

Dr. P. SARAVANAN, M.Tech, Ph.D.

Assistant Professor (Selection Grade)

Department of Petrochemical Technology

Bharathidasan Institute of Technology (UCE- BIT Campus)

Anna University,

Tiruchirappalli 620 024

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Researcher Id: N-2105-2018

ORCID ID: 0000-0001-9499-0807

Research Gate: <https://www.researchgate.net/profile/Panchamoorthy-Saravanan>

Google scholar: <https://scholar.google.com/citations?user=VxnBeqYAAAAA&hl=en>

Vidwan profile: <https://vidwan.inflibnet.ac.in/myprofile>

EDUCATIONAL QUALIFICATIONS ; M.Tech, Ph.D

❖ **Doctor of Philosophy (Ph.D.) in Chemical Engineering - 2013**

✚ **Advisor: Prof. R.Muthuvelayudham, M.E, Ph.D.**

✚ **Annamalai University, Chidambaram**

✚ **Thesis Title: "Enzymatic hydrolysis of cellulosic materials"**

TEACHING AND RESEARCH EXPERIENCES (16 years 10 months)

Post Held	Govt. Institution / University	Period	
		From	To
Assistant Professor	Anna University,UCE-BITCampus, Tiruchirappalli	20-02-2018	Till Date
Assistant Professor	Annamalai University, Chidambaram	08-10-2007	19-02-2018
Total Service		16 Years 10 Months	

FIELD OF RESEARCH INTEREST

Currently working in the area of

1. Biofuels.
2. Biological wastewater treatment.
3. Waste management.
4. Bibliometrics

FUNDED PROJECT -01 [Completed - 01]

[Received the project worth of **Rs.839000/- (Eight lakh thirty nine thousand only)**]

Title of the Project	Funding Agency	Budget Amount (Rs. In lakhs)	Status
Increasing amylase, cellulose and hemicellulase enzyme synthesis by sequential optimization utilizing central composite design using cheaper substrates.	UGC Major Research Project	Rs.839000	Completed (2009-2013)
Total Budget		Rs.839000	

Ph.D RESEARCH PROJECTS (Ongoing):

Sl. No.	Scholar Name	Research Topic
1	V.P.MOHANAJAYAVALLI	Synthesis of bionanocomposite and its application for the removal of toxic compounds from aquatic environments

RECOGNITION & AWARDS HONOURS

Sl. No.	Recognition / Awarded	Year	Agency
1	Elite certificate(Technologies for clean and renewable energy production)	2019	NPTEL
2	Elite certificate(Waste to Energy Conversion)	2019	NPTEL
3	Elite certificate(Ecology and Environment)	2020	NPTEL
4	Elite certificate(Biomass Conversion and Biorefinery)	2021	NPTEL
5	Elsevier reviewer recognition award	2021	Environmental Research
6	Springer reviewer recognition award	2021	Biomass Conversion and Bio refineries
7	Elsevier reviewer recognition award	2022	Environmental Research
8	Springer reviewer recognition award	2022	Biomass Conversion and Bio refineries
9	Elsevier reviewer recognition award	2023	Environmental Research
10	Springer reviewer recognition award	2023	Biomass Conversion and Bio refineries

MEMBERSHIP IN SCIENTIFIC BODIES (Fellow / Life member)- 1

Sl.No.	Name of the Professional Body / Organization	Number of Years	Level	Place
1	Indian Institute of Chemical Engineers	2007-Till now	Life Member	KOLKATTA

EDITED BOOKS: 01

G.Venkatesan, M.Rengasamy, P.Saravanan "Wastewater Treatment" Publisher: LAKSHMI publications, Chennai, India. ISBN NO: 978-81-953818-4-5, 2022

BOOK CHAPTERS: 01

P.Saravanan, R.Muthuvelayudham "Enhancing the Bioproduction of Cellulase by Aspergillus Nidulan via Medium Optimization" Biotechnology and Biochemical Engineering 65-71(Springer)

