



Faculty Profile
Ram Lal Anand College, University of Delhi
Accredited by NAAC with A+ Grade
ISO 21001: 2018 and ISO 9001 : 2015
NIRF Rank #90 (All India)



Title	Dr.	Name :	Rakesh Kumar Gupta	
Department	Microbiology			
Designation	Principal - Professor			
Phone	011-24112557			
Email	rgupta1965@yahoo.com			
Institutional Web page	https://rlacollege.edu.in/images/Prof%20Rakesh%20Gupta%20Profile.pdf			
Google Scholar ID	https://scholar.google.co.in/citations?hl=en&user=m1jSM0YAAAAJ			
Research Gate ID	https://www.researchgate.net/profile/Rakesh-Gupta-65/research			
ORCID ID	https://orcid.org/0000-0002-6051-8923			
Scopus ID	57225893329			
Researcher ID	rid59175			
Vidwan ID	https://vidwan.inflibnet.ac.in/profile/404064			
Educational Qualifications				
Degree	Institution			Year
Ph.D Microbiology	NATIONAL DAIRY RESEARCH INSTITUTE (ICAR), KARNAL, HARYANA			1991
M.Sc Microbiology	NATIONAL DAIRY RESEARCH INSTITUTE (ICAR), KARNAL, HARYANA			1987
Permanent/ Temporary/ Contractual/ Adhoc Teaching Experience				

Designation	Institution	Duration	From	To	Nature
Principal-Professor	Ram Lal Anand College, University of Delhi		19.03.2018	Till Date	Permanent
Principal (Officiating)	Ram Lal Anand College, University of Delhi	1 Year, 3 Months, 17 Days	01.12.2016	18.03.2018	Permanent
Associate Professor	Ram Lal Anand College, University of Delhi	10 Years	2006	2016	Permanent
Reader	Ram Lal Anand College, University of Delhi	6 Years	2000	2006	Permanent
Lecturer	Ram Lal Anand College, University of Delhi	9 Years	1991	2000	Permanent
Industry Experience (If any)					
Designation	Company	Duration	From	To	
Research Experience					
Designation	Institution	From	To		
Post Doctorate Research Fellow	Centre for Environmental Biotechnology and Department of Microbiology, University of Tennessee, Knoxville, TN, USA		1999-2002		
Administrative Assignments					
1. Member, Academic Committee, IMTech-CSIR, Chandigarh 2. Academic Council Member – 2019-2021, University of Delhi 3. Member, Standing Committee on Academic Matters of the Academic Council, University of Delhi, 2021. 4. UGC Member of Curriculum Development Committee for B.Sc (H) Microbiology syllabus under CBCS: 2014-15					
Areas of Interest / Specialisation					
1. Molecular Biology and Recombinant DNA Technology 2. Applied Microbiology, Environmental Metagenomics					

Subjects Taught
Molecular Biology, Industrial Microbiology, Food and Dairy Microbiology
Research Guidance (if any)
Two research scholars pursuing PhD
Research Projects (Major Grants/Research Collaboration)
10 with funding of 2.6 Crores from DST, ICMR, DBT, DU and ICSSR; 09 projects completed; 01 project ongoing.
Ongoing Project:
Sustainable livelihood enhancement of SC communities in Chainpura Tehsil of Niwai, Rajasthan (Principal Investigator: Dr Perna Diwan, Co-investigator: Prof. R.K. Gupta , Prof Sanjay Kumar, Dr Nidhi Yadav, Mr Siddharth Gupta), INR 69,75,678/-, 2.5 Years (2023-2026), Funded by Department of Science and Technology (DST), GoI.
Completed Projects :
1. Assessment and Monitoring of Depth of Anaesthesia using Explainable AI (Principal Investigator: Dr Neeraj Kumar Sharma, Co-Investigators: Prof. R K Gupta, Prof. Sanjeev Sharma), INR 18.50 Lacs, 1.5 Years (2022-2024). Funded by ICMR, Government of India 2. Resistome metagenomic profiling of bioaerosols in the metro network in Delhi- NCR (Principal Investigator: Prof. R.K. Gupta, Co-investigators: Dr Sunila, Dr Perna Diwan), INR 56 Lacs, 3 years (2021-2024). Funded by ICMR, Government of India. 3. Targeting biofilm formation by inhibiting the cysteine biosynthesis pathway enzymes in ESKAPE pathogens with natural products (Principal Investigator: Prof. R K Gupta, Co-investigators: Dr Vibha Gupta, Dr Perna Diwan), INR 45 Lacs, 3 years (2021-2024). Funded by ICMR, Government of India. 4. Alterations in oral microbiome of Betel nut chewing population of North Eastern India and its Correlation with Oral Cancers: Prospecting Microbial Consortium for Therapeutic Effect (Principal Investigator: Dr Perna Diwan; Co-investigators: Prof. R.K. Gupta, Dr James Wahlang, INR 36 Lacs, 3 years (2019-2022). Funded by ICMR, Government of India. 5. Communicating the science behind the phenomenon of antibiotic resistance to promote social awareness (Principal Investigator: Dr Perna Diwan; Co-investigators: Dr R K Gupta), INR 5 Lacs, 2 years (2019-2021), IMPRESS- ICSSR, Government of India. 6. Betel Nut Chewing Induced Genotoxic Changes–Evaluation and Awareness Study in Young Population of North Eastern State of India (Principal Investigator: Dr Perna Diwan; Co-Investigator: Dr R K Gupta), INR 8.00 Lacs, one Year (2018-19). Funded by the Department of Biotechnology, Government of India.

