

Name : Dr. K. Sathishkumar
Staff ID : RCAS05956
Designation : Assistant Professor
Department : Department of Biotechnology
Experience : 7 Years
Qualification : M.Sc., Ph.D.
Specialization : Environmental Biotechnology and Resource Recovery
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ACADEMICS

Degree	Branch	Institution / University	Year of Completion
Ph.D.	Biotechnology	Thiruvalluvar University	2018
M.Sc	Biotechnology	University of Madras	2014
B.Sc	Biochemistry	Thiruvalluvar University	2012

RESEARCH AND PUBLICATIONS

GRANTS

Title	Agency	Amount	Year	Status
Development of solar driven bio-electrokinetic enhanced remediation technology towards remediation of tannery effluent contaminated sites	SERB, Govt. of India	21.3 Lakhs	2022-2024	Completed
Denitrifying functional coupling system for the removal of nitrate in the contaminated water	China Postdoctoral Science Foundation, China	8 Lakhs	2019-2020	Completed

Journal Publications

A Satheeshkumar, R Duraimurugan, P Velu, B Muthukumar, S Santhosh, S Devanesan, M S. AlSalhi, **K Sathishkumar**, P. K. S. M. Rahman, A Rajasekar, Biodegradation pathway and mechanism of new emerging pollutants neonicotinoids, Journal of Environmental Sciences (2025), In Press.

Anbarasu K, Thanigaivel S, **Sathishkumar K**, Alam MM, Al-Sehemi AG, Devarajan Y. Harnessing artificial intelligence for sustainable Bioenergy: Revolutionizing Optimization, waste Reduction, and environmental sustainability. Bioresource Technology. (2025)27, 131893. **IF: 9.7 Q1**

Xinghui Liu, Saraschandra Naraginti, Fuchun Zhang, **Kuppusamy Sathishkumar** Vadivel Subramaniam, Krishnamoorthy Ramachandran, Ashish Kumar, Xiang Guo. Selective Detection and Quantification of Co²⁺ Ions by Mesoscopic Engineering Silica-Monolithic based Circular Optical Strips. Journal of Environmental Chemical Engineering (2025) 13, 115671. **IF: 7.4 Q1**

Raja Kumaresan Sarankumar, Shichuang Sun, **Kuppusamy Sathishkumar**, Sandhanasamy

Devanesan, Mohamad S AlSalhi, Ramalinga Viswanathan Mangalaraja, Arunachalam Arulraj, Fengxiang Han, Xinbo Wang. Enhanced bio-electrokinetic remediation of cesium-contaminated soil through an optimized Cr (VI)-resistant alkalophilic bacterial degradation approach. Journal of Environmental Chemical Engineering (2025) 13, 115251. **IF: 7.4 Q1**

Karungan Selvaraj Vijai Selvaraj, Rajiv Periakaruppan, **Kuppusamy Sathishkumar**, Nishanth Mohan Das. Fabrication and Characterization of *Cymodocea serrulata* Extract-Mediated Silica Nanoparticles with Antioxidant Properties. National Academy Science Letters (2025) 1-6. **IF:1.2**

Anbarasu Krishnan, **Kuppusamy Sathishkumar**, Okram Ricky Devi, Smita Agrawal, Abhijit Debnath, Mariadhas Valan Arasu, Thanigaivel Sundaram, Kumaran Subramanian, Rohini Karunakaran. Metal oxides on the frontlines: Antimicrobial activity in plant-derived biometallic nanoparticles. Nanotechnology Reviews, (2025) 13, 20240106. **IF: 6.1 Q1**

Bavani Thirugnanam, Preeyanghaa Mani, Bader O Almutairi, **Kuppusamy Sathishkumar**, Munusamy Settu. Engineered oxygen vacancies in NiCo₂O₄/BiOI heterostructures for enhanced photocatalytic pollutant degradation. Environmental Science and Pollution Research. (2025), 31, 66866-66877.