PATENTS: 01

Sl. No.	Inventers Name	Title of the Patent
1	P.SARAVANAN, et al., 2020	Internet of Things based Smart Water Testing Drone System for Sewage Testing Process

PUBLICATIONS:

1. P Lokesh, R Shobika, SN Omer, M Reddy, **Panchamoorthy Saravanan**, R Rajeshkannan Bioremediation of plastics by the help of microbial tool: A way for control of plastic pollution. Sustainable Chemistry for the Environment, 100027, 2023. <https://doi.org/10.1016/j.scenv.2023.100027>.
2. B Sowmya, , **Panchamoorthy Saravanan**, R Rajeshkannan, M Rajasimman Facile verdant approach on zirconia-doped zinc oxide nanoparticles (Zr-ZnO NPs) using Citrus medica fruit: antibacterial and anti-inflammatory activity. Biomass Conversion and Biorefinery, 1-9, 2023. <https://doi.org/10.1007/s13399-023-04652-5>. **(Impact factor: 4.1)**
3. K Kumaraguru, **P Saravanan**, R Rajesh Kannan, V Saravanan. A systematic analysis of hexavalent chromium adsorption and elimination from aqueous environment using brown marine algae (Turbinaria ornata).Biomass Conversion and Biorefinery 13 (9), 8223-8238, 2023. <https://doi.org/10.1007/s13399-021-01795-1>.**(Impact factor: 4.1)**
4. B Sowmya, Varsha Murugan, P Jacqueline Rosy, **Panchamoorthy Saravanan**, R Rajeshkannan, M Rajasimman, S Venkat Kumar. Employing newly developed copper oxide nanoparticles for antibacterial capability from discarded Wedelia trilobata flowers. Biomass Conversion and Biorefinery, 1-12, 2023. <https://doi.org/10.1007/s13399-023-03760-6>. **(Impact factor: 4.1).**
5. S Rajeswari, **Panchamoorthy Saravanan***, M Linkesver, R Rajeshkannan, M Rajasimman. Identifying global status and research hotspots of heavy metal remediation:

- A phase upgrade study. *Journal of Environmental Management* 324, 116265, 2022. <https://doi.org/10.1016/j.jenvman.2022.116265>. **(Impact factor: 8.7)**
6. N Nivetha, B Srivarshine, B Sowmya, Mangaiyarkarasi Rajendiran, **Panchamoorthy Saravanan**, R Rajeshkannan, M Rajasimman, Thi Hong Trang Pham, VenkatKumar Shanmugam, Elena-Niculina Dragoi. A comprehensive review on bio-stimulation and bio-enhancement towards remediation of heavy metals degeneration. *Chemosphere*, 137099, 2022. <https://doi.org/10.1016/j.chemosphere.2022.137099>. **(Impact factor: 8.8)**
 7. Loganathan Nagarajan, Kannan Kumaraguru, **Panchamoorthy Saravanan**, Rajan Rajeshkannan, Manivasagan Rajasimman. Facile synthesis and characterization of microporous-structured activated carbon from agro waste materials and its application for CO₂ capture. *Environmental Technology* 43 (25), 3983-3992, 2022. <https://doi.org/10.1080/09593330.2021.1938243>. **(Impact factor: 2.8)**.
 8. Nisha Elizabeth Sunny, A Kaviya, **Panchamoorthy Saravanan**, R Rajeshkannan, M Rajasimman, S Venkat Kumar. In vitro and in silico molecular docking analysis of green synthesized tin oxide nanoparticles using brown algae species of *Padina gymnospora* and *Turbinaria ornata*. *Biomass Conversion and Biorefinery*, 1-12, 2022. <https://doi.org/10.1007/s13399-022-03253-y>. **(Impact factor: 4.1)**
 9. Nisha Elizabeth Sunny, Sneha Susan Mathew, Nandita Chandel, **Panchamoorthy Saravanan**, R Rajeshkannan, M Rajasimman, Yasser Vasseghian, N Rajamohan, S Venkat Kumar. Green synthesis of titanium dioxide nanoparticles using plant biomass and their applications-A review. *Chemosphere* 300, 134612, 2022. <https://doi.org/10.1016/j.chemosphere.2022.134612> . **(Impact factor: 8.8)**
 10. Nisha Elizabeth Sunny, Sneha Susan Mathew, S Venkat Kumar, **Panchamoorthy Saravanan**, R Rajeshkannan, M Rajasimman, Yasser Vasseghian. Effect of green synthesized nano-titanium synthesized from *Trachyspermum ammi* extract on seed germination of *Vigna radiate*. *Chemosphere* 300, 134600, 2022. <https://doi.org/10.1016/j.chemosphere.2022.134600>. **(Impact factor: 8.8)**
 11. L Nagarajan, **Panchamoorthy Saravanan**, K Kumaraguru, A AnnamRenita, R Rajeshkannan, M Rajasimman. A facile approach in activated carbon synthesis from wild sugarcane for carbon dioxide capture and recovery: isotherm and kinetic studies. *Biomass Conversion and Biorefinery*, 1-13, 2022. <https://doi.org/10.1007/s13399-022-03080-1>. **(Impact factor: 4.1)**
 12. Subramanian Moscow, Veerappan Kavinkumar, Masilamani Sriramkumar, Kandasamy Jothivenkatachalam, **Panchamoorthy Saravanan**, Natarajan Rajamohan, Yasser Vasseghian, Manivasagan Rajasimman. Impact of Erbium (Er) and Yttrium (Y) doping on

