi School for Skill Enhancement & Entrepreneurship Development (IoE- DSSEED), University of Delhi”, 17 December- 23 December 2022. Title of the talks: 1) Sterilization techniques ii) Instruments used in Microbiology laboratory
2. Resource Person, “Referencing using EndNote & Mendeley” in the certificate course on ‘Scientific writing & Research Ethics’” organised by Ram Lal Anand College, University of Delhi, on 24th July 2020 .
3. Resource person, International Conference on “Changing Environment: Understanding the Emerging Challenges and their Management Strategies” 10th-12th April, 2019 Conference Centre, North Campus, University Enclave, Organized by Kalindi College, University of Delhi. Title of the talk “The Arthrosipra model of nitrogen stress: signals from metabolism”
4. Resource person, Ist - DBT BioCARE Conclave: Women Scientists achieving greater heights” from 8th-9th March 2019 NIPGR, New Delhi. Title of the talk “Molecular characterization of nitrate assimilation and protein productivity”
5. Resource person, 5 Days INSET program for Eco club In charge Teachers, SCERT New Delhi, 26-27 July 2013.
6. Resource person, 5 Days INSET program for Eco club In charge Teachers, SCERT New Delhi, 11-13th October 2012.

Conference Paper/Poster presentations:

1. Kumari S. P., Podia, M., **Hooda, S.** Diwan, P. and Gupta R.K. (2023). A strategy for efficient air sampling and metagenomic DNA extraction in 63rd Annual International Conference of Association of Microbiologists of India (AMI) “Microbial technologies for sustainable biosphere” held from 2nd to 4th February 2023 at Rohtak, India.
2. Multifaceted approach of GC-MS, pharmacokinetics, and molecular docking for questing novel antibacterials: profiling *Parmotrema perlatum* extract, targeting *Acinetobacter baumannii* and *Klebsiella pneumoniae* of ESKAPE Group. In an International Conference "Global Perspectives of Medicinal Plants: Traditional system of medicine to Nano-medicine" organized by Ramjas College, University of Delhi from 20-21 March 2025.
3. Podia, M., **Hooda, S.** Diwan, P. and Gupta R.K. (2023). Mapping of air microbiome in OPDs of government hospitals through metagenomics approach: A special emphasis to resistance in 63rd Annual International Conference of Association of Microbiologists of India (AMI) “Microbial technologies for sustainable biosphere” held from 2nd to 4th February 2023 at Rohtak, India
4. Yadav P., **Hooda, S.**, Gupta R.K. and Diwan, P. (2023). Whole metagenome sequencing based analysis of water from urban STP to assess community characteristics and resistance gene

repertoire in 63rd Annual International Conference of Association of Microbiologists of India (AMI) “Microbial technologies for sustainable biosphere” held from 2nd to 4th February, 2023 at Rohtak, India

5. Saini, P. Grewall, A. and **Hooda, S.** (2021). *In Silico* approach for identification of potential plastic degrading bacteria, International Conference “The World Microbe Forum 2021” organized online by ASM and FEMS from 20-24 June 2021.
6. **Hooda, S.**, Raghuram, N. (2018). Prospects of developing *Arthrospira (Spirulina) platensis* as a bioremediation tool for potable water sources. National Conference on “Strategies to Mitigate the Effects of Climate Change: Steps Towards Sustainable Development” 8-9 December, 2017 at Maharaja Agrasen University, Baddi, District Solan, H.P.
7. Sharma S, Akanksha, Joshi M, Chopra U, Sharma A, Barik V, Mehta S, Jyoti N, Rashmi, Sharma SK, Gupta V, **Hooda Sand Gupta RK.** Occurrence of carbapenem and multidrug resistant Gram positive bacteria in air of overcrowded subway metro stations in Delhi, India. 57th Annual Conference and International Symposium of Association of Microbiologists of India, Guwahati, Assam, 24-27 November 2016.
8. Sharma S, Akanksha, Joshi M, Chopra U, Sharma A, Barik V, Mehta S, Jyoti N, Rashmi, Sharma SK, Gupta V, **Hooda Sand Gupta RK.** Dissemination of antimicrobial resistance among aeromicroflora of Delhi environment: a serious public health implication. International Conference on Strategies for Environmental Protection and Management (ICSEPM-2016), JNU, New Delhi, 11-13 December, 2016.
9. **Lochab, S.**, Angmo, S., Singh N., Mishra, S. and Raghuram, N. (2015). Understanding the role of PII protein in *Arthrospira platensis* PCC 7345. 6th Congress of European Microbiologists, FEMS 2015, 7th-11th June 2015 in Maastricht, Netherlands.