Vadakkan K, Jose B, Mapranathukaran VO, **Sathishkumar K**, Ngangbam AK, Rumjit NP. Biofilm Suppression of *Pseudomonas aeruginosa* by Bio-Engineered Silver Nanoparticles from *Hellenia speciosa* Rhizome Extract. Microbial Pathogenesis. (2024) 9, 107105. **IF: 3.3 Q1**

Kuppusamy Sathishkumar*., Comparative efficacy of prolonged versus shorter awake prone positioning in managing acute respiratory failure in COVID-19 Patients. A Clinical Assessment. Intensive Care Medicine (2024), 1-2. **IF: 27.1 Q1**

Thanigaivel Sundaram, **Kuppusamy Sathishkumar***., Towards improved management of pulmonary herpes simplex virus and cytomegalovirus in COVID-19 ARDS: a future perspective. Intensive Care Medicine (2024), 1-2. **IF: 27.1 Q1**

Xueyu Wei, Saraschandra Naraginti, Xiaofan Yang, Xiaoping Xu, Shi-Peng Sun, Raghu Maligal-Ganesh, **Kuppusamy Sathishkumar**, Pengli Chen., Polydopamine functionalized FeVO₄@ PVDF ultrafiltration membrane with superior antifouling and detoxification properties. Chemical Engineering Journal (2024) 154718. **IF: 13.3 Q1**

Kuppusamy Sathishkumar, Meivelu Moovendhan, L Prabhuraman, M.M. Alam, AG Al-sehemi, Anbarasu K., Integrating AI in Food Contaminant Analysis: Enhancing Quality and Environmental Protection. Journal of Hazardous Materials Advances (2024) 100509. **IF: 5.4 Q2**

Xiaofan Yang, Yutao Xu, Saraschandra Naraginti, **Kuppusamy Sathishkumar**, Xueyu Wei, Shi-Peng Sun, Yajun Hong., Catalytic enhancement of microbial denitrification by FeVO₄@ biochar: Insight into the extra cellular polymeric matrix mechanism. Journal of Environmental Chemical Engineering (2024) 12(5), 113629. **IF: 7.4 Q1**

Naveen Kumar Sompalli, Yi Li, Jie Li, **Sathishkumar Kuppusamy**., An innovative triple interface reinforced photocatalytic system based on BiOCl/BaTiO₃@ Co-BDC-MOF composite for the simultaneous detoxification of Cr (VI) and sulfamethoxazole. Environmental Research (2024) 259,119532. **IF: 7.7 Q1**

J. Narenkumar, Bhaskar Das, S. Abilaji, **K. Sathishkumar**, M.S. Alshali, S. Devanesan, A. Rajasekar, T. Malik., Biosurfactant assisted bio-electrokinetic enhanced remediation of heavy metal contaminated soil. Frontiers in Microbiology <https://doi.org/10.3389/fmicb.2024.1458369> **IF: 4.0 Q2**

Xinghui Liu, **Kuppusamy Sathishkumar***, Huichao Zhang, Kuldeep K Saxena, Fuchun Zhang, Saraschandra Naraginiti, Anbarasu K, Ramya Rajendiran, Aruliah Rajasekar, Xiang Guo., *Frontiers in Environmental Cleanup: Recent Advances in Remediation of Emerging Pollutants from Soil and Water. Journal of Hazardous Materials Advances* (2024) 16, 100461. **IF: 5.4 Q2**

Kayeen Vadakkan, Janarthanam Hemapriya, Ajit Ngangbam, **Kuppusamy Sathishkumar***, Viji Mapranathukaran., *Biofilm inhibition of Staphylococcus aureus by silver nanoparticles derived from Hellenia speciosa rhizome extract. Microbial Pathogenesis* (2024) 196, 106933. **IF: 3.3 Q1**

Kayeen Vadakkan, **Kuppusamy Sathishkumar**, Viji Ouseph Mapranathukaran, Ajit Kumar Ngangbam, Bijayalakshmi Devi Nongmaithem, Janarthanam Hemapriya, Jyotsna B Nair., *Critical review on plant-derived quorum sensing signaling inhibitors in pseudomonas aeruginosa. Bioorganic Chemistry.* (2024) 151:107649. **IF: 4.5 Q1**