- BiVO₄ crystal structure towards the enhancement of photoelectrochemical water splitting and photocatalytic performance. *Chemosphere* 299, 134343, 2022. <https://doi.org/10.1016/j.chemosphere.2022.134343>. **(Impact factor: 8.8)**
13. L Nagarajan, **Panchamoorthy Saravanan**, K Kumaraguru, Sang-Woo Joo, Yasser Vasseghian, R Rajeshkannan, M Rajasimman. Synthesis of magnesium nanocomposites decked with multilayer graphene (MG) and its application for the adsorptive removal of pollutant. *Chemosphere* 298, 134121, 2022. <https://doi.org/10.1016/j.chemosphere.2022.134121>. **(Impact factor: 8.8)**
14. Divya Baskaran, **Panchamoorthy Saravanan***, V Saravanan, R Rajesh Kannan, S Ramesh, M Dilipkumar, R Muthuvelayudham. Pomegranate peel utilization by an indigenous fungal strain of *Trichoderma reesei* NCIM 1186: Optimization and Kinetics studies on production of cellulase. *Biomass Conversion and Biorefinery*, 1-19, 2022. <https://doi.org/10.1007/s13399-022-02901-7>. **(Impact factor: 4.1)**
15. Shanmugam Rajeswari, Divya Baskaran, **Panchamoorthy Saravanan***, Manivasagan Rajasimman, Natarajan Rajamohan, Yasser Vasseghian. Production of ethanol from biomass–Recent research, scientometric review and future perspectives. *Fuel* 317, 123448, 2022. <https://doi.org/10.1016/j.fuel.2022.123448>. **(Impact factor: 7.4)**
16. B Karpanai Selvan, Soni Das, M Chandrasekar, R Girija, S John Vennison, N Jaya, **P Saravanan**, M Rajasimman, Yasser Vasseghian, N Rajamohan. Utilization of biodiesel blended fuel in a diesel engine–Combustion engine performance and emission characteristics study. *Fuel* 311, 122621, 2022. <https://doi.org/10.1016/j.fuel.2021.122621>. **(Impact factor: 7.4)**
17. B Karpanai Selvan, K Thiyagarajan, Soni Das, N Jaya, S Anuradha Jabasingh, **P Saravanan**, M Rajasimman, Yasser Vasseghian. Synthesis and characterization of nano zerovalent iron-kaolin clay (nZVI-Kaol) composite polyethersulfone (PES) membrane for the efficacious As₂O₃ removal from potable water. *Chemosphere* 288, 132405, 2022. <https://doi.org/10.1016/j.chemosphere.2021.132405>. **(Impact factor: 8.8)**
18. Jagadeesan Aravind Kumar, Pandurangan Prakash, Thangavelu Krithiga, Duvuru Joshua Amarnath, Jayapal Premkumar, Natarajan Rajamohan, Yasser Vasseghian, **Panchamoorthy Saravanan**, Manivasagan Rajasimman. Methods of synthesis, characteristics, and environmental applications of MXene: A comprehensive review. *Chemosphere* 286, 131607, 2022. <https://doi.org/10.1016/j.chemosphere.2021.131607>. **(Impact factor: 8.8)**
19. **Panchamoorthy Saravanan**, Shanmugam Rajeswari, Jagadeesan Aravind Kumar, Manivasagan Rajasimman, Natarajan Rajamohan. Bibliometric analysis and recent trends on MXene research–a comprehensive review. *Chemosphere* 286, 131873, 2022.