7. Delhi University Innovation project for Colleges entitled “Dissemination of Antibiotic Resistance among Airborne Bacteria and its Public Health Implications” for the year 2015-16. INR 6 Lacs.
8. Delhi University Innovation project for Colleges entitled “Potable water in Delhi and NCR – Assessment of quality, resources and remediation” for the year 2013-15. INR 5 Lacs.
9. Delhi University Innovation project for Colleges entitled “Delineation of Groundwater Potential and Potable Quality in and around South Campus (University of Delhi) Ridge Area” for the year 2012-2013 in association with the Geology Department. INR 10 Lacs.

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. Swagata Karmakar, Paromita Mukherjee, Vandana Mishra, Rakesh Kumar Gupta, Rohit Kumar, Pankaj Srivastava, Radhey Shyam Sharma (2024). Microhabitat influences on phage-bacteria dynamics in an abandoned mine for ecorestoration, *Journal of Environmental Management*, 370, 122659. Impact Factor – 8.0. <https://doi.org/10.1016/j.jenvman.2024.122659>.
4. Perna Yadav, Shashi Prabha Kumari, Sunila Hooda, Rakesh Kumar Gupta, Perna Diwan (2024). Comparative assessment of microbiome and resistome of influent and effluent of sewage treatment plant and common effluent treatment plant located in Delhi, India using shotgun approach. *Journal of Environmental Management*, 369, 122342. Impact Factor – 8.0. <https://doi.org/10.1016/j.jenvman.2024.122342>.
5. Neeraj Kumar Sharma, Shakeena Shahid, Subodh Kumar, Sanjeev Sharma, Naveen Kumar, Tanya Gupta, Rakesh Kumar Gupta (2024). "XAI-VSDoA: An Explainable AI-Based Scheme Using Vital Signs to Assess Depth of Anesthesia," *IEEE Access*, 12, 119185-119206. Impact Factor – 3.557. <https://doi.org/10.1109/ACCESS.2024.3449704>.
6. Mody Deepansh, Joshi Priyanka, Antil Monika, Gupta K. Rakesh, Gupta Vibha (2024). Insights into Kinases of ESKAPE Pathogens for Therapeutic Interventions. *Cardiovascular & Hematological Agents in Medicinal Chemistry*; 22 (3): e230124225995. Scopus Listed. <https://doi.org/10.2174/0118715257267497231128093529>
7. Mohan, Lalit,; Anand, Shaubhik,; Mittal, Muskan,; Goyal, Keshav,; Akanksha,; Dixit, Aman,; Gupta, Rakesh,; Jain, Rita,; Diwan, Perna (2023). Cross-sectional study: knowledge assessment of youth regarding the global public health threat of antibiotic resistance. *Journal of Public Health*. 1-10. <https://doi.org/10.1007/s10389-023-02179-7> Impact Factor: 1.8

