

Curriculum Vitae

Name : Dr. Kaushik Rajaram
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Microbiology, Central University
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Lab webpage: <https://sites.google.com/view/drkaushikslab/home>

Current Position: Group leader- Nano-Biomaterials and Phage lab

(Dec 2017 onwards) Senior Assistant Professor, Department of Microbiology,
Central University of Tamil Nadu, Tamil Nadu, India

My current research focuses are on

- Antimicrobial resistance
- Phage therapy, Phage resistance and phage combinations
- Phage display of peptides and Antibodies
- 2D nano-bio materials scaffolds and wound healing

Major Responsibilities:

- Operating research projects and supervising doctoral students
- Teaching PG & PhD Microbiology students
- Member Institutional Biosafety-Committee
- UGC_NET coaching coordinator
- Microbiologist Society, India- University coordinator

Previous Experiences:

Designation	period	Organization/ institution	Place
Postdoctoral fellow	Sep 2016 to Dec 2017	Indian Institute of Science	Bangalore, India
Researcher	June 2015 to March 2016	Hasselt University	Hasselt, Belgium
Research Assistant	May 2014 to May 2015	Trinity College Dublin	Dublin, Ireland
Project Assistant	April 2008 to Jan 2010	Indian Institute of Science	Bangalore, India

Educational details:

Degree	Year of Completion	Specialization	Institution and Place
PhD	2016	Bio-Medical Science	Hasselt University, Belgium
MSc	2007	Microbiology	Madurai Kamaraj University
BSc	2005	Industrial Microbiology	Madurai Kamaraj University
PGDCIT	2006	Chem-Informatics	Madurai Kamaraj University

PhD thesis title: “Construction of dual display phage and its application on real-time label-free sensing platforms”.

Guides : Prof. Luc Michiels (PI), Prof. Veerle Somers (Co-PI)

Institute : Hasselt University, Belgium

Year of award: 2016

Publications:

1. Barath Sivaraj; Uday Kiran; Harika Gali; Bavitha; **Kaushik Rajaram** et al., Successful Phage Therapy in India for the Treatment of a Carbapenem Resistant *Pseudomonas aeruginosa* (CRPA) Prosthetic Knee Joint Infection: A Case Study. **International Journal of Infectious diseases**. 2026 (Accepted Manuscript)
2. Kalangadan, N., Sundaresan, S., Mani, A. **Kaushik Rajaram*** et al., Harnessing phage-ciprofloxacin synergy to overcome multidrug-resistant infections and biofilm persistence. **Archives of Microbiology** **208**, 663 (2026). <https://doi.org/10.1007/s00203-026-05223-8>.
3. S. Petchiyammal, Bishal Chandra Paul, Barath Sivaraj, Abishek Mani, **Kaushik Rajaram**, Sutharsan Govindarajan*. Bacteriophage-Based Biocontrol of Avian Pathogenic *Escherichia coli* Using Novel Kuraviruses PhiSG_Ec2 and PhiSG_Ec3. **Food Research international**. 2026, (Under revision).
4. Nashath K, Mani. A, Pravin Iyadurai, Srivignesh S, Sutharsan G, **Kaushik Rajaram***. Restoring Ciprofloxacin Efficacy via β -Caryophyllene Synergy for Concurrent Infection Control and Tissue. **World Journal of Microbiology and Biotechnology**. 2026,10;42(8):401. doi: 10.1007/s11274-026-05121-7. PMID: 42429905.

5. Mani A, Nashath K, Srivignesh S, Sutharsan G, **Kaushik Rajaram***. Strategic Phage-Postbiotic Combination for Enhanced Infection Control Against Diarrhea- Causing MDR Enterotoxigenic Escherichia Coli. **Probiotic and Antimicrobial proteins**, 2026. (Under revision).
6. Gomathi, A., Sriharini, R., Arumuka Pravin, I., **Kaushik, Rajaram.**, Ramesh Kumar, A., Anbu Sezhian, A., & Srivignesh, S. (2025). Impact of green synthesized selenium nanoparticles on the growth and development of amaranth microgreens. **Frontiers in Nanotechnology**, 7, 1621024. <https://doi.org/10.3389/fnano.2025.1621024>
7. Mani, A., Shanmugha Mary, A., Kalangadan, N. ... **Kaushik Rajaram*** Augmenting phage therapy using green nanotechnology for promising infection control, wound healing and devoiding phage resistance in MDR *Pseudomonas aeruginosa*. **Scientific Reports** 15, 30439 (2025). <https://doi.org/10.1038/s41598-025-00449-w>
8. Aarcha SM, Abishek Mani, Somnath Ghosh, **Kaushik Rajaram***. Phage-embedded gelatin, alginate and gelatin/alginate-starch based hydrogels for topical bactericidal applications against multi-drug resistant *Pseudomonas aeruginosa*. **Journal of the Indian Chemical Society**. 2024, 101:10, 101272. <https://doi.org/10.1016/j.jics.2024.101272>.
9. Aarcha Shanmugha Mary, Nashath Kalangadan, John Prakash, Srivignesh Sundaresan, **Kaushik Rajaram***. Relative fitness of phage-resistant *P. aeruginosa* and alternate combinatory dosing for prolonged infection reduction. **Heliyon**, Volume 10, Issue 21, e40076, DOI: 10.1016/j.heliyon.2024.e40076.
10. Aarcha Shanmugha Mary, Maruthupandy Muthuchamy, Muneeswaran Thillaichidambaram, Sinuk Lee, Barath Sivaraj, Sharayu Magar, Somnath Ghosh, Chitralli Laha Roy, Srivignesh Sundaresan, Meganathan Kannan, Sutharsan Govindarajan, Wan-Seob Cho, **Kaushik Rajaram***. Formulation of Dual-Functional Nonionic Cetomacrogol Creams Incorporated with Bacteriophage and Human Platelet Lysate for Effective Targeting of MDR *P. aeruginosa* and Enhanced Wound Healing. **ACS Applied BioMaterials**. 2024, 7, 10, 6583–6593. <https://doi.org/10.1021/acsabm.4c00747>.
11. Kalangadan, Nashath and Mani, Abishek and Sundaresan, Srivignesh and Iyadurai, Arumuka Pravin and **Rajaram Kaushik**, Revitalizing Ciprofloxacin Using Beta-Caryophyllene Synergy for Enhanced Infection Control and Wound Healing. SRN: <https://ssrn.com/abstract=5125642> or <http://dx.doi.org/10.2139/ssrn.5125642> (Preprint)
12. Deeksha SarojiniDevi Radhakumar, Sundar Thiyagarajan, **Kaushik Rajaram**, Rajesh Parsanathan. Human antimicrobial peptide Histatin 1, 3, and its autoproteolytic

cleaved peptides target the monkeypox virus surface proteins: molecular modelling and docking studies. **Medicinal Chemistry**, 2024. (Accepted).

13. Nashath Kalangadan, Aarcha Shanmugha Mary, Kaushik Mani, Biplab Nath, Jayalalitha Kondapalli, Swati Soni, Vikram Srinivasa Raghavan, Rajesh Parsanathan, Meganathan Kannan, David Jenkins, Sai Siva Gorthi, **Kaushik Rajaram***. Repurposing ivermectin and ciprofloxacin in nanofibers for enhanced wound healing and infection control against MDR wound pathogens. **Journal of Drug Delivery Science and Technology**. 2023, 90, 105166, doi.org/10.1016/j.jddst.2023.105166. (IF: 5.06).
14. Banu A. A, Shafeera N. N, Kalangadan N, Rafi K. M, Saravanakkumar D, **Rajaram Kaushik**, Fowziya S. A, Mohamed S. B, Ayeshamariam A. Enhanced Growth of Green Synthesized Bi₂Fe₄O₉: Nanoparticles Decorated on MWCNT. **Oriental Journal of Chemistry** 2024;40(1). <https://bit.ly/3Sf9asx> (IF: 0.6).
15. Mary Aarcha S, Patil Manali Manik, Kundu Ghoduli, **Rajaram Kaushik**. Machine Learning Mediated Advanced Phage and Antimicrobial Therapy - A Futuristic Approach. **Highlights in Biosciences**. 2023 Dec 30;6:bs202304. (IF 0.4)
16. L. Priyadarsini, A. Subbiah, S. Srivignesh, K. Rama Krishna, **K. Rajaram**, S.Kathiresan, A. Ramesh Kumar. Comparative analysis of growth and yield parameters of grape var 'Muscat Hamburg' grafted on 'Dog Ridge' rootstock and self-rooted cuttings. **Plant Archives**. 23,1, 2023 pp.384-388. <https://doi.org/10.51470/PLANTARCHIVES.2023.v23.no1.063>
17. Anh. H. Nguyen, Sojin Song, Ha. T. Do, Lan N. Mai, Thuat T. Trinh, **Kaushik Rajaram***. Rapid and Duplex Detection of MRSA using SERS-based Molecular Beacons. **Nano Trends**. 2023, 2, 100007. <https://doi.org/10.1016/j.nwnano.2023.100007>
18. Thillaichidambaram Muneeswaran, Muthuchamy Maruthupandy, Aarcha Shanmugha Mary, Thirumalaiswamy Vennila, **Rajaram Kaushik**, Chockalingam Muthiah Ramakritinan, Franck Quero. Starch-mediated synthesis of chitosan/silver nanocomposites: in-vitro antibacterial and wound healing applications. **Journal of Drug Delivery science and Technology**. 2023, 84, 104424, <https://doi.org/10.1016/j.jddst.2023.104424>. (IF: 5.21).
19. Nithya Selvaraju, Senthilnathan Selvaraj, Neeraj Singhal, Vigneshwaran Mohan, Yuvaraj Sivalingam, **Kaushik Rajaram**, Gunasekaran Venugopal. Electron Transfer Behaviour of Green Synthesized Carbon Quantum Dot Sensor Towards VOC and Heavy Metal Ion Sensing. **Materials Science Engineering B**. (2022-Accepted). (IF: 4.10)

20. Nashath Kalangadan[#], Aarcha Shanmugha Mary[#], Rudrapogu Hepsiba Jyothi[#], Sathyanarayanan Punniyakoti, Srivignesh Sundaresan[‡], Ramesh Kumar Alagarsamy[‡], **Kaushik Rajaram**^{*}. Characterization and antimicrobial evaluation of green synthesized silver nanoparticle thin films with reusable applications. **Materials Letter**. **2022**, <https://doi.org/10.1016/j.matlet.2022.131923>. (IF: 3.5)

21. Aarcha Shanmugha Mary, Vikram Srinivasa Raghavan, Sirisha Kagula, Vinodhini Krishnakumar, Meganathan Kannan, Sai Siva Gorthi, **Kaushik Rajaram**^{*}. Enhanced In Vitro Wound Healing Using **PVA/B-PEI Nanofiber Mats**: A Promising Wound Therapeutic Agent against ESKAPE and Opportunistic Pathogens. **ACS applied Biomaterials**. **2021**, 4, 12, 8466–8476. <https://doi.org/10.1021/acsabm.1c00985>. (IF 4.09)

22. DC Dinesh, S Tamilarasan, **K Rajaram**, E Bouřa. **Antiviral Drug Targets** of Single-Stranded RNA Viruses Causing Chronic Human Diseases. **Current drug targets**. **2020**;21(2):105-124. doi: 10.2174/1389450119666190920153247. (IF: 3.8)

23. Behera SK, Das D, Balasubramani K, Chellappan S, **Rajaram K**, Mohanta HK, Balabaskaran Nina P (2020) Seroprevalence and risk factors of brucellosis in livestock in the wildlife and livestock interface area of Similipal Biosphere Reserve, India, **Veterinary World**, 13(3): 465-470. Doi.org/10.14202/vetworld.2020.465-470 H. (IF: 2.1)

24. Guguloth, S. K., Lakshmi, A. R., Rajendran, R., **Rajaram, K.**, Chinnasamy, T., Huang, J. D., ... & Durairajan, S. S. K. A Mechanistic Review on Plant-derived Natural Inhibitors of Human Coronaviruses with Emphasis on SARS-COV-1 and SARS-COV-2. **Current drug targets**. **2021** DOI: 10.2174/1389450122666211005115313. (IF: 3.8)

25. Durairajan, S. S. K., Selvarasu, K., Bera, M. R., **Rajaram, K.**, Iyaswamy, A., & Li, M. Alzheimer's Disease and other Tauopathies: Exploring Efficacy of Medicinal Plant-Derived Compounds in Alleviating Tau-Mediated Neurodegeneration. **Current molecular pharmacology**. **2021**. DOI: 10.2174/1874467214666210906125318.(IF: 3.7)

26. **Kaushik Rajaram**, Patricia Losada-Pérez, Veronique Vermeeren, Baharak Hossenikhani, Patrick Wagner, Veerle Somers, Luc Michiels. Real time analysis of dual display phage immobilization and autoantibody screening using quartz crystal microbalance with dissipation monitoring. **International journal of nanomedicine**. **2015**; 10, 5237-5247. DOI: [10.2147/IJN.S84800](https://doi.org/10.2147/IJN.S84800) (IF: 7.4)

27. **Kaushik Rajaram**, Vermeeren V, Somers K, Somers V, Michiels L. Construction of a helper plasmid-mediated dual-display phage for autoantibody screening in serum.

Applied Microbiology and Biotechnology. 2014; 98(14):6365–6373.

DOI: [10.1007/s00253-014-5713-8](https://doi.org/10.1007/s00253-014-5713-8). (IF: 5.9)

28. Vasuki V, Sugeerappa L H, Nagalakshmi K, Somnath G, **Kaushik Rajaram**. Optimisation of an asymmetric polymerase chain reaction assay for the amplification of single-stranded DNA from *Wuchereria bancrofti* for electrochemical detection. **Mem Inst Oswaldo Cruz, Rio de Janeiro**, Vol. 108(6): 804-807, September 2013. (IF: 1.9)
29. D Yuvaraj, **Kaushik Rajaram**, and K. Narasimha Rao. Optical, Field-Emission, and Antimicrobial Properties of ZnO Nanostructured Films Deposited at Room Temperature by Activated Reactive Evaporation. **ACS Applied. Materials. Interfaces**, 2010, 2(4), pp1019–1024 (IF 10.1).
30. S. Ghosh, **Kaushik Rajaram**, K. Nagalakshmi , S. L. Hoti , G. A. Menezes, B. N. Harish, H. N. Vasan. Antimicrobial activity of highly stable silver nanoparticles embedded in agar–agar matrix as a thin film. **Carbohydrate Research**. 345 (2010) 2220– 2227. (IF- 2.1).

Book chapters:

1. Plant Growth Promoting Potentials of Endophytic Fungi for the Management for Agricultural Crops and Grasses. Siva Sundara Kumar Durairajan, Suchitra Rakesh, Barkavi Durairajan, **Kaushik Rajaram**, Nagarathinam Arunkumar, Rajesh Jeewon. (Accepted in plant microbe interaction SPRINGER).
2. Contribution of Beneficial Fungi for Maintaining Sustainable Plant Growth and Soil Fertility. Suchitra Rakesh, Arun Kumar, **Kaushik Rajaram**, and Siva Sundara Kumar Durairajan. (Accepted in plant microbe interaction SPRINGER).
3. Anthosphere Microbiome and Their Associated Interactions at the Aromatic Interface. Nagarathinam Arunkumar, Suchitra Rakesh, **Kaushik Rajaram**, Narayanasamy Ravi Kumar, Siva Sundara Kumar Durairajan (Accepted in plant microbe interaction SPRINGER).
4. Immunology – Antibodies To Widal Test. Vinodhini Krishna kumar, Aarthi Sreenikethan,, **Kaushik Rajaram**. A Complete Guide for Experimental Procedures in Life Sciences (2021) : 143-190.
5. Molecular Biology – Central Dogma of Our Life. Vinodhini Krishna kumar, Aishwarya Mohan, **Kaushik Rajaram**. A Complete Guide for Experimental Procedures in Life Sciences (2021) : 113-141.

6. Macromolecular chemistry: An introduction. Chandrabose Selvaraj, Dhurvas Chandrasekaran Dinesh, **Kaushik Rajaram**, Srivignesh Sundaresan, Sanjeev Kumar Singh. In-silico approaches to macromolecular chemistry. 2023. 71-128. (Elsevier).
7. Aarcha Shanmugha Mary, Vinodhini Krishnakumar, **Kaushik Rajaram**. Phage-based Biosensors. Book: Cutting-edge Technologies in Biological Sensing and Analysis. ISBN9781032629438.
8. Karthiga P, **Kaushik Rajaram**, K Rama Krishna, S Srivignesh. Nanoparticles uptake, utilisation and phytotoxicity in plants. Book: Futuristic Trends in Chemical, Material Sciences & Nano Technology. IIP Press. 2024. ISSN: 978-93-5747-550-1.
9. Karthiga P, K Manish, A Harish, A Rameshkumar, **Kaushik Rajaram**, S Srivignesh. Prospect of Nanotechnology in horticulture. Book: Strategic Approaches and Practices in Vegetable Production. Vital Biotech publication, 2024, ISSN: 978-81-966753-2-5.
10. Arumuka Pravin, A Rameshkumar, **Kaushik Rajaram**, S Srivignesh. Nanotechnological approach in plant disease management. Book: Strategic Approaches and Practices in Vegetable Production. IIP Press. 2024. ISSN: 978-93-5747-550-1.
11. Nashath K, Manali PK, Rama Krishna K, Ramakrishna A, **Kaushik Rajaram**. Biopreservation of fruits and vegetables using postbiotics. Postbiotics. 2025, Academic press, 625-655. doi.org/10.1016/B978-0-443-22188-0.00036.
12. Aashik Nahas, Ardra Praveen, Sundaresan Srivignesh, **Kaushik Rajaram***. The Resurgence of Bacteriophages in Combating the Silent Pandemic of Multidrug Resistance. Book: Emerging trends on Approaching antimicrobial resistance. 2026 (In press)

Patent:

Filed on 22/03/2021 (Published on Sep 2022): Title: A spirulina based microbial culture media composition and method thereof. Application number: 202141012085 Authors: Vishnu G, Nashath K, Aarcha SM, Arunkumar N, Eswaran M, Srivignesh S, Praveen BN, Kaushik R.

Awards and recognitions:

1. National Postdoctoral fellowship from Science Education Research Board (SERB) of India- 2016 (19.20 lakh INR)

2. First Prize for oral presentation- National conference on Microbiome research at Pondicherry University March, 2019
3. First Prize for oral presentation, International Conference on Phage therapy, Karnataka University. Dharwad, Nov,2022.

Research Guidance:

S.no	Research Guidance	Ongoing	Completed
1	PhD Microbiology	2	2
2	MSc. Microbiology	2	21

Sanctioned Project:

Title	Funding agency	Amount in lakh
PCR and M13 Phage-based Single Domain Antibody (Nanobody) development and its application in lateral flow-based detection of cathelicidin	UGC	10.0 (completed)
Reverse Transcriptase polymerase Chain Reaction (RT-PCR) based on microfluidics for the early and rapid detection of Hepatitis virus C (HCV)	SERB-NPDF	19.20 (completed)
Capacity building and promoting good husbandry practices among livestock farmers for the livelihood of sustainable livestock production and upholding public and upholding public.	DST-SEED/ Co-PI	71.35 lakh (completed)
Effective elimination of ESKAPE <i>Pseudomonas aeruginosa</i> infections using phage-displayed nanobodies and lytic phage synergy (2025-2028)	ICMR (CO-PI)	92.3 lakh (on-going)
Surveillance of Emerging Antimicrobial Resistance Patterns In Local Hospitals And Communities of Delta Districts of Tamil Nadu (2026-2029)	HEFA-CSR (PI)	42 lakh (on-going)

Links to: LinkedIn: <https://www.linkedin.com/in/kaushik-rajaram-0b2a817/>
Researchgate: https://www.researchgate.net/profile/Kaushik_Rajaram

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