- <https://doi.org/10.1016/j.chemosphere.2021.131873>. **(Impact factor: 8.8)**
20. S Rajeswari, **P Saravanan***, K Kumaraguru, N Jaya, R Rajeshkannan, MJBC Rajasimman. The scientometric evaluation on the research of biodiesel based on HistCite and VOSviewer (1993–2019). Biomass Conversion and Biorefinery, 1-11, 2021. <https://doi.org/10.1007/s13399-021-01461-6>. **(Impact factor: 4.1)**
21. **P Saravanan**, S Ramesh, N Jaya, S Anuradha Jabasingh. Prospective evaluation of xylitol production using *Dabaryomyces hansenii* var *hansenii*, *Pachysolen tannophilus*, and *Candida guilliermondii* with sustainable agricultural residues. Biomass Conversion and Biorefinery, 1-19, 2021. <https://doi.org/10.1007/s13399-020-01221-y>. **(Impact factor: 4.1)**
22. K.Ganesan, V.Saravanan, N.Rajamohan, **P.Saravanan**, M.Rajasimman. Performance Studies on Biofilter for VOC Removal under Various Organic Loading Rates and Gas Empty Bed Residence Times. American International Journal of Research in Science, Technology, Engineering & Mathematics 25(1), 55-62, 2019.
23. K.Ganesan, V.Saravanan, N.Rajamohan, **P.Saravanan**, M.Rajasimman. Performance studies on biofiltration of benzene and xylene vapours in a pure and mixed forms – kinetics and modelling. Asian Journal of Microbiology, Biotechnology & Environmental Sciences Paper. 21(3), 780-788, 2019.
24. **P Saravanan***, R Muthuvelayudham, T Viruthagiri. Enhanced Production of Cellulase from Pineapple Waste by Response Surface Methodology. Journal of engineering 2013
25. **P Saravanan***, R Muthuvelayudham, R Rajesh Kannan, T Viruthagiri. Optimization of cellulase production using *Trichoderma reesei* by RSM and comparison with genetic algorithm. Frontiers of Chemical Science and Engineering 6, 443-452, 2012. **(Impact factor: 4.5)**
26. SB Riswanali, **P Saravanan***, R Muthuvelayudham, T Viruthagiri. Optimization of nutrient medium for cellulase and hemicellulase productions from rice straw: a statistical approach. International Journal of Chemical and Analytical Science 3 (4), 1364-1370, 2012.
27. **P Saravanan***, R Muthuvelayudham, T Viruthagiri. Application of statistical design for the production of cellulase by *Trichoderma reesei* using mango peel. Enzyme research 2012

Research Collaboration:

INTERNATIONAL:

1. Dr. Yasser Vasseghian, Professor, Department of Chemistry, Soongsil University, Seoul, 06978, South Korea
2. Dr. Eduardo Alberto López-Maldonado, Professor, Faculty of Chemical Sciences and

Engineering, Autonomous University of Baja, California, CP 22390 Tijuana, Baja California, Mexico