Hema Sindhuja George, Hosimin Selvaraj, Andivelu Ilangovan, Bader O Almutairi, Mohamed Kasim Sheit, **Kuppusamy Sathishkumar***., *Microwave-assisted one-pot synthesis of carbon dots from biomass: Fe (III) ion sensing and in-situ methylene blue reduction catalytic activity. Desalination and Water Treatment* (2024) 320, 100624. **IF:1 Q3**

G Vijay Samuel, Nibedita Dey, R Govindarajan, **Kuppusamy Sathishkumar**, Muthusamy Govarthanan, J Sakthidasan, J Sandhya, Lakshmi Sundeep., *Recent Development in Nanoparticle-Assisted Microbial Fuel Cell for Enhanced Reduction of Chromium. Current Microbiology* (2024) 81(9), 284. **IF: 2.3 Q3**

Vadakkan K, **Sathishkumar K***, Raphael R, Mapranathukaran VO, Mathew J, Jose B. *Review on biochar as a sustainable green resource for the rehabilitation of petroleum hydrocarbon-contaminated soil. Science of The Total Environment.* (2024) 4:173679. **IF: 9.8**

Vadakkan K, **Sathishkumar K**, Urumbil SK, Govindankutty SP, Ngangbam AK, Nongmaithem BD. *A review of chemical signaling mechanisms underlying quorum sensing and its inhibition in Staphylococcus aureus. Bioorganic Chemistry.* (2024) 16:107465. **IF: 5.1**

Yang X, Siyu D, Huo J, Naraginti S, Zhu M, Hong R, Zhang X, Wei X, Xu X, Xie G, Sun X, **Sathishkumar K**. *Nitrogen self-doped layered porous Myriophyllum aquaticum biomass-derived biochar activated persulfate to efficiently degrade printing and dyeing wastewater. Biomass Conversion and Biorefinery.* (2024) 13:1-2. **IF: 4.0**

Liu X, Naraginti S, Zhang F, **Sathishkumar K**, Saxena KK, Guo X. *Unlocking the unique catalysts of CoTiO₃/BiVO₄@ MIL-Fe (53) for improving Cr (VI) reduction and tetracycline degradation. Carbon Neutrality.* (2024) 3(1):1-6.

Gajendra Kumar Gaurav, Ram Singh, Canxing Fang, **Kuppusamy Sathishkumar***, Fuchun Zhang, Tariq Mehmood, Karolina Kula, Xiang Guo, Xinghui Liu, Wesam Atef Hatamleh., *Development of Optimum Waste Water Using Network. Energy* (2024) 297, 131297. **IF: 9**

M Elangovan, Murali Santhoshkumar, Kumar Selvaraj, **Kuppusamy Sathishkumar***, Manimaran Kumar, Mukesh Kumar Dharmalingam Jothinathan, Mansour K Gatasheh, Gajendra Kumar Gaurav, K Rajesh., *Sunlight-driven photocatalytic and anticancer properties of biogenic synthesized gold nanoparticles (AuNPs) employing Polygala elongata. Journal of King Saud University-Science* (2024), 103158. **IF:3.8**

Azhagarsamy Satheeshkumar, Ramanathan Duraimurugan, Punniyakotti Parthipan, **Kuppusamy Sathishkumar**, Mohamad S AlSalhi, Sandhanasamy Devanesan, Rajaram Rajamohan, Aruliah Rajasekar, Tabarak Malik., *Integrated Electrochemical Oxidation and Biodegradation for Remediation of a Neonicotinoid Insecticide Pollutant. ACS Omega* (2024)

<https://pubs.acs.org/doi/10.1021/acsomega.3c09749>. **IF: 4.1**

Arulprakash A, Canxiang F, Joseph Selvin, **Sathishkumar Kuppusamy**, Okram RD, Fuchun Z, Xiang G, Shine K, Ranjith B, Xinghui L, Plant biomass extracted eco-friendly natural surfactant enhanced bio-electrokinetic remediation of crude oil contaminated soil. *Environmental Research* (2024) 245, 117913. **IF: 8.3**

