CURRICULUM VITAE

PROFESSOR KANNAN PAKSHIRAJAN

Kannan Pakshirajan obtained BPharm from the Tamil Nadu Dr M.G.R. Medical University and MTech in Biotechnology from Jadavpur University. He obtained his PhD in Chemical Engineering from IIT Madras. He was a BOYSCAST Fellow at the IHE Delft Institute for Water Education, The Netherlands. As an Environmental Biotechnologist he has been intimately associated with toxicity removal in air, soil and water environment. He joined IIT Guwahati in 2004 and has spent over 17 years of teaching and research focusing on technologies to treat contaminated environment and toxicity removal. He has served as a Visiting Researcher in the discipline of Microbiology at National University of Ireland Galway. He is 'DBT Nominee' for the Institutional Biosafety Committee (IBSC) constituted at North Eastern Hill University, Shillong, Meghalaya. Pakshirajan has made significant contributions to environmental biotechnology with over 200 publications and 2 edited books

Academic Profile:

Ph.D. (2004)	Department of Chemical Engineering Indian Institute of Technology Madras, Chennai
M.Tech. (1999)	Department of Life Science and Biotechnology Jadavpur University, Kolkata
B.Pharm (1997)	C.L. Baid Metha College of Pharmacy The Tamilnadu Dr. M.G.R. Medical University, Chennai

Career Profile:

Position	University/ Institution	Dates
Professor, Department of Biosciences & Bioengineering	Indian Institute of Technology Guwahati	April 2015 - Till date
Head, Department of Biosciences & Bioengineering	Indian Institute of Technology Guwahati	February 2016- January 2019
Associate Dean, Students Affairs	Indian Institute of Technology Guwahati	November 2014 – April 2016
Chairman, Students Welfare Board	Indian Institute of Technology Guwahati	July 2013- November 2014
Associate Professor, Department of Biosciences & Bioengineering	Indian Institute of Technology Guwahati	September 2008 – March 2015
Chairman, Hostel Affairs Board	Indian Institute of Technology Guwahati	July 2008- June 2010

Assistant Professor, Department of Biosciences & Bioengineering	Indian Institute of Technology Guwahati	July 2004 – August 2008
Project Officer, Department of Civil Engineering	Indian Institute of Technology Madras, Chennai	April 2004 – June 2004
Half-time Teaching Assistant, Department of Chemical Eng.	Indian Institute of Technology Madras, Chennai	January 2000 – March 2004

Specialization and Areas of Research Interest:

Biofuels and other Biotechnological Products: Production; Process design, kinetics and optimization; Environmental applications
Biorefineries
Environmental Biotechnology: Biological removal and recovery of inorganic compounds from wastewaters; Biological treatment of industrial wastewaters; Biodegradation of xenobiotics

Awards, Recognitions and Professional achievements:

#	**Editorial Board Member** of Reviews in Environmental Science and Bio/Technology, Springer, The Netherlands
#	**Editorial Board Member** of Nanotechnology for Environmental Engineering, Springer, The Netherlands
#	**Lead Guest Editor** of Special issue 2014 on Biotechnology in Environmental Monitoring and Pollution Abatement, published in BioMed Research International (formerly titled Journal of Biomedicine and Biotechnology), a peer-reviewed, open access journal by Hindawi Publishing Corporation.
	Editorial Board Member of Reviews in Environmental Science and Bio/Technology, Springer, The Netherlands
#	**HIYOSHI YOUNG LEAF AWARD - 2010** by Hiyoshi Corporation, Japan, for outstanding contribution in the field of environmental conservation and protection
#	**BOYSCAST Fellowship for the year 2010-2011** by the Department of Science and Technology (DST), Government of India, to conduct advanced research in the area of Industrial Microbiology/Environmental Biotechnology for a period of twelve months at Department of Environmental Resources, UNESCO-IHE, Westvest 7, 2611 AX Delft, The Netherlands.
#	**Indian National Science Academy (INSA) Award for Young Scientist 2010** for research in the area of Biological Sciences
#	**National Academy of Sciences India (NASI) Young Scientist Award 2008** for research in the area of Biological Sciences
#	**University Grants Commission (UGC) Scholarship Award** for pursuing MTech in Biotechnology at Jadavpur University, Kolkata, through the Jawaharlal Nehru University entrance examination 1997.

Sponsored Research Projects (as PI only):

S. No.	Title	Sponsoring agency	Amount sanctioned (Rs.)	Duration
1.	The development and implementation of sensors and treatment technologies for freshwater systems in India	Department of Science and Technology (DST), Government of India	54,71,000	2018-2022
2.	A novel membrane assisted bioprocess for heavy metal removal and recovery as nano powders from acid mine drainage	Council of Scientific and Industrial Research (CSIR), , Government of India	22,46,000	2017-2020
3.	Novel biological treatment process for water recycle-reuse and energy conservation in refinery industry	Department of Science and Technology (DST)	42,75,000	2017-2020
4.	Hydrogenogenic carbon monoxide conversion under mesophilic condition using anaerobic granular sludge biomass for biodesulphurization	Department of Biotechnology (DBT)	38,70,000	2017-2021
5.	Carbon monoxide conversion using native hydrogenogenic microorganisms for sulphate rich wastewater treatment	Department of Biotechnology (DBT)	14,45,000	2014-2015
6.	Strategy Development for the mitigation of heavy metals in surface waters around coal mining areas using native cyanobacterial strains	Department of Biotechnology (DBT)	14,65,000	2012-2015
7.	Decolorization of textile dyeing wastewaters by the white rot fungi *Phanerochaete chrysosporium* in a novel rotating biological contactor reactor	Council of Scientific and Industrial Research (CSIR)	11,49,840	November 2007 – November 2010
8.	Non-conventional two phase partitioning bioreactor systems for biodegradation of polycyclic aromatic hydrocarbons by *Mycobacterium frederiksbergense*	Department of Biotechnology (DBT)	11,60,000	November 2008 – October 2010
9.	In situ production of sophorolipid by the yeast Candida bombicola for pre-treatment of fats and oils containing dairy	Department of Science and Technology (DST)	16,80,000	August 2008 - July 2011

	wastewaters			

Consultancy Projects

Sl. No.	Title	Sponsoring Agency	Sponsored Amount (Rupees)	Period		PI or CO-PI; PI name if not PI
				From	To	
1.	Investigation of polymer samples for its properties	Jyothi Laboratories Limited, Mumbai	2,78,691	April 2013	Sep. 2014	**Co-PI** PI: Prof. G. Pugazhenthi, Chemical Engineering Department, IIT Guwahati
2.	Investigation of guargum samples for its properties	Jyothi Laboratories Limited, Mumbai	56,000	July 2012	Dec. 2012	**Co-PI** PI: Prof. G. Pugazhenthi, Chemical Engineering Department, IIT Guwahati
3.	Microbial investigation to overcome foul smell in finished liquid product	Jyothi Laboratories Limited, Mumbai	20,000	April 2010	June 2010	**PI**

Academic Courses Taught

Course title	Core/Elective
Biochemical Engineering Laboratory	Core (B.Tech)
Biofuels	Elective (B.Tech, M.Tech & Ph.D)
Biomolecular and Cellular Process Engineering	Core (M.Tech)
Bioseparation Engineering	Core (B.Tech)
Chemical Reaction Engineering	Core (B.Tech)
Environmental Biology and Microbiology	Elective (B.Tech, M.Tech & Ph.D)
Environmental Biotechnology	Core (B.Tech)
Experimental and Analytical Techniques for Chemical Engineers	Elective (M.Tech & Ph.D)
Industrial Wastewater Treatment	Elective (M.Tech & Ph.D)
Microbial Biotechnology	Elective (B.Tech, M.Tech & Ph.D)
Microbiology	Core (B.Tech)
Modern Biology	Core (B.Tech)
Solid Waste Management	Elective (B.Tech, M.Tech & Ph.D)

Publications

Refereed international journals

1. D.K. Kanaujiya and **K. Pakshirajan** (2022) Two liquid phase partitioning bioreactor system for toxicant free water production from phthalates contaminated aqueous medium. Journal of Cleaner Production, 2022, 378, 134428.
2. S.V.G. Kumari, **K. Pakshirajan** and G. Pugazhenthi (2022) Recent advances and future prospects of cellulose, starch, chitosan, polylactic acid and polyhydroxyalkanoates for sustainable food packaging applications. International Journal of Biological Macromolecules, 221, 163–182.
3. A. Sinharoy, M. Kumar, R. Chaudhuri, S. Saikia and **K. Pakshirajan** (2022) Simultaneous removal of selenite and heavy metals from wastewater and their recovery as nanoparticles using an inverse fluidized bed bioreactor. Journal of Cleaner Production, 2022, 376, 134248.
4. M. Purnima, **K. Pakshirajan** and G. Pugazhenthi (2022) Separation of TiO_2 particles from suspension using indigenous low-cost ceramic microfiltration membrane. Journal of Water Process Engineering, 2022, 49, 103123.
5. T. Paul, I. Janakiraman, **K. Pakshirajan** and G. Pugazhenthi (2022) A review on novel and hybrid/integrated reactor configurations for the removal of recalcitrant organics from petroleum refinery wastewater. Environmental Quality Management, 32(1), 289–313.
6. M. Kumar and **K. Pakshirajan** (2022) Immobilized biogenic copper nanoparticles from metallic wastewater as a catalyst for triazole synthesis by a click reaction using water as a solvent. New Journal of Chemistry, 46(29), 13953–13962.
7. M. Kumar and **K. Pakshirajan** (2022) Heavy metal removal and recovery as nanoparticles from multicomponent system at low pH condition by biogenic sulfide precipitation using anaerobic sulfate reducing biomass. Environmental quality and Management. 32(1), 253–264
8. T. Paul, J. Iyyappan, N.A. Manikandan, **K. Pakshirajan,** G. Pugazhenthi, S. Girisa and A.B. Kunnumakkara (2022) Re-use potential of refinery wastewater treated using a two-stage submerged membrane bioreactor. Chemical Engineering & Technology, 45(6), 1017–1026.
9. M.M.T. Namboodiri, T. Paul, R.M.N. Medisetti, **K. Pakshirajan,** N. Selvaraju and G. Pugazhenthi (2022) Solid state fermentation of rice straw using *Penicillium citrinum* for chitosan production and application as nanobiosorbent. Bioresource Technology Reports, 18, 101005.
10. D.K. Kanaujiya, S. Sivashanmugam and **K. Pakshirajan** (2022) Biodegradation and toxicity removal of phthalate mixture by *Gordonia* sp. in a continuous stirred tank bioreactor system. Environmental Technology and Innovation, 26,102324.
11. M.M.T. Namboodiri, N.A. Manikandan, T. Paul, **K. Pakshirajan** and G. Pugazhenthi (2022) Chitosan production by *Penicillium citrinum* using paper mill wastewater and rice straw hydrolysate as low-cost substrates in a continuous stirred tank reactor. Environmental Technology, DOI: 10.1080/09593330.2022.2026486.
12. K.P. Goswami, **K. Pakshirajan** and G. Pugazhenthi (2022) Process intensification through waste fly ash conversion and application as ceramic membranes: A review, Science of the Total Environment, 808, 151968.
13. M. Kumar, A.K.P. Venugopal and **K. Pakshirajan** (2022) Novel biologically synthesized metal nanopowder from wastewater for dye removal application. Environmental Science and Pollution Research. 29(25), 38478–38492.
14. D.K. Kanaujiya and **K. Pakshirajan** (2022) Mass balance and kinetics of biodegradation of endocrine disrupting phthalates by *Cellulosimicrobium funkei* in a continuous stirred tank reactor system. Bioresource Technology, 344,126172.
15. S. Arun, S. Ramasamy, **K. Pakshirajan** and G. Pugazehnthi (2022) Bioelectricity production and shortcut nitrogen removal by microalgal-bacterial consortia using membrane photosynthetic microbial fuel cell, Journal of Environmental Management, 301, 113871.
16. S. Sahu, M.P. Rajbonshi, N. Gujre, M.K. Gupta, R.G. Shelke, A. Ghose, L. Rangan, **K. Pakshirajan** and S. Mitra (2022) Bacterial strains found in the soils of a municipal solid waste dumping site facilitated phosphate solubilization along with cadmium remediation, Chemosphere, 287, 132320.
17. T. Paul, A. Sinharoy, D. Baskaran, **K. Pakshirajan**, G. Pugazhenthi and P.N.L. Lens (2022) Bio-oil production from oleaginous microorganisms using hydrothermal liquefaction: A biorefinery approach. Critical Reviews in Environmental Science and Technology, 52(3), 356-394.
18. N.A. Manikandan, **K. Pakshirajan** and G. Pugazhenthi, G (2021) A novel rotating wide gap annular bioreactor (Taylor-Couette type flow) for polyhydroxybutyrate production by *Ralstonia eutropha* using carob pod extract, Journal of Environmental Management, 299, 113591.

19. N.A. Manikandan, **K. Pakshirajan** and G. Pugazhenthi, G (2021) Techno-economic assessment of a sustainable and cost-effective bioprocess for large scale production of polyhydroxybutyrate, Chemosphere, 284, 131371.
20. J.P. Ekta, P. Muthukumar, K. Bala, D.K. Kanaujia and **K. Pakshirajan** (2021) Performance studies on mixed-mode forced convection solar cabinet dryer under different air mass flow rates for drying of cluster fig, Solar Energy, 229, pp. 39–51.
21. S. Arun, S. Ramasamy and **K. Pakshirajan** (2021) Mechanistic insights into nitrification by microalgae-bacterial consortia in a photo-sequencing batch reactor under different light intensities, Journal of Cleaner Production, 321, 128752.
22. S.N. Borah, L. Goswami, S. Sen, D. Sachan, H. Sarma, M. Montes, J.R. Peralta-Videa, **K. Pakshirajan** and M. Narayan (2021) Selenite bioreduction and biosynthesis of selenium nanoparticles by *Bacillus paramycoides* SP3 isolated from coal mine overburden leachate, Environmental Pollution, 285, 117519.
23. M. Gopi Kiran, R. Das, S.K. Behera, **K. Pakshirajan** and G. Das (2021) Modelling a rotating biological contactor treating heavy metal contaminated wastewater using artificial neural network, Water Supply, 21(5), 1895–1912.
24. M. Kumar and **K. Pakshirajan** (2021) Continuous removal and recovery of metals from wastewater using inverse fluidized bed sulfidogenic bioreactor, Journal of Cleaner Production, 284, 124769.
25. T. Paul D. Baskaran, **K. Pakshirajan**, G. Pugazhenthi and R. Rajamanickam (2021) Bio-oil production by hydrothermal liquefaction of *Rhodococcus opacus* biomass utilizing refinery wastewater: Biomass valorization and process optimization, Environmental Technology and Innovation, 21, 101326.
26. A. Sinharoy and **K. Pakshirajan** (2021) Methane free biohydrogen production from carbon monoxide using a continuously operated moving bed biofilm reactor, International Journal of Hydrogen Energy, 46(1), 306-313.
27. M. Kumar, M. Nandi and **K. Pakshirajan** (2021) Recent advances in heavy metal recovery from wastewater by biogenic sulfide precipitation, Journal of Environmental Management, 278, 111555.
28. M. Nandi, T. Paul, D.K. Kanaujiya, D. Baskaran, **K. Pakshirajan** and G. Pugazhenthi (2021) Biodegradation of benzyl butyl phthalate and dibutyl phthalate by *Arthrobacter* sp. via micellar solubilization in a surfactant-aided system, Water Supply, 21 (5), 2084-2098.
29. D.K. Kanaujia and **K. Pakshirajan** (2021) Mass balance and kinetics of biodegradation of endocrine disrupting phthalates by *Cellulosimicrobium funkei* in a continuous stirred tank reactor system, Bioresource Technology, 126172.
30. T. Paul D. Baskaran, **K. Pakshirajan** and G. Pugazhenthi (2020) Valorization of refinery wastewater for lipid-rich biomass production by *Rhodococcus opacus* in batch system: A kinetic approach, Biomass and Bioenergy, 143, 105867.
31. A. Sinharoy, K. **Pakshirajan** and P.N.L. Lens (2020) Biological sulfate reduction using gaseous substrates to treat acid mine drainage, Current Pollution Reports, 6(4), 328–344.
32. S. Arun, A. Sinharoy, K. **Pakshirajan** and P.N.L. Lens (2020) Algae based microbial fuel cells for wastewater treatment and recovery of value-added products, Renewable and Sustainable Energy Reviews, 132, 110041.
33. P. Singh, N.A. Manikandan, M. Purnima, **K. Pakshirajan** and G. Pugazhenthi (2020) Recovery of lignin from water and methanol using low-cost kaolin based tubular ceramic membrane, Journal of Water Process Engineering, 38, 101615.
34. A. Vinati, E.R. Rene, **K. Pakshirajan** and S.K. Behera (2020) Activated red mud as a permeable reactive barrier material for fluoride removal from groundwater: parameter optimisation and physico-chemical characterization, Environmental Technology (United Kingdom), 41(25), 3375–3386.
35. M. Purnima, N. Arul Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2020) Recovery of microalgae from its broth solution using kaolin based tubular ceramic membranes prepared with different binders, Separation and Purification Technology, 250, 117212.
36. S.V. Gopala Kumari, N.A. Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2020) Sustained drug release and bactericidal activity of a novel, highly biocompatible and biodegradable polymer nanocomposite loaded with norfloxacin for potential use in antibacterial therapy, Journal of Drug Delivery Science and Technology, 59, 101900.

37. T. Paul, A. Sinharoy, **K. Pakshirajan** and G. Pugazhenthi (2020) Lipid-rich bacterial biomass production using refinery wastewater in a bubble column bioreactor for bio-oil conversion by hydrothermal liquefaction, Journal of Water Process Engineering, 37, 101462.
38. N.A. Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2020) A closed-loop biorefinery approach for polyhydroxybutyrate (PHB) production using sugars from carob pods as the sole raw material and downstream processing using the co-product lignin, Bioresource Technology, 307.
39. N.A. Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2020) Preparation and characterization of environmentally safe and highly biodegradable microbial polyhydroxybutyrate (PHB) based graphene nanocomposites for potential food packaging applications International Journal of Biological Macromolecules, 154, 866-877.
40. L. Goswami, **K. Pakshirajan** and G. Pugazhenthi (2020) Biological treatment of biomass gasification wastewater using hydrocarbonoclastic bacterium *Rhodococcus opacus* in an up-flow packed bed bioreactor with a novel waste-derived nano-biochar based bio-support material, Journal of Cleaner Production, 256, 120253.
41. D. Baskaran, A. Sinharoy, **K. Pakshirajan** and R. Rajamanickam (2020) Gas-phase trichloroethylene removal by *Rhodococcus opacus* using an airlift bioreactor and its modeling by artificial neural network, Chemosphere, 247, 125806.
42. K.M. Manoj, S. Ramasamy, A. Parashar, D.A. Gideon, V. Soman, V.D. Jacob and **K. Pakshirajan** (2020) Acute toxicity of cyanide in aerobic respiration: Theoretical and experimental support for murburn explanation, Biomolecular concepts, 11, 32-56.
43. A. Sinharoy and **K. Pakshirajan** (2020) A novel application of biologically synthesized nanoparticles for enhanced biohydrogen production and carbon monoxide bioconversion, Renewable Energy, 147, 864-873.
44. M. Kumar and **K. Pakshirajan** (2020) Novel insights into mechanism of biometal recovery from wastewater by sulfate reduction and its application in pollutant removal, Environmental Technology and Innovation, 17.
45. D. Baskaran, A. Sinharoy, T. Paul, **K. Pakshirajan** and R. Rajamanickam (2020) Performance evaluation and neural network modeling of trichloroethylene removal using a continuously operated two-phase partitioning bioreactor, Environmental Technology and Innovation, 17.
46. B.B. Negi, A. Sinharoy and **K. Pakshirajan** (2020) Selenite removal from wastewater using fungal pelleted airlift bioreactor, Environmental Science and Pollution Research, 27, 992-1003.
47. A. Sinharoy, S. Saikia and **K. Pakshirajan** (2019) Biological removal of selenite from wastewater and recovery as selenium nanoparticles using inverse fluidized bed bioreactor, Journal of Water Process Engineering, 32.
48. D. Baskaran, R. Rajamanickam and **K. Pakshirajan** (2019) Experimental studies and neural network modeling of the removal of trichloroethylene vapor in a biofilter, Journal of Environmental Management, 250.
49. S. Arun, N. Arul Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2019) Novel shortcut biological nitrogen removal method using an algae-bacterial consortium in a photo-sequencing batch reactor: Process optimization and kinetic modelling, Journal of Environmental Management, 250, 109385.
50. K.M. Manoj, V. Soman, V. David Jacob, A. Parashar, D.A. Gideon, M. Kumar, A. Manekkathodi, S. Ramasamy, **K. Pakshirajan** and N.M. Bazhin (2019) Chemiosmotic and murburn explanations for aerobic respiration: Predictive capabilities, structure-function correlations and chemico-physical logic, Archives of Biochemistry and Biophysics, 676.
51. A. Sinharoy, D. Baskaran and **K. Pakshirajan** (2019) A novel carbon monoxide fed moving bed biofilm reactor for sulfate rich wastewater treatment Journal of Environmental Management, 249.
52. S.N. Borah, S. Sen, L. Goswami, A. Bora, **K. Pakshirajan** and S. Deka (2019) Rice based distillers dried grains with solubles as a low-cost substrate for the production of a novel rhamnolipid biosurfactant having anti-biofilm activity against *Candida tropicalis*, Colloids and Surfaces B: Biointerfaces, 182.
53. D.K. Kanaujiya T. Paul, A. Sinharoy and **K. Pakshirajan** (2019) Biological treatment processes for the removal of organic micropollutants from wastewater: a review, Current Pollution Reports, 5, 112-128.
54. B. Mandal, A. Prabhu, **K. Pakshirajan** and V. Veeranki Dasu (2019) Construction and parameters modulation of a novel variant *Rhodococcus opacus* BM985 to achieve enhanced triacylglycerol-a biodiesel precursor, using synthetic dairy wastewater, Process Biochemistry, 84, 9-21

55. C. Patra, R.M.N. Medisetti, **K. Pakshirajan** and S. Narayanasamy (2019) Assessment of raw, acid-modified and chelated biomass for sequestration of hexavalent chromium from aqueous solution using *Sterculia villosa* Roxb. Shells, Environmental Science and Pollution Research, 26, 23625-23637.
56. L. Goswami, N. Arul Manikandan, J.C.R. Taube, **K. Pakshirajan** and G. Pugazhenthi (2019) Novel waste-derived biochar from biomass gasification effluent: preparation, characterization, cost estimation, and application in polycyclic aromatic hydrocarbon biodegradation and lipid accumulation by *Rhodococcus opacus*, Environmental Science and Pollution Research, 26, 25154-25166.
57. A. Sinharoy and **K. Pakshirajan** (2019) Heavy metal sequestration by sulfate reduction using carbon monoxide as the sole carbon and energy source, Process Biochemistry, 82, 135-143.
58. M.M.T. Namboodiri and **K. Pakshirajan** (2019) Sustainable and green approach of chitosan production from *Penicillium citrinum* biomass using industrial wastewater as a cheap substrate, Journal of Environmental Management, 240, 431-440.
59. N. Arul Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2019) A novel ceramic membrane assembly for the separation of polyhydroxybutyrate (PHB) rich *Ralstonia eutropha* biomass from culture broth, Process Safety and Environmental Protection, 126, 106-118.
60. L. Goswami, R.V. Kumar, N. Arul Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2019) Anthracene biodegradation by oleaginous *Rhodococcus opacus* for biodiesel production and its characterization, Polycyclic Aromatic Compounds, 39, 207-219.
61. A. Sinharoy, D. Baskaran, **K. Pakshirajan** (2019) Sustainable biohydrogen production by dark fermentation using carbon monoxide as the sole carbon and energy source. International Journal of Hydrogen Energy, 44, 13114-13125.
62. T. Paul, D. Baskaran, **K. Pakshirajan** and G. Pugazhenthi (2019). Continuous bioreactor with cell recycle using tubular ceramic membrane for simultaneous wastewater treatment and bio-oil production using *Rhodococcus opacus*. Chemical Engineering Journal, 367, 76-85.
63. L. Goswami, R.V. Kumar, **K. Pakshirajan** and G. Pugazhenthi (2019). A novel integrated biodegradation-microfiltration for sustainable wastewater treatment and energy recovery. Journal of Hazardous Materilas, 707-715.
64. V. Tai Tang and **K. Pakshirajan** (2018). Novel advanced porous concrete in constructed wetlands: Preparation, characterization and application in urban storm runoff treatment. Water Science and Technology, 78 (11), 2374-2382.
65. L. Goswami, R. Vinoth Kumar, S.N. Borah, N. Arul Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2018). Membrane bioreactor and integrated membrane and membrane bioreactor systems for micropollutant removal from wastewater: A review. Journal of Water Process Engineering, 26, 314-328.
66. N. Gupta, N.A. Manikandan and **K. Pakshirajan** (2018). Real-time lipid production and dairy wastewater treatment using *Rhodococcus opacus* in a bioreactor under fed-batch, continuous and continuous cell recycling modes for potential biodiesel application. Biofuels, 9(2), 239-245.
67. A. Singh, N.A. Manikandan, M.R. Sankar, **K. Pakshirajan** and L. Roy (2018). Experimental Investigations and Surface Morphology of Bio-Micromachining on Copper. Materials Today: Proceedings, 5(2), 4225-4234.
68. M.G. Kiran, **K. Pakshirajan** and G. Das. (2018). Metallic wastewater treatment by sulfate reduction using anaerobic rotating biological contactor reactor under high metal loading conditions. Frontiers of Environmental Science & Engineering, 12(4), 12.
69. L. Goswami, N.A. Manikandan, B. Dolman, **K. Pakshirajan** and G. Pugazhenthi (2018). Biological treatment of wastewater containing a mixture of polycyclic aromatic hydrocarbons using the oleaginous bacterium *Rhodococcus opacus*. Journal of Cleaner Production.
70. M.G. Kiran, **K. Pakshirajan** and G. Das (2018). Heavy metal removal from aqueous solution using sodium alginate immobilized sulfate reducing bacteria: Mechanism and process optimization. Journal of Environmental Management, 218, 486-496.
71. M. Kumar, A. Sinharoy and **K. Pakshirajan** (2018). Process integration for biological sulfate reduction in a carbon monoxide fed packed bed reactor. Journal of Environmental Management, 219, 294-303.
72. V. Sinha, **K. Pakshirajan** and R. Chaturvedi. (2018) Chromium tolerance, bioaccumulation and localization in plants: An overview. Journal of Environmental Management, 206, 715-730.

73. E. R. Rene, N. Sergienko, T. Goswami, M. E. López, G. Kumar, G. D. Saratale, P. Venkatachalam, **K. Pakshirajan** and T. Swaminathan (2018) Effects of concentration and gas flow rate on the removal of gas-phase toluene and xylene mixture in a compost biofilter. Bioresource Technology, 248, 28-35.
74. V. Sharma, R. V. Kumar, **K. Pakshirajan** and G. Pugazhenthi (2017) Integrated adsorption-membrane filtration process for antibiotic removal from aqueous solution. Powder Technology, 321, 259-269.
75. O. L. Diengdoh, M. B. Syiem, **K. Pakshirajan** and A. N. Rai (2017) Zn2+ sequestration by Nostoc muscorum: study of thermodynamics, equilibrium isotherms, and biosorption parameters for the metal. Environmental Monitoring and Assessment, 189(7), 314.
76. V. Sinha, N.A. Manikandan, **K. Pakshirajan** and R. Chaturvedi (2017) Continuous removal of Cr (VI) from wastewater by phytoextraction using *Tradescantia pallida* plant based vertical subsurface flow constructed wetland system. International Biodeterioration & Biodegradation, 119, 96-103.
77. L. Goswami, M.M. Tejas Namboodiri, R. V. Kumar, **K. Pakshirajan** and G. Pugazhenthi (2017) Biodiesel production potential of oleaginous *Rhodococcus opacus* grown on biomass gasification wastewater. Renewable Energy, 105, 400-406.
78. V. Sinha, N.A. Manikandan, **K. Pakshirajan** and R. Chaturvedi (2017) Kinetics, biochemical and factorial analysis of chromium uptake in a multi-ion system by *Tradescantia pallida* (Rose) DR Hunt. International Journal of Phytoremediation, Volume 19, 11, 1007 -1016.
79. S. Arun, N.A. Manikandan, **K. Pakshirajan,** G. Pugazhenthi and M. B. Syiem (2017) Cu (II) removal by *Nostoc muscorum* and its effect on biomass growth and nitrate uptake: A photobioreactor study. International Biodeterioration & Biodegradation, 119, 111-117.
80. L. Goswami, N. Arul Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2017) Simultaneous heavy metal removal and anthracene biodegradation by the oleaginous bacteria *Rhodococcus opacus*. 3 Biotech, 7(1), 37
81. J. Kakati, T. K. Gogoi and **K. Pakshirajan** (2017) Production of biodiesel from Amari (*Amoora Wallichii* King) tree seeds using optimum process parameters and its characterization. Energy Conversion and Management, 135, 281-290.
82. L. Goswami, R. V. Kumar, N. Arul Manikandan, **K. Pakshirajan** and G. Pugazhenthi (2017) Anthracene biodegradation by oleaginous *Rhodococcus opacus* for potential biodiesel application. Polycyclic aromatic Compounds, 1-13.
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7. M. M. Tejas Namboodiri and **Kannan Pakshirajan** "Waste Biorefinery Integrating Biorefineries for Waste Valorisation", Elsevier. 978-0-12-818228-4, pp 241-266 (2020).
8. N. Arul Manikandan, **Kannan Pakshirajan** and G. Pugazhenthi "Waste Biorefinery Integrating Biorefineries for Waste Valorisation", Elsevier. 978-0-12-818228-4, pp 155-178 (2020).
9. Arindam Sinharoy, Manoj Kumar and **Kannan Pakshirajan** "Bioreactors", Elsevier, 978-0-12-821264-6, pp 249-288 (2020).
10. Surjith Ramasamy, S. Arun and **Kannan Pakshirajan** "Bioreactors", Elsevier, 978-0-12-821264-6, 215-248 (2020).
11. R. Vinoth Kumar, I.G. Moorthy, L. Goswami, G. Pugazhenthi, **Kannan Pakshirajan**, Adrián M. T. Silva and Sergio Morales-Torres "Biomass Valorization to Bioenergy, Energy, Environment, and Sustainability", Springer, 978-981-15-0409-9, pp 197-219 (2019).
12. P. Mullai, M.K. Yogeswari, S. Vishali, M.M. Tejas Namboodiri, B.D. Gebrewold, E.R. Rene, **K. Paksirajan** (2017) Aerobic treatment of effluents from textile industries, In: Current Devlopments in Biotechnology and Bioengineering: Biological Treatment of Industrial Effluents, Vol 4, Lee D., Jegatheesan V., Ngo H. H., Hallenbeck P. C. and Pandey A. (Eds) Elsevier, Netherlands, pp 3-34.
13. A. Sinharoy, A. Chingkheihunba and **K. Pakshirajan** (2016) An overview of production, properties and uses of biodiesel from vegetable oil, In: Green Fuels Technology, Soccol, C.R., Brar, S.K., Faulds, C., Ramos, L.P. (Eds), Springer, Switzerland, pp 83-105
14. R. Vinoth Kumar, **K. Pakshirajan** and G. Pugazhenthi (2016) Petroleum versus biorefinery based platform chemicals, In: Platform Chemical Biorefinery: Future Green Industry, Brar S. K., Sarma S. J., Pakshirajan K. (Ed), Elsevier, Netherlands, pp 33-53.
15. R. Vinoth Kumar, **K. Pakshirajan** and G. Pugazhenthi (2016) Malic and succinic acid – potential C4 platform chemicals for polymer and biodegradable plastic production, In: Platform Chemical Biorefinery: Future Green Industry, Brar S. K., Sarma S. J., Pakshirajan K. (Ed), Elsevier, Netherlands, pp 159-179.
16. N. Arul Manikandan, R. Vinoth Kumar, G. Pugazhenthi and **K. Pakshirajan** (2016) Biorefinery and possible deforestation, In: Platform Chemical Biorefinery: Future Green Industry, Brar S. K., Sarma S. J., Pakshirajan K. (Ed), Elsevier, Netherlands, pp 307-322.
17. A. Ghosh, **K. Pakshirajan** and P.K. Ghosh (2013) Bioremediation of perchlorate contaminated environment. In: Biological Remediation of Explosive Residues, Singh, S.N., (Ed), Springer, Germany, pp 163-178.
18. N.K. Sahoo, A. Ramesh and **K. Pakshirajan** (2012) Bacterial degradation of aromatics: An overview on metabolic pathways. In: Microorganisms in Environmental Management, Satyanarayana, T., Johri, B.N. and. Anil Prakash (Eds), Springer, New York, pp 201-220.
19. A. Daverey and **K. Pakshirajan** (2011) Recent advances in bioremediation of contaminated soil and water using microbial surfactants. In: Microbes and Microbial Technology, Ahmad, I., (Ed), Springer, New York, pp 207-228.

Presentations in Select Conferences:

1. S. Arun and **K. Pakshirajan,** Shortcut biological nitrogen removal using a consortium of algae, ammonia oxidizing bacteria and methanol utilizing bacteria in a photo sequencing batch reactor, International Conference in Challenges in Environmental Science & Engineering (CESE-2018), November 4-8, 2018, Bangkok, Thailand.
2. A. Sinharoy and **K. Pakshirajan**, Biohydrogen production using carboxydtrophic hydrogenogenic biomass in a carbon monoxide fed anaerobic moving bed biofilm reactor, International Conference in Challenges in Environmental Science & Engineering (CESE-2018), November 4-8, Bangkok, Thailand.

3. S. Arun and **K. Pakshirajan**, Novel shortcut biological nitrogen removal using a photo sequencing batch reactor for ammonia rich wastewater treatment, International Conference on Sustainable Water Resources - Innovation and Impacts, TECHNOSCAPE-2018, September 6-8, 2018, Vellore Institute of Technology, Vellore, India.
4. M.M.T. Namboodiri and **K. Pakshirajan**, Chitosan production from *Penicillium citrinum* biomass for value addition and resource recovery from industrial wastewater, International Conference in Challenges in Environmental Science & Engineering, November 11-15, 2017, Kunming, China.
5. L. Goswami, N. Arul Manikandan, J. Christon Ringle Taube, **K. Pakshirajan** and G. Pugazhenthi, Evaluation of cheaply produced biochar from biomass gasification effluent for simultaneous polycyclic aromatic hydrocarbon biodegradation and lipid accumulation by *Rhodococcus opacus*, International Conference in Challenges in Environmental Science & Engineering, November 11-15, 2017, Kunming, China.
6. M. Gopi Kiran, **K. Pakshirajan**, G. Das. Sodium alginate immobilized sulfate reducing bacteria for batch and continuous removal of heavy metals. 5th International conference on research frontiers in Chalcogen cycle science and Technology, December 19-21, 2016, Goa, India.
7. S.J. Sarma and **K. Pakshirajan.** Oil encapsulated microspheres: A novel method of enhancing the bioavailability and biodegradation of polycyclic aromatic hydrocarbons. 4th International Conference on Biotechniques for Air Pollution Control, October 12-14, 2011, A Coruna, Spain.
8. B. Mahanty, **K. Pakshirajan** and V.V. Dasu. Two liquid phase portioning bioreactor system for biodegradation of pyrene by *Mycobacterium frederiksbergense*. Biotechniques for Air Pollution Control, September 28 – 30, 2009, Delft, The Netherlands.
9. A. Daverey and **K. Pakshirajan**. Utilization of agro-industrial wastes for the production of sophorolipids by the yeast *Candida bombicola.* First International Conference on Recycling and Reuse of Materials ICRM, July 17 - 19, 2009, Kottayam, India**.**
10. **K. Pakshirajan** and T. Swaminathan. Regeneration and reuse of a fungal biosorbent in removing heavy metals from wastewaters. Fourth international symposium on 'Southeast Asian Water Environment' December 6 - 8, 2006, Bangkok, Thailand.
11. C. Krittika, **K. Pakshirajan** and T. Swaminathan. Azo dye decolourization study using a mixed culture. First international symposium on 'Southeast Asian Water Environment' October 23 - 25, 2003, Bangkok, Thailand.
12. **K. Pakshirajan** and T. Swaminathan. Studies on inhibitory effects of Cu (II) and Pb (II) on the growth of *Phanerochaete chrysosporium.* 54th Annual session of Chemical Engineering Congress 'CHEMCON 2001' December 19 – 22, 2001, Chennai.
13. **K. Pakshirajan** and T. Swaminathan. Application of factorial design for evaluation of Pb and Cu removal from binary metal system by biosorption using *Phanerochaete chrysosporium*. International conference on 'Industrial Pollution and Control Technologies' December 7 – 10, 2001, Hyderabad, India.
14. M. Gopal, **K. Pakshirajan** and T. Swaminathan. Studies on heavy metal removal by biosorption using *Phanerochaete chrysosporium*. 41st Annual conference of Association of Microbiologists of India, November 25 – 27, 2000, Jaipur.