INTERNATIONAL CONFERENCES PARTICIPATED:

- P.Saravanan, Muthu Velayudham. " Enhancing the Bioproduction of Cellulase by Aspergillus Nidulan via Medium Optimization"International conference on "advances in chemical engineering " organized by Department of chemical engineering, National Institute of Technology Karnataka- Surathkal- Mangalore 575025, 20- 22 December 2015
- P.Saravanan, R.Muthuvelayudham ,M.Rajasimman and S.Ramesh "Process Optimization for Hyper Production of Cellulase Via Statistical Methodology From Aspergillus Nidulan Using Lignocellulosic Waste" "International conference on "Advances in Algal Biotechnology" organized by School of Bio Sciences and Technology VIT University, Vellore – 632 014 Tamilnadu, India 10 - 12 August 2016
- P.Saravanan, Muthu Velayudham.R, rajasimman.m "Optimization of cellulase production from aspergillus nidulan strain using surface response methodology"International conference on "Environmental conservation and human health – challenges and strategies " organized by Department of Zoology, S.V. University, Tirupati 21st -23rd December, 2016.
- P.Saravanan "optimization of cellulose production using aspergillus nidulan by RSM and comparison with Genetic algorithm" 3rdInternational conference on "Recent trends in science, engineering and management (ICRTSEM-2019" organized by Department of Biotechnology, Karpaga vinayaga college of engineering and technology,KanchipurM– Tamilnadu, India 22 - 23 March 2019.
- P.Saravanan "Biological response of using gelatin industry solid waste in agriculture as fertilizer supplement" International conference on "Environmental pollution and control technologies(EPACT-2022" organized by Department of chemical engineering, Annamalai University, chidambaram –Tamilnadu, India 26 - 27 August 2022

NATIONAL CONFERENCES PARTICIPATED:

- Saravanan.P, Muthu Velayudham.R, Raja Sathendra.E, Viruthagiri.T, "Enzymatic Hydrolysis of Vegetable waste by Trichoderma reesei Cellulase using CCD based Response Surface Methodology", 64th Annual Session of the Indian Institute of Chemical Engineers, CHEMCON 2011, Dec 27-29, 2011, Bangaluru, pp. 57-58. Bangaluru, M.S.Ramaiah Institute of Technology, Bangalore.

PROFESSIONAL ACTIVITIES:

CONFERENCES / SEMINARS/WORKSHOPS ORGANIZED:

- Organized Two weeks AICTE Sponsored Faculty development programme on "Advances in waste water treatment and air pollution control techniques (AWTAPCT-2017) in the Department of Chemical Engineering, Annamalai University, Chidambaram-608002 from 13.11.2017 to 25.11.2017.

LIST OF SEMINAR / SHORT TERM COURSE /FDP/ WORKSHOP ATTENDED:

1. Attended two week MHRD – AICTE Staff Development Programme on “optimum energy utilization in thermal systems” May 17-30, 2009 Organised by Dept. of Mechanical Engineering National Institute of Technology Calicut- 673601 Kerala.
2. Attended two week MHRD – AICTE Staff Development Programme on “Recent Trends in Corrosion Control & Surface Engineering (CC & SE - 2009)” June 08-20, 2009 Organized by Dept. of Metallurgical and Materials Engineering National Institute of Technology Tiruchirappalli- 620015 Tamil Nadu.
3. Attended one week MHRD – AICTE Staff Development Programme on “Advanced separation process” May 31-June 05, 2010 Organised by Dept. of chemical Engineering National Institute of Technology Calicut- 673601 Kerala.
4. Attended two weeks MHRD- ISTE workshop on “Fluid mechanics” 20.05.2014 - 30.05.2014 held at the Department of mechanical engineering, Indian Institute of Technology, Kharagpur721301 West Bengal
5. Attended one week MHRD – AICTE Staff Development Programme on “Chemical Micro Process Engineering: Flow Modeling and Applications” June 20-27, 2016 Organized by Dept. of chemical Engineering Indian Institute of Technology Roorkee- 247667 Uttarakhand.
6. Centre for Faculty Development, Anna University, Chennai Sponsored programme on “Chemical Reaction Engineering-II”, A.C. Tech Campus, Anna University, Chennai from 22nd to 29th May, 2018.
7. Faculty Development programme on “La Tex” organized by University College of Engineering, Anna University–BIT Campus, and Tiruchirappalli with course material provided by Spoken Tutorial Project, IIT Bombay from 10th August – 14th August 2020.
8. AICTE Training And Learning (ATAL) Academy Online FDP on "Green Technology & Sustainability Engineering" from 19.10.2020 to 23.10.2020 at Dr BR Ambedkar National Institute of Technology Jalandhar.
9. AICTE Training And Learning (ATAL) Academy Online FDP on "Energy Engineering" from 23.11.2020 to 27.11.2020 at Indian Institute of Technology Roorkee.