Awards and Distinctions

1. DBT travel grant June 2015 (DBT/CTEP/02/201500409)
2. Awarded Bio-CARE fellowship (November 2012)
3. Assistant Editor of the Springer journal (Physiology and Molecular Biology of Plants)
4. CSIR RA /SRF extended from September 2010- October 2012.
5. Qualified the CSIR/UGC-NET examination for the JRF in December 2002.

Association With Professional Bodies

1. Assistant Editor, Springer journal (Physiology and Molecular Biology of Plants) since 2009
2. Association of Microbiologists of India (AMI) – Life Member
3. Society for conservation of Nature (SCON) – Life Member
4. Probiotic Society of India (PAI) – Life Member
5. Member, British Society for Antimicrobial Chemotherapy since 1 January 2021
6. Life member, MBSI

Other Activities

Refresher course/Orientation/ Professional Course/ NPTEL course attended:

1. Five-Day Online Faculty Development Programme on "Cyber Forensics Tools and Techniques" held from 4 August 2025 to 8 August 2025, organized by Ram Lal Anand College, University of Delhi, under the MeitY-funded project "Cyber Forensic Framework for User-Centric Human Threat Intelligence".
2. 1st online Refresher Course (Interdisciplinary) Programme - "Integrating Global Perspectives: Addressing Environmental, Cultural, and Economic Challenges through Sustainable Development and Knowledge Systems" from 27-1-2025 to 8-2-2025 (2 week).
3. 2-week online NEP Orientation & Sensitization Programme held from 19th December 2023 – 29th December 2023 under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission (UGC) Organized by Centre for Professional Development in Higher Education (UGC-MMTTC), University of Delhi.
4. Attended the Inaugural Ceremony of Faculty Induction Programme "NEP2020: Pedagogical Imperatives of Higher Education" on 1 December' 2023 in Sports Complex, University of Delhi.
5. 4-Week Faculty Induction/Orientation Programme for "Faculty in Universities/Colleges/Institutes of Higher Education" from 23 April – 22 May, 2023 with Grade A+.
6. Completed certificate course on "Internal Auditor Training Program on ISO 21001:2018" from 17th April 2023 to 18th April 2023 by Centre of Assessments for Excellence (COAE) International, Certificate no: EOMS-IA-OS/274.
7. Certificate Course on "Bioinformatics Methods I", 8 weeks, 27th May 2020, University of Toronto, Canada on Coursera.
8. Certificate Course on Bioinformatics Methods II, 4 weeks, 18th June 2020, an online non-credit course authorized by University of Toronto, Coursera.
9. Certificate Course on Plant Bioinformatics, 6 weeks, July 13, 2020, an online non-credit course authorized by University of Toronto, Coursera.
10. Certificate Course on Antimicrobial resistance - theory and methods, 5 weeks, 11th July 2020, an online non-credit course authorized by Technical University of Denmark (DTU), Coursera.
11. Certificate Course on Biohacking Your Brain's Health, 4 weeks, August 3, 2020 an online non-credit course authorized by Emory University, Coursera.
12. Certificate Course on "Whole genome sequencing of bacterial genomes tools and applications" 5 weeks, 24 May 2020, Offered by Technical University of Denmark on Coursera.

13. NPTEL online certification on Biomedical Nanotechnology, 4 weeks (Aug-Sep 2019), NPTEL.
14. NPTEL Mentor certificate, Computer aided drug design, July-Dec 2019 **NPTEL SWAYAM**.
15. Certificate course on “Emerging respiratory viruses, including COVID-19: Methods for detection, prevention, response and control”, April 20, 2020, **Open WHO**.
16. Certificate course on “Presentation Skills: Designing Presentation Slides”, 4 weeks, 15th May 2020, offered by National Research Tomsk State University, Russia on **Coursera**.
17. Certificate Course on “Severe Acute Respiratory Infection (SARI) Treatment Facility Design”, 21st April 2020, **Open WHO**.

Dr. Sunila

Signature of Faculty Member