R Janani, S Bhuvana, V Geethalakshmi, R Jeyachitra, **Kuppusamy Sathishkumar**, Ranjith Balu, Ramamoorthy Ayyamperumal, Micro and nano plastics in food: A review on the strategies for identification, isolation, and mitigation through photocatalysis, and health risk assessment. *Environmental Research* (2024) 241, 117666. **IF: 8.3**

B Santhosh, Priya Adhikary, S Subhash Bharathi, Alaa Kayali, **Kuppusamy Sathishkumar**, Bader O Almutairi, Gajendra Kumar Gaurav, Sundaram Thanigaivel, In vitro screening and characterization of phytochemical products from *Alstonia scholaris* (Linn) and its bioactive potential for sustainable application. *Biomass Conversion and Biorefinery* (2023) 1-8. **IF: 4.0**

Kayeen Vadakkan, Ajit Kumar Ngangbam, **Kuppusamy Sathishkumar**, Nelson Pynadathu Rumjit, Meena Kochappan Cheruvathur, A review of chemical signaling pathways in the quorum sensing circuit of *Pseudomonas aeruginosa*. *International Journal of Biological Macromolecules* (2023) 127861 **IF: 8.2**

Abilaji Subramani, Narenkumar Jayaraman, Bhaskar Das, S Suresh, R Rajakrishnan, **Sathishkumar Kuppusamy**, Rajamohan Rajaram, Rajasekar Aruliah., Electrochemical oxidation of azo dyes degradation by RuO₂–IrO₂–TiO₂ electrode and biodegradation with *Aeromonas hydrophila* AR1 and its degradation pathway: An integrated approach. *Chemosphere* (2023) 140516, **IF: 8.8**

M.Elangovan, K. Rajesh, Murali Santhoshkumar, **Kuppusamy Sathishkumar**, N.Bharathiraja, M.Gnanasri., Exploring the potential of agro-waste mediated silver nanoparticles as antibacterial and antioxidant agents. *Biomass Conversion and Biorefinery* (2023) (In press) **IF: 4.0**

Saranya Vinayagam, **Kuppusamy Sathishkumar**, Ramamoorthy Ayyamperumal, Prabhu Manickam Natarajan, Irfan Ahmad, Mohd Saeed, Nadiyah M Alabdallah, Thanigaivel Sundaram., Distribution and transport of contaminants in soil through mining processes and its environmental impact and health hazard assessment: A review of the prospective solutions. *Environmental Research* (2023) 117473 **IF: 8.3**

Jayaraman Narenkumar, **Kuppusamy Sathishkumar**, Bhaskar Das, Aruliah Rajasekar, R Rajakrishnan, Rajaram Rajamohan, Tabarak Malik., An integrated approach of bioleaching-enhanced electrokinetic remediation of heavy metals from municipal waste incineration fly ash using *Acidithiobacillus* spp. *Frontiers in Environmental Science* (2023) 11:1273930. **IF:4.6**

Saraschandra Naraginti, **Kuppusamy Sathishkumar**, Kubendiran Lavanya, Fuchun Zhang, Xinghui Liu., Sunlight-driven intimately coupled photocatalysis and biodegradation (SDICPB): A sustainable approach for enhanced detoxification of triclosan. *Chemosphere* (2023) 336, 139210. **IF: 8.8**

Subramani Abilaji, **Kuppusamy Sathishkumar**, Jayaraman Narenkumar, Mohamad S Alsalihi, Devanesan Sandhanasamy, Parthipan Punniyakotti, Balakrishnan Muthuraj, Rajasekar Aruliah., Sequential photo electro oxidation and biodegradation of textile effluent: Elucidation of degradation mechanism and bacterial diversity. *Chemosphere* (2023) 138816. **IF: 8.8**

Saraschandra Naraginti, **Kuppusamy Sathishkumar**, Fuchun Zhang, Xinghui Liu., Fabrication of novel BiPO₄/Ag₃PO₄@ rGO hybrid composite for effective detoxification of tetracycline.

Environmental Research (2023) 223, 115407. **IF: 8.4**

Annamalai Natarajan, Radhakrishnan Prabakarakrishnan, Kasivelu Govindaraju, Vimal Sugumar, **Kuppusamy Sathishkumar**, Jayaraman Narenkumar, Aadhikesavan Ramanan, Balasubramanian Senthil Kumar. Hepato and renoprotective activity of *Kappaphycus alvarezii* ethanolic extract in cisplatin causes hepatic and kidney harm in Albino Wistar rats. Aquaculture International (2023) 1-16. **IF: 2.9**

Jie Li, Yi Li, Pengli Chen, **Kuppusamy Sathishkumar**, Yumiao Lu, Saraschandra Naraginti Yunbo Wu, Haisuo Wu, Biological mediated synthesis of reduced graphene oxide (rGO) as a potential electron shuttle for facilitated biological denitrification: Insight into the electron transfer process. Journal of Environmental Chemical Engineering (2022) In press **IF: 7.968**

Arumugam Arul Prakash, **Kuppusamy Sathishkumar**, Mohamad S AlSalhi, Sandhanasamy Devanesan, Panagal Mani, Seralathan Kamala-Kannan, Selvaraj Vijayanand, Aruliah Rajasekar, Integrated approach of photo-assisted electrochemical oxidation and sequential biodegradation of textile effluent. Environmental Pollution 307, 119412 (2022) **IF: 9.988**

K. Sathishkumar, Y. Li, M.S. Alsaldhi, B. Muthukumar, G.K. Gaurav, S. Devanesan, A. Rajasekar, R. Manikandan, Enhanced biological nitrate removal by $\text{gC}_3\text{N}_4/\text{TiO}_2$ composite and role of extracellular polymeric substances. Environmental Research 112158 (2021) **IF: 6.498**

T.J. Al-Musawi, N. Mengelizadeh, **K. Sathishkumar**, S. Mohebi, D. Balarak, Preparation of CuFe_2O_4 /montmorillonite nanocomposite and explaining its performance in the sonophotocatalytic degradation process for ciprofloxacin. Colloid and Interface Science Communications 45, 100532 (2021) **IF: 4.914**

K. Sathishkumar, Y. Li, E. Sanganyado, Electrochemical behavior of biochar and its effects on microbial nitrate reduction: Role of extracellular polymeric substances in extracellular electron transfer. Chemical Engineering Journal 125077 (2020) **IF: 10.652**

M. Sui, Y. Li, Y. Jiang, L. Wang, W. Zhang, **K. Sathishkumar**, H. Zakaria, Sediment based biochar facilitates highly efficient nitrate removal: Physicochemical properties, biological responses and potential mechanism. Chemical Engineering Journal 405, 126645 (2021) **IF: 10.652**

Sadaf Shabbir, Muhammad Faheem, Naeem Ali, Philip G.Kerr, Long-FeiWang, **Sathishkumar Kuppusamy**, Yi Li, Periphytic biofilm: An innovative approach for biodegradation of microplastics. Science of the Total Environment, 717,137064 (2020) **IF 5.589**

G.K.Gaurav, T. Mehmood, M. Kumar, L. Cheng, **K. Sathishkumar**, A. Kumar, D. Yadav, Review on polycyclic aromatic hydrocarbons (PAHs) migration from wastewater. Journal of Contaminant Hydrology, 236, 103715 (2021) **IF: 2.347**

D. Yadav, S. Rangabhashiyam, P. Verma, P. Singh, P. Devi, P. Kumar, C.M. Hussain, G.K.Gaurav, **K. Sathishkumar**, Environmental and health impacts of contaminants of emerging concerns: Recent treatment challenges and approaches, Chemosphere, 272, 129492 (2021) **IF: 5.778**

K. Sathishkumar, M.S. Alshali, E. Sanganyado, S. Devanesan, A. Arulprakash, A. Rajasekar, Sequential electrochemical oxidation and bio-treatment of the azo dye Congo red and textile effluent., Journal of Photochemistry and Photobiology B: Biology 200, 111655 (2019) **IF: 4.0**

K.Sathishkumar, S.Manivannan, K.Murugan and A.Rajasekar., Biodecolourization of textile dyes by novel, indigenous *Pseudomonas stutzeri* MN1 and *Acinetobacter baumannii* MN3. Journal of Environmental Chemical Engineering 5, 716-724 (2017). **IF: 4.3**