8. Diwan, P.; Nirwan, M.; Bahuguna, M.; Kumari, S.P.; Wahlang, J.; Gupta, R.K. (2023). Evaluating Alterations of the Oral Microbiome and Its Link to Oral Cancer among Betel Quid Chewers: Prospecting Reversal through Probiotic Intervention. *Pathogens*, 12, 996. <https://doi.org/10.3390/pathogens1208099> Impact Factor: 3.7.
9. 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>. Impact Factor: 3.752
10. Kundu, A., Antil, M., Rana, S., Diwan, P., Gupta, R.K., & Gupta, V (2022). Surveillance of two Noida drains for assessing the presence of carbapenem-resistant ESKAPE bacteria. *International Journal of Health Sciences*, 1658-7774 <https://doi.org/10.53730/ijhs.v6nS1.8615>.
11. Dwivedi V, Gupta RK, Gupta A, Chaudhary VK, Gupta S, Gupta V. (2022). Repurposing Novel Antagonists to p7 Viroporin of HCV Using in silico Approach. *Letters in drug design and discovery*; 19. <https://dx.doi.org/10.2174/1570180819666220124112150> Impact Factor: 1.15.
12. Snigdha, S., Bajwa, T., Anand, S., Mohan L., Goyal, K., Mittal, M., Gupta, K.R., Wahlang, J. Gupta, R. K. and Diwan, P. (2021). A Cross-sectional Study on Prevalence of Betel nut Chewing Among the Youth of Meghalaya, North East Region of India: Development of Multifaceted Prevention Strategy: Prevalence of Betel Nut Chewing Among the Youth of Meghalaya” *Asian Pacific Journal of Health Sciences*, 8(3), 185-190. ISSN 2350-0964; E-ISSN 2349-0659 (UGC care listed).
13. Deval H, Katoch K, Chauhan DS, Tyagi AK, Gupta RK, Kamal R, Kumar A, Yadav VS, Katoch VM and T. Hussain (2016), TlyA protein of *Mycobacterium leprae*: a probable bio-marker of active infection, *Leprosy Review*, Vol. 87 (4). Impact Factor: 0.537.
14. Kaur J., Kaur S., Dashora V., Chaudhary Y., Nijhawan P., Saini S., Dabas M., Sharma K., Aggarwal R., Gupta V., Singh R., Pande P., Sharma SK., John S., Gupta RK. (2015) Microbiological and Physico-Chemical Quality of Groundwater at a Resettlement Colony, Madanpur Khadar in Delhi, India. *DU Journal of Undergraduate Research and Innovation*: 1 (3), 26-38.
15. Puri RV, Singh N, Gupta RK, Tyagi AK (2013) Endonuclease IV Is the Major Apurinic/Apyrimidinic Endonuclease in *Mycobacterium tuberculosis* and Is Important for Protection against Oxidative Damage. *PLoS ONE* 8(8): e71535. Impact Factor: 3.752
16. Khare G., Gupta V., Nangpal P., Gupta R.K., Sauter N.K. and Tyagi A.K. (2011). Ferritin Structure from *Mycobacterium tuberculosis*: Comparative Study with Homologues identifies Extended C-terminus involved in Ferroxidase Activity. *PLoS One*, 4(6):e18570. Impact Factor: 3.752
17. Gupta V, Gupta R.K., Khare G., Salunke D.M., Surolia, A., Tyagi, A.K. (2010) Structural ordering of disordered ligand binding loops of biotin protein ligase into active confirmation as a consequence of dehydration. *PloS One*, 5(2): e9222. # These authors contributed equally to this work. Impact Factor: 3.752
18. Khare G., Gupta V., Gupta R.K., Gupta R, Bhat R., Tyagi, A.K. (2009) Dissecting the Role of Critical Residues and Substrate Preference of a Fatty Acyl-CoA Synthetase (FadD13) of *Mycobacterium tuberculosis*. *PLoS One*, 4(12): e8387. Impact Factor: 3.752

19. Gupta V., Gupta R.K., Khare G., Salunke D.M. and Tyagi A.K. (2009). Crystal Structure of Bfr A from *Mycobacterium tuberculosis*: Incorporation of Selenomethionine Results in Cleavage and Demetallation of Haem. PLoS ONE 4(11): e8028. Impact Factor: 3.752
20. Gupta V., Gupta R.K., Khare G., Surolia A., Salunke D.M. and Tyagi A.K. (2008). Crystallisation and preliminary X-ray crystallographic analysis of biotin acetyl CoA (BirA) from *Mycobacterium tuberculosis*. Acta Crystallogr Sect F Struct Biol Cryst Commun. 2008 Jun 1; 64 (Pt 6): 524-7. Impact Factor: 1.004
21. Gupta V., Gupta R.K., Khare G., Salunke D.M. and Tyagi A.K. (2008). Cloning, expression, purification, crystallisation, and preliminary X-ray crystallographic analysis of bacterioferritin A from *Mycobacterium tuberculosis*. Acta Crystallogr Sect F Struct Biol Cryst Commun. 2008 May 1; 64 (Pt 5): 398-401. Impact Factor: 1.004
22. Sanseverino J., Gupta R.K., Layton A.C., Patterson S.S., Ripp S.A., Saidak L., Simpson M.L., Schultz T.W., Sayler G.S. (2005). Use of *Saccharomyces cerevisiae* BLYES expressing bacterial bioluminescence for rapid, sensitive detection of estrogenic compounds. Appl Environ Microbiol. ; 71(8): 4455-60. Impact Factor: 5.005
23. Patterson S.S., Dionisi H.M., Gupta R.K., Sayler G.S. (2005). Codon optimisation of bacterial luciferase (lux) for expression in mammalian cells. J Ind Microbiol Biotechnol.; 32(3):115-23. Impact Factor: 4.258
24. Gupta, R. K., S. S. Patterson, S. Ripp, A. C. Layton, and G. S. Sayler. (2004). A yeast reporter strain expressing bacterial bioluminescence for rapid, sensitive detection of estrogenic compounds, p. 283-291. In M. S. Reddy and S. Khanna (ed.), Biotechnological Approaches for Sustainable Development, Allied Publishers, New Delhi, India.
25. Patterson S.S., Dionisi H.M., Gupta R.K., Ripp S.A. and Sayler G.S. (2004). Expression and stabilisation of bacterial luciferase in mammalian cells. Proc. Of The International Society of Optical Imaging (SPIE); 5325: 115-121, Optical Diagnostics and sensing IV: Gerard L. Cote, Alexander V. Priezzhev, (eds.). Impact Factor: 0.59
26. Gupta, R.K., S.S. Patterson, S. Ripp, G.S. Sayler. (2003). Expression of the *Photobacterium luminescens* lux genes (luxA, B, C, D, and E) in *Saccharomyces cerevisiae*. FEMS Yeast Research, 4: 305-313. Impact Factor: 2.796
27. Cherian, S., Gupta, R.K., Mullin B.C., and Thundat T, (2003). Detection of heavy metal ions using protein-functionalized microcantilever sensors. Biosensors and Bioelectronics; 19(5): 411-514. Impact Factor: 10.618
28. Gupta R.K., Dobrista S., Stiles C.A., Essington M.E., Liu Z., Chen C., Serpersu E.H., Mullin B.C. (2002). Metallothioneins: A new class of plant metal binding proteins. J Protein Chemistry, 21(8), 529-536. Impact Factor: 2.371
29. Maillet C., Gupta R.K., Schell M.G., Brewton R.G., Murphy C.L., Wall J.S., Mullin B.C. (2001). Enhanced capture of small Histidine-containing polypeptides on membranes in the presence of ZnCl₂. Biotechniques: 30 (6) 1224-1230. Impact Factor: 1.993
30. Gupta R.K, Grover S., Batish V.K. (1993). Co-transformation of lactococin producing 2.0 Mdal and erythromycin resistant pGB301 plasmids to *Lactococcus lactis* subsp.lactis protoplasts. Current Microbiology, 27, 211-218. Impact Factor: 2.118
31. Gupta R.K, Batish, V.K. (1992). Protoplast induced curing of bacteriocin plasmid in *L.lactis* subsp. *lactis* 484. J. Applied Bacteriology, 73, 337-341. Impact Factor: 3.772
32. Gupta RK, Batish VK. (1992). Lytic response of *L. lactis* subsp. *lactis* 484 to muralytic enzymes. Enzyme and Microbial Technology, 14,156-160. Impact Factor: 3.493

33. Gupta R.K, Batish V.K. (1992). Genetic evidence for plasmid encoded lactococcin production in *L. lactis* subsp. *lactis* 484. *Current Microbiology*, 24, 231-238. Impact Factor: 2.118

Patents

International Patents: 2 (US Patents Granted) + 3 (International Patent Publications)

US Patents Granted: Two

1. Lux Expression in Eukaryotic cell. US Patent Number - 7300792, Date of Issue – 11/27/2007: Gupta Rakesh K, Patterson Stacey S, Sayler Gary S, Ripp Steven.
2. Destabilised Bioluminescent Proteins. US Patent Number – 7250284, Date of Issue – 07/31/2007 Allen Michael S, Rakesh Gupta, Gary Sayler

US Patent Publication: One

1. Compositions and methods for detecting estrogenic agents in a sample. US Patent Application 20060008837, Date of Publication – 12/07/2006, Sanseverino John, Layton Alice, Gupta Rakesh, Sayler Gary, Ripp Steven, Patterson Stacey

International Patent Publications: Two

1. Novel Plant Glycine and Histidine-Rich Metal-Binding protein family and uses thereof. Pub Number – WO/2005/021577, Date of publication – 10/03/2005, Mullin Beth C, Gupta Rakesh Kumar, Dobrista Svetlana V.
2. Modified Luciferase Nucleic Acids and Methods of Use, Pub Number – WO/2004/042010, Date of Publication – 21/05/2004, Patterson Stacey, Gupta Rakesh, Sayler Gary, Dionisi Hebe.