10. AICTE Training And Learning (ATAL) Academy Online FDP on "Environmental Geotechnology" from 04.01.2021 to 08.01.21 at National Institute of Technology Karnataka Surathkal.
11. AICTE Training And Learning (ATAL) Academy Online FDP on "Novel Materials" from 08.02.2021 to 12.02.2021 at National Institute of Technology Patna.
12. Attended Two weeks Industrial Training Programme on "Plastic processing and testing organized at Central Institute of Petrochemical and Technology (CIPET: CSTS)" Madurai from 10.06.2021 to 22.06.2021.
13. AICTE sponsored one week STTP on "Modeling and simulation of industrial processes(MOSCHEM I – 2021)" from 20/09/2021 to 25/09/2021 organized by Department of Chemical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar – 608002, Tamil Nadu, India.
14. AICTE sponsored one week STTP on "Recent advances in soft computing techniques in optimizing Industrial process (MOSCHEM II – 2021)" from 27/09/2021 to 02/10/2021 organized by Department of Chemical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar – 608002, Tamil Nadu, India.
15. AICTE sponsored one week STTP on "Optimization, modeling and simulation of industrial processes (MOSCHEM III – 2021)" from 04/10/2021 to 09/10/2021 organized by Department of Chemical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar – 608002, Tamil Nadu, India.

LIST OF NPTEL SWAYAM COURSES ATTENDED:

1. NPTEL-AICTE one week FDP on "Waste to Energy Conversion", January-April 2019.
2. NPTEL-AICTE one week FDP on "Technologies for clean and renewable energy production", July-September 2019.
3. NPTEL-AICTE one week FDP on "Technologies for clean and renewable energy production", July-September 2019
4. NPTEL one week FDP on "Ecology and Environment", September-November 2020
5. NPTEL-AICTE one week FDP on "Renewable energy engineering- Solar, Wind and Biomass energy systems", January-March 2021
6. NPTEL-AICTE one and half week FDP on "Biomass Conversion and Biorefineries", January-April 2021

MOOCS NITTTR COURSES COMPLETED:

1. Two Credit course NITTTR Exclusive MOOC "Fundamentals of Outcome-Based Curriculum in Engineering Education", September – November 2020.

2. Two Credit course NITTTR Exclusive MOOC "Managing Learning Resources", July – November 2020.
3. Three Credit course NITTTR-AICTE FDP Exclusive MOOC “Student Assessment and Evaluation”, January – April 2022.
4. Two Credit course NITTTR Exclusive MOOC “Communication Skills, Modes & Knowledge Dissemination”, July – November 2022.

MOOCS COURSES COMPLETED:

- Two-Week Refresher Course on Managing Online Classes & Co- creating MOOCS 24.0 from 11 - 25 March, 2023 and obtained Grade A+ organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of MINISTRY OF EDUCATION PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING.
- 4-Week Faculty Induction/Orientation Programme for “Faculty in Universities/Colleges/Institutes of Higher Education” from 22 March – 20 April, 2023 and obtained Grade A+ under the aegis of MINISTRY OF EDUCATION PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING.