

**Name** : Dr. S. Karthik Sundaram

**Designation** : Associate Professor

**Department** : Microbiology

**Qualification** : M.Sc., Ph.D.,

**Experience** : Teaching: 9.5 Years                      Research: 6 Years



**Area of Specialization(s)**: Bioremediation, Industrial Effluent Management, Microbial Bioremediation

**Email (Official ID)** : [karthiksundaram@drngpsc.ac.in](mailto:karthiksundaram@drngpsc.ac.in)

### Academic Qualifications

Degree	Branch	Institution / University Name	Year of Graduation
Ph.D.	Microbiology	PSG College of Arts & Science, Coimbatore	2014
M. Sc	Microbiology	Thiagarajar College, Madurai	2009
B. Sc	Industrial Microbiology	Thiagarajar College, Madurai	2005

### Additional Qualifications

Diploma / Vocational / Certification	Area of Specialization	Institution / University / Agency Name	Year
Online Certificate	RNA Biology	NPTEL	2023
Online Certificate	Cell Culture Techniques	NPTEL	2022
Online Certificate	Genetic Engineering: Theory and Application	NPTEL	2019

### Projects – Completed

Project Title	Agency	Amount	Duration
Enhanced Alternative Biotreatment of Textile Effluents to CETPs through Nanostructure based Comprehensive	State Science & Technology Section of the Department of Science & Technology	<b>1,13,00,000</b>	3 Years

Treatment System (Co-investigator)			
Bioremediation of Preprocessed Plastic Wastes through Microbial Consortium	Tamil Nadu State Council for Science and Technology	<b>7500</b>	<i>6 Months</i>

### Research Guidance

Programme	No. of Scholars	
	Completed	Pursuing
Ph. D.	-	<b>4</b>

### Research Publications (Indexed)

#### International

1. N.K. Asha Devi, R. Rajendran and Karthik Sundaram. S, **Isolation and characterization of biologically active compounds from marine bacteria of Bay of Bengal**, Natural product radiance. Vol 2., 1, pp. 59-64, March 2011 (Indexed in UGC)
2. R.Rajendran, S. Karthik Sundaram and K. Uma Maheswari, **Aerobic Biodecolorization of Mixture of Azo Dye Containing Textile Effluent Using Adapted Microbial Strains**, *Journal of Environmental Science and Technology*, Vol. 4., 6, 568-578, 2011 (Indexed in UGC)
3. R. Rajendran, S. Karthik Sundaram, R. Radhai and P. Rajapriya, **Comparison, Optimization and Bioscouring of Cotton Fabrics Using Pectinase Enzyme with Conventional Scouring Process**, *Pakistan Journal of Biological Sciences*, Vol. 14., 9, 519-525, 2011 (Indexed in UGC)
4. R. Rajendran, S. Karthik Sundaram, B.V. Sridevi, P. Prabhavathi and V. Gopi, **Comparative Analysis of Bioremediation Potential of Adapted and Non-Adapted Fungi on Azo Dye Containing Textile Effluent**, *Pakistan Journal of Biological Sciences*, Vol. 14., 11, 610-618, 2011 (Indexed in UGC)
5. R. Rajendran, S. Karthik Sundaram, B.V. Sridevi, P. Prabhavathi and V. Gopi, **Biodetoxification of Azo Dye Containing Textile Effluent through Adapted Fungal Strains**, *Journal of Environmental Science and Technology*, Vol. 5., 1, 29-41, 2011 (Indexed in UGC)
6. K. Jeyachitra, A. Paneerselvam, R. Rajendran, M. Mahalaxmi and S. Karthik Sundaram, **Physico-Chemical and Biological Factors In The Distribution Of Cyanobacterial Population In Three Different Sampling Sites Of South India**, *African Journal of Microbiological Research*, Vol. 7., 25, pp. 3240-3247, 2013 (Indexed in SCOPUS and UGC).