Indian Patent Applied: 1

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. Virendra Bahadur Singh, Sugosh Madhav, Rakesh Kumar Gupta, Prerna Diwan, Amit Kumar, Eds. (2025). *Water Resources Management in Mountain Regions*. Wiley. DOI:10.1002/9781394249619.Print-ISBN:9781394249589;Online-ISBN:978139424969
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. Diwan P. Gupta, R. K. (2021). Substantial Thrust to Indian Rural Economy through Village Dairy Cooperatives as Envisaged by Gandhi. In Devendra Kumar (Eds.) *Self-Reliant India: A Gandhian Perspective*, pp. 80-96, Shivalik Prakashan, Delhi India, ISBN 978-93-87195-86-8.

4. Gupta, R. K., Diwan P. (2020). The Gandhian way of Life: An Impeccable solution to World Environmental Concerns. In Devendra Kumar (Eds.) Gandhi Across the Boundaries, pp: 52-62, Shivalik Prakashan, Delhi India, ISBN 978-81-945562-1-3.
5. Mohan, L., Goyal, K., Anand, S., Mittal, M., Snigdha, S., Bajwa, T., Gupta, K. R., Gupta, R. K. and Diwan, P. (2020). Foldscope: A New Age Exploratory Educational Tool. In A. D. Sharma (Ed.). Foldscope and its Applications (pp. 188-193). New Delhi: National Press Associates. ISBN 978-93- 85835-68-1.
6. Gupta RK. 2015. Microscopic Techniques to Identify & characterize bacteria -II, Virtual Learning Environment, ILL, University of Delhi
7. Gupta RK. 2015. Microscopic Techniques to Identify & characterize bacteria -I, Virtual Learning Environment, ILL, University of Delhi
8. Gupta RK. 2014. Application of Microorganisms in Food and Dairy Industry, Virtual Learning Environment, ILL, University of Delhi
9. Gupta RK. 2013. Nutritive Value of Foods and Fermentation Technology in Food Science. 'Science & Life' Foundation Course FYUP published by Delhi University. Publishers - University Press.
10. Gupta RK. 2007. Food Preservation. E-Book on Food and Industrial Microbiology Published by NISCAIR, New Delhi. <http://hdl.handle.net/123456789/305>.

Conference Organisation/ Presentations

1. Neeraj Kumar Sharma, Sakeena Shahid, Subodh Kumar, Sanjeev Sharma, Rakesh Kumar Gupta, and Naveen Kumar. (2024). Predicting Depth of Anaesthesia using EEG Signals and a Deep Convolution Network. In Proceedings of the Third International Conference on AI-ML Systems (AIMLSystems '23). Association for Computing Machinery (ACM), New York, NY, USA, Article 7, 1–8. <https://doi.org/10.1145/3639856.3639863>

Awards and Distinctions

1. United Nations Development Program (UNDP) Fellowship from 1984 to 1987
2. National Dairy Research Institute Fellowship from 1987 to 1991
3. Lifetime achievement award for Skill India Initiatives by NICER on 12th March, 2017, at the Skill and Vocational Education Summit 2017, held at the India International Centre
4. Life Time Achievement Award in Education on 5th September 2023 by Ramanujan College, CA Parivaar and Indian Accounting Association, NCR Chapter.

Association With Professional Bodies

1. Association of Microbiologists of India – Life Member
2. Biotechnology Research Society of India – Life Member

3. Probiotic Society of India – Life Member

Other Activities

Admission and Career Guidance on DD National:

1. Invited to “Good Evening India” Delhi “Admissions in Delhi University - Dos and Don’ts live telecast programme 4.30-5.30 pm on DD National for guiding aspirants seeking admissions in the University of Delhi in the years 2017, 2018, 2019.
2. DD Morning Show “Education and Career Development” – 18th September 2023
3. DD Morning Show “Admissions in University of Delhi” – 2 nd September 2024

Signature of Faculty Member