K. Sathishkumar, K. Murugan, G. Benelli, A. Higuchi and A. Rajasekar., Bioreduction of hexavalent chromium by *Pseudomonas stutzeri* L1 and *Acinetobacter baumannii* L2. Annals of Microbiology 67(1),91-98 (2017) **IF 1.2**

K.Sathishkumar, S.Sathiyaraj, P.Parthipan, A.Agrawal, K.Murugan, A.Rajasekar., Electrochemical decolorization of methyl red by RuO₂-IrO₂-TiO₂ electrode and biodegradation with *Pseudomonas stutzeri* MN1 and *Acinetobacter baumannii* MN3: An integrated approach, Chemosphere 183, 204-211 (2017) **IF 5.1**

K.Sathishkumar, J.Narenkumar, J.Madhavan, K.Murugan, A.Rajasekar., Electrochemical decolorization and biodegradation of tannery effluent for reduction of chemical oxygen demand and hexavalent chromium., Journal of Water Process Engineering, 20, 22-28, (2017) **IF 3.1**

K.Sathishkumar, J.Narenkumar, A.Selvi, K.Murugan, R.Babu Janarthanam, A.Rajasekar., Treatment of soak liquor and bioelectricity generation in dual chamber microbial fuel cell., Environmental Science and Pollution Research, Doi: 10.1007/s11356-018-1371-1 (2017) **IF: 2.8**

J.Narenkumar, **K.Sathishkumar**, R.K.Sarankumar, K.Murugan, A.Rajasekar (2017), An anticorrosive study on potential bioactive compound produced by *Pseudomonas aeruginosa* TBH2 against the biocorrosive bacterial biofilm on copper metal, Journal of Molecular Liquids, 243, 706-713, (2017) **IF: 4.5**

Book Chapters

J. Vaishnavi, P. Parthipan, A. Arulprakash, **K. Sathishkumar***, A. Rajasekar Biosurfactant Assisted Bioremediation of Crude Oil/Petroleum Hydrocarbon Contaminated Soil. Handbook of Assisted and Amendment: Enhanced Sustainable Remediation Technology 313-329 (2021)

Patents

Kayeen Vadakkan, Aruliah Rajasekar, **Kuppusamy Sathishkumar.**, Aquatic Microbiome Analysis Device, Design Number 402651-001, Government of India.

PRESENTATIONS

	State Level	National	International
Conference	-	6	5
Seminar	-	5	2

PARTICIPATION

	State Level	National	International
Conference	-	8	4
Seminar	-	5	3
Workshop	-	3	1
Orientation	-	2	1

Invited Speaker / Session Chair- Conference / Seminar / Workshop

Invited Speaker at International seminar on Recent Advances in Bioremedial Technology by Department of Biotechnology, Thiruvalluvar University, Vellore, 31st January 2020.

Invited Speaker at National Conference at Department of Biotechnology, St. Mary's College, Thrissur, Kerala, 8th February 2020.

Invited speaker at National level FDP on Building a Predictive Understanding of Microbial Communities by Department of Zoology, Nirmala College for Women, Coimbatore, 23rd – 24th May 2020.

Invited Speaker at National level Workshop on New Perspective of Artificial Intelligence in Biotechnology for improving the sustainable agriculture and environment by Department of Biotechnology, PSG College of Arts and Science, Coimbatore, 3rd to 5th February 2025.

Members in BoS/ Editorials/ Professional Bodies

Editorial board member in Scientific Reports (Nature Group of Publisher)

Editorial board member in Discover Sustainability (Springer Nature)

Editorial board member in Discover Chemical Engineering (Springer Nature)

AWARDS, HONORS AND RECOGNITION

Awards / Honors /Recognition	Agency / Institution	Year of Award
National Postdoctoral Fellowship	SERB, Govt. of India	2022
Visiting Research Fellow	Jackson State University, USA	2020
Postdoctoral Fellow	Hohai University, China	2018
Junior Research Fellow	SERB, Govt. of India	2017
Best Poster Award	Hong Kong Baptist University, Hong Kong	2016
Best Poster Award	Karunya University, India	2015