7. R.Rajendran, P. Prabhavathi, S. Karthik Sundaram, S.Pattabi, S.Dineshkumar, P. Santhanam, **Enhanced Bioremediation Efficiency of Denim Industrial Effluent using Bacterial Biofilm on Polyurethane Matrix (Review)**, Applied Biochemistry and Microbiology, Vol. 50., 6, 554-562, 2014 (Indexed in SCOPUS).
8. Jayanthi, V, R. Geetha, R. Rajendran, P. Prabhavathi, S. Karthik Sundaram, S. Dinesh Kumar and P. Santhanam, **Phytoremediation of dye contaminated soil by *Leucaenaleucocephala* (subabul) seed and growth assessment of *Vignaradiata* in the remediated soil**, *Saudi Journal of Biological Sciences*, 21, 324-333, 2013 (Indexed in SCOPUS).
9. Rajendran, R., P. Prabhavathi., S. Karthik Sundaram., S. Pattabi., S. Dinesh Kumar and P. Santhanam, **Biodecolorization and Bioremediation of Denim Industrial Wastewater by Adapted Bacterial Consortium Immobilized on Inert Polyurethane Foam (PUF) Matrix: A First Approach with Biobarrier Model**, Polish Journal of Microbiology, Vol. 64, No 4, 329–338, December 2013 (Indexed in SCOPUS)
10. Rajendran R, Kanimozhi B, Prabhavathi P, Dinesh Kumar S, Santhanam P, Abirami M, Karthik Sundaram S and Manikandan A, **A Method of Central Composite Design (CCD) For Optimization of Biodiesel Production from *Chlorella vulgaris***, Petroleum & Environmental Biotechnology, Volume 6, Issue 3, pp 1-6, 2015 (Indexed in SCOPUS).
11. Rajendran. R., Prabhavathi. P., Karthik Sundaram. S., Dinesh Kumar. S., Santhanam P., Premnath. D., Ponmari. G., Manikandan. A., and My-Kyung Kim, **Molecular Docking Studies of Potent Adsorbed Receptor of Thrh Gene: A New Target for Biodegradation of Indigo Dye**, Journal of Bioremediation & Biodegradation, Volume 7, Issue 4 Pp 7, 2016 (Indexed in SCOPUS)
12. Rajalakshmi V, Karthik Sundaram S, Poornima D, Rajendran R, **Biotransformation of C5 and C6 Sugars of Cellulosic Cotton Wastes to Bioethanol through Physical and Enzymatic Modes**, Applied Ecology And Environmental Research, Vol. 14., Issue 2, pp 411-420, 2016 (Indexed in SCOPUS)
13. R. Rajendran, S. Karthik Sundaram, P. Prabhavathi, B.V. Sridevi, S. Dinesh Kumar and P. Santhanam, **Bioremediation of azo dye containing textile effluent using adapted bacterial strains under subsequent microaerophilic - Aerobic conditions**, *Journal of Scientific & Industrial Research*, Vol 75. Pp 124-130, 2016 (Indexed in SCOPUS)
14. Praveena Rajan, Menaka Rangasamy, S. Karthik Sundaram (2020). **Bioremediation of Preprocessed Plastic Wastes through Microbial Consortium**. Journal of Advanced Scientific Research. ISSN 0976-9595. 11(4): 106-113 (Indexed in UGC Care).

15. Ramachandran AM, Senthil Prabhu S, Devakumar J, Rengaramanujam J, Karthik Sundaram S, Mahenthiren R, Varsha TK (2021). **Hydrogel formulation from Calotropis gigantea plant extract against foot ulcer causing bacteria in diabetes**, Asian J Pharm Clin Res, ISSN: 0974-2441. 14 (11), 1-4 (Indexed in Scopus).
16. C. Ajitha, A. Srinidhi, S. Karthik Sundaram (2021). ***In vitro* Evaluation of Fungicidal Activity of Bromelalain from Ananascomosus against Fungal Phytopathogens Infecting Musa Paradisiaca**, Journal of Advanced Scientific Research. ISSN 0976-9595. 12 (3): 81-94 (Indexed in UGC Care).
17. S. Karthik Sundaram, N. Afreen Taj, R. Menaka, C. Ajitha (2022). **Biodegradation of Pesticides through Metagenomic Approaches**. Journal of Advanced Scientific Research. ISSN 0976-9595, 13 (2): 29-37 (Indexed in UGC CARE).
18. S. Karthik Sundaram, Ajitha C, Kongarasi K, Beesha K, Anagha S Nair (2022). **Iron Oxide Nanoparticles and Agricultural Wastes used in Enhancing the Bioremediation and Clarification Procedures in Textile Effluent Treatment**. Sustainability, Agri, Food and Environmental Research, (ISSN: 0719-3726), 11(X). (<http://dx.doi.org/10.7770/safer.v11i1.2525>) (Indexed in UGC CARE).
19. E. Mohanachitra, R. Menaka, S. Karthik Sundaram (2023). **Enhancing the shelf life of raw unprocessed milk by bacterial biosurfactants extracted from indigenous microbes present in cow's milk**. Indian Journal of Natural Product Radiance, Vol. 14(2), June 2023, pp. 324-331 (Indexed in Scopus).
20. K. Bharanipriya, P. Keerthana, R. Narashimman, K. Subash, A. Sathish, and S. Karthik Sundaram (2023). **Biodegradation of Plastic Waste using Combinatorial Approaches**. Indian Journal of Natural Sciences. Vol.14, Issue 80, pp. 60572-60581, Oct 2023 (Indexed in Web of Science).
21. K.Sakthishabarish, S. Nivetha, and S. Karthik Sundaram (2023). ***In silico* Molecular Docking Analysis of Anti-Viral Drugs against Structural and Non-Structural Proteins of SARS-CoV-2**. Indian Journal of Natural Sciences. Vol.14, Issue 80, pp. 61282-61294, Oct 2023 (Indexed in Web of Science).

### Guest Lectures Delivered

1. Delivered a Guest Lecture on **“Pollution – Time for Restoration”** on the eve of National Pollution Control Celebrations, Dr. NGP Arts and Science College, Coimbatore on 2<sup>nd</sup> December 2019.
2. Delivered a Guest Lecture on **“Fungal Opportune Gaining Momentum – A Retrospection”**, SRM Institute of Science and Technology, Chennai on 23<sup>rd</sup> July 2021.

3. Delivered a Guest Lecture on “**C-VII Institutional Leadership and Best Practices Quality Indicators Framework and its Benchmarks**” at the 5 Days Faculty Development Programme on Outcome Based Education & Revised Metric Orientation on 21<sup>st</sup> June 2023.

#### Presentations in Conference

1. **Microarray**, Intercollegiate Students seminar, Department of Zoology and Microbiology, Thiagarajar College, Madurai 24-Sep-05.
2. **Bacterial Bioinformatics**, Intercollegiate Students seminar, Department of Zoology and Microbiology, Thiagarajar College, Madurai, 24-Sep-07.
3. **Biodegradation and Decolourization potential of Mixed Microbial Consortia In Textile Effluents Containing Azo Dye Mixture Under Static And Shaking Conditions**, International Conference on Environment pollution, Water Conservation and Health, Department of Zoology, Bangalore University, Bangalore, 29-31 Jul 10.
4. **Aerobic Reduction of Azo Dye Mixtures Containing Textile Effluents Using Adapted Microbes in Combinations**, National conference on Next Generation Microbiologists-Challenges & Opportunities, D.G.Vaishnav College, Chennai, 28-29 Sep 10.
5. **Synergistic Effect of Microaerophilic and Aerophilic Conditions on the Biodegradation of Azo Dye Containing Textile Effluents Using Microbial Consortium in a Packed Bed Reactor**, National Symposium on Waste Management: Experiences and Strategies, organized by the Department of Agricultural Microbiology, College of Horticulture, Kerala Agricultural University, Thrissur, 5-7 Jan 11.
6. **Aerobic Biodecolorization of Mixture of Azo dye Containing Textile Effluent Using Adapted Microbial Strains**, International Conference on Microbes in Wastewater and Waste Treatment, Bioremediation and Energy Production organized by the International water association, Birla Institute of Technology and Science, Goa Campus, 23 to 27 Jan 11.
7. **Strategies in the Microbial Bioremediation of Textile Effluent – Free Cells, Immobilized Cells and Remotion**, International Conference on Advanced Materials organized by the Department of Physics, PSG College of Technology, Coimbatore, 12 to 16 Dec 11.
8. **Antagonistic Activity of Marine *Bacillus licheniformis* KKR against Food-borne Pathogens**, International Conference on Food microbiology and Food safety – Upcoming Changes, Technologies, and Emerging Trends held at DG Vaishnav College on 11<sup>th</sup> of October 2017.
9. **Antagonistic Activity of Secondary Metabolites Extracted from Marine *Bacillus licheniformis* KKR against Human Pathogens**, International Conference on “Advanced Functional Materials for Energy, Environment and Biomedical Applications”, Madurai Kamaraj University, Madurai, 11-12 Dec 2017.

10. **Anti-Biofilm and Antagonistic Activity of Secondary Metabolites Extracted from Marine *Bacillus licheniformis* KKR against Antibiotic-Resistant Pathogen**, National Conference on “Bioresource Utilization for Sustainable Food and Energy Production”, organized by the Department of Botany, School of Life Sciences, Periyar University on 1-2, February 2018.
11. **Laccase Mediated Systems in Bioremediation**, International Conference on Importance of Microorganisms in Research, organized by Annai Violet Arts and Science College, Chennai on 7<sup>th</sup> November 2020.
12. **In-vitro and In-vivo Extraction and Purification of LPS from Gram Negative Organism and Generation of Antibodies against CAUTI**, International Virtual Conference on Recent Trends in Clinical Microbiology SAI-MICROCON2023, organized by the Department of Microbiology, Shri, Sathya Sai Medical College and Research Institute, SBV Chennai Campus, Chennai, on 20-21, July 2023.
13. **Production and Optimization of Xylitol from Natural Resources using Indigenous Bacterial Strains**, at the International Conference on Interdisciplinary Approaches in Life Science Research, organized by the Department of Biochemistry and Department of Microbiology, Bharathidasan College of Arts and Science, Erode, on 9-10, October 2023.

## Participation in Conference

### International

1. International conference on Food Microbiology and Food Safety – Upcoming Changes, Technologies & Emerging Risks, Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai, 11<sup>th</sup> October 2016.

### National

1. “Confluence of Research and Ethics in Biological Sciences – A Scenario on the Emerging Trends” (NCBS – 2013), PSG College of Arts & Science, Coimbatore, 14-25 Mar13.
2. National Level Exhibition on Ideas, Inventions, and Innovations a concurrent event of GRD centenary year celebrations, PSG College of Technology, at the CODISSIA Trade fair complex, Coimbatore, 27-29 Sep 13.
3. “Contemporary Molecular Techniques and their Potential Applications in Current Applied Biology”, Research Department of Microbiology, M. R. Government Arts College, Mannargudi, on 30-Jan-15.
4. Innovate India 2015 conference on “Make in India: Opportunities through Innovation”, National Research Development Corporation, New Delhi, in association with the PSG College of Technology, Coimbatore, 25- 26 Feb 15.

### **Participation in Seminars**

1. Intercollegiate Students seminar, Department of Zoology and Microbiology, Thiagarajar College, Madurai 24-Sep-05.
2. Intercollegiate Students seminar, Department of Zoology and Microbiology, Thiagarajar College, Madurai, 24-Sep-07.
3. “Recent Trends in Microbiology”, Department of Microbiology, PSG College of Arts & Science, Coimbatore, 21-Jan-16.
4. Two day National Virtual Seminar on “Holistic and Multidisciplinary Approach towards National Higher Education Quality Framework”, Cauvery College for Women, 5-6, July 2023.

### **Participation in Workshop**

1. GC & HPLC at the Textiles Committee, Ministry of Textiles, Govt. of India, Karur, 20 Sep 07.
2. Conservation of medical plants, Cholayil (MEDIMIX) groups, Chennai, 12-14 Feb, 2010.
3. Molecular Techniques, Aristogene Biosciences, Bangalore held at the Department of Microbiology, PSG College of Arts & Science, 27-28 Mar 12.
4. Outcome Based Education, Internal Quality Assurance Cell, PSG College of Arts & Science, Coimbatore, 26-Aug-16.
5. Recent Advances and Challenges in Genome Editing Technology for Crop Improvement and Future Agriculture, sponsored by the Science and Engineering Board (SERB) Department of Science and Technology, New Delhi, at the ICAR – Sugarcane Breeding Institute, on 10-Feb-23.
6. Outcome based education organized by Dr. N.G.P. Arts and Science College in association with IPSR Solutions Limited, on 4<sup>th</sup> March 2023.
7. National Level Workshop cum Training Programme on “Polymerase Chain Reaction (PCR)” organized by the National Institute of Food Technology, Entrepreneurship and Management, Thanjavur (NIFTEM-T), held on 4<sup>th</sup> August 2023.

### **Participation in Faculty Development Programme**

1. Outcome Based Education, Internal Quality Assurance Cell, PSG College of Arts & Science, Coimbatore, 26<sup>th</sup> August 2016.
2. Current Trends in Curriculum Design & Development, Internal Quality Assurance Cell, PSG College of Arts & Science, Coimbatore, 23<sup>rd</sup> January 2018.
3. ICT Advancement and Innovations in Educational Transactions, Internal Quality Assurance Cell, PSG College of Arts & Science, Coimbatore, 5<sup>th</sup> March 2018.



4. NAAC Revised Accreditation Framework and OBE Assessment Methodology, Faculty Development Cell & IQAC, Dr. N.G.P. Arts and Science, College, Coimbatore, 27<sup>th</sup> May 2019 to 2<sup>nd</sup> June 2019.
5. Genetic Engineering: Theory and Application, NPTEL-AICTE, Online FDP Course, July to September 2019.
6. Online faculty development programme on Dhrona – The Art of Teaching and Learning for the Nxt Gen, Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai, 9-11 April 2020.
7. One Week FDP on Quality Initiatives in Higher Education, Dr. N. G. P. Arts and Science College, Coimbatore, Sri Ramakrishna College of Arts and Science, Coimbatore, Gobi Arts & Science College, Gobichettipalayam, Vellalar College for Women, Erode, 13-20, April 2020.
8. Seven days faculty development programme on Teaching & Learning Process in HEI's” organized by the IOT Academy, organized between 7-15, February 2023.
9. Seven days faculty development programme on National Education Policy organized by the Department of Microbiology and Centre of Excellence for Faculty Development, Hindusthan College of Arts & Science, Coimbatore between 13-21, February 2023.
10. Participated in the one day workshop on Outcome based education organized by IPSR Solutions Limited along with Dr. N.G.P. Arts and Science College, on 4<sup>th</sup> March 2023.
11. Five Day Faculty Development Programme on “Empowering Education for Innovation – A NEP Perspective”, organized by the Center for Professional Development, Dr. N.G.P. Arts and Science College, Coimbatore, between 30 June – 4 July 2023.
12. One week faculty development programme on “Upskill your Resources” organized by the Department of Business Administration, Ayya Nadar Janaki Ammal College (Autonomous), from 7-13, July 2023.
13. Twelve days faculty development programme on Entrepreneurship organized by Amrita Centre for Entrepreneurship (sponsored by DST, Govt. of India & DST NIDHI) between 17-29, July 2023.

#### **Conference / Seminar / Workshop Organized**

1. Organizing Committee Member, DST-SRB Sponsored National Seminar on Computing Platforms for Biological Big Data Analytics, Dr. N.G.P. Arts and Science College, Coimbatore, 05& 06-Feb-2020.
2. Organizing Committee Member, National Symposium on Graduate Research-20 (NSGR-20), Dr. N.G.P. Arts and Science College, Coimbatore, 21 &22-Feb-2020.



3. Organizing Committee Member, National Level Conference on “Futuristic Approaches in Transformation of Bioscience Research” (FATBR-2020), Dr. N.G.P. Arts and Science College, Coimbatore, 21 & 22-Feb-2020.
4. Organizing Secretary, for the One Day International Seminar on “Perspectives of Nanotechnology in Medical Applications” organized by the Department of Microbiology, Dr. N.G.P. Arts and Science College, Coimbatore, on 27-Nov-2021.
5. Organizing Secretary, XIV Louis Pasteur International Symposium on Role of Multidisciplinary Research in Microbiology for Sustainable Development (RMSD-2023), organized by the Department of Microbiology, Dr. N.G.P. Arts and Science College, on 9<sup>th</sup> and 10<sup>th</sup> March 2023.
6. Organizing Committee Member, National Conference on Interdisciplinary Approaches on Dynamics of Bioscience Research (IADBR-2023), organized by the Faculty of Bioscience, Dr. N.G.P. Arts and Science College, on 28<sup>th</sup> March 2023.
7. Organizing Committee Member, 15<sup>th</sup> Louis Pasteur National Symposium on Microbial Prospecting and Entrepreneurship (MPE-2023), organized by the Department of Microbiology, Dr. N.G.P. Arts and Science College, Coimbatore, on 22<sup>nd</sup> September 2023.

#### **Member in BoS**

1. Board of Studies in Microbiology (PG & UG), PSG College of Arts & Science, Coimbatore, from February 16 to October 18.
2. Member, Board of Studies in Microbiology (PG), Thiagarajar College of Arts and Science, Madurai, from March 2021 onwards.

#### **Awards / Honors**

<b>Awards / Honors</b>	<b>Agency / Institute</b>	<b>Year of Award</b>
Academic Excellence	PSG College of Arts & Science, Coimbatore	2015