Invited Speaker in Conferences/Symposia

- Presented an invited keynote talk on "Bioconversion of carbon monoxide for hydrogen production and sulfate reduction using anaerobic sludge biomass" in the 3rd International Conference on Bioprocess for Sustainable Environment and Energy (ICBSEE-India-2022), organized by NIT Rourkela, June 22-24, 2022.
- Presented an invited keynote talk on "Syngas Fermentation" in the International Conference on Advances in Energy, Environment for Sustainable Development (AEESD 2022), jointly organized by Shiksha 'O' Anusandhan Deemed to be University, Bhubaneswar, and NIT Meghalaya, January 7-8, 2022.
- Presented an invited plenary talk on "Wastewater Biorefinery: Future Green Industry" in the International Conference on Recent Innovations in Chemical and Biological Engineering (RICBE-2K21), organized by Rajiv Gandhi University of Knowledge Technologies, Nuzvid, Andhra Pradesh, September 16-18, 2021.

- Presented an invited lecture on “Challenges in metal bio-recovery from wastewater by sulfide precipitation” in the 7th International Conference on Research Frontiers in Chalcogen Cycle Science & Technology, organized by National University of Ireland Galway, Ireland, December 10-11, 2020.
- Presented an invited lecture on “*Rhodococcus opacus* as a potential biological chassis for second generation biorefineries” at National University of Ireland Galway, Ireland, on 5th December 2019.
- Presented an invited lecture on “Lessons learned on waste management and climate change in developing countries” at National University of Ireland Galway, Ireland, on 13th November 2019.
- Presented an invited lecture on “Syngas fermentation for biohydrogen production and biodesulfurization” in the 4th International conference on Recent Advancements in Chemical, Environmental & Energy Engineering, organized by S.S.N. College of Engineering, Chennai, February 14-15, 2019.
- Presented an invited lecture on “Cost-effective and large scale production of biosurfactants for sustainable agriculture” in the Indo-Egyptian Workshop on Agri-Biotechnology, organized by Botany Department, North-Eastern Hill University, Shillong, Meghalaya, September 10-12, 2018.
- Presented an invited lecture on “Biological treatment of oil and gas industry wastewater for value addition and resource recovery” in the State-of-the-Art in Refinery Operations, organized by Chemical Engineering Department, IIT Guwahati, Guwahati, Assam, April 4, 2018.
- Presented an invited lecture on “Bioprocessing of biomass gasification waste for production of biofuels and value added products” in the International Conference on Advances in Chemical Engineering for the Development of Agriculture, Energy and Environment, organized by Chemical Engineering Department, Adhiyaman College of Engineering, Hosur, India, March 6-7, 2018.
- Presented an invited lecture on “Bioprocessing for waste fed biorefineries” in the National Workshop on Bioprocessing strategies for Biofuels: Production, Modeling, Simulation and Optimization, organized by School of Chemical and Biotechnology, SASTRA University, Thanjavur, India, December 11-16, 2017.
- Presented an invited lecture on “Novel sulfidogenic bioreactors for metallic wastewater treatment” in the 5th International Conference Bioprocessing India – 2017, organized by Biosciences and Bioengineering Department, IIT Guwahati, Guwahati, Assam, December 9-11, 2017.
- Presented an invited lecture on Simultaneous oilfield wastewater treatment and lipid accumulation by *Rhodococcus opacus* for biodiesel production in the National Seminar on Petroleum Biotechnology and Bioenergy, Tezpur University, Tezpur, March 3-4, 2017
- Presented an invited lecture on “Biochar from industrial effluent for pollutant biodegradation and renewable energy generation” in the International Conference on Recent Advancements in Chemical, Environmental & Energy Engineering, organized by S. S. N. College of Engineering, Chennai, February 23-24, 2017.
- presented an invited lecture on “Sulfidogenic bioreactors for simultaneous removal of heavy metals and sulfate from wastewater” in the 5th international conference on research frontiers in chalcogen cycle science and Technology at Goa, India, December 19-21, 2016.
- Presented an invited lecture on “Syngas fermentation for biohydrogen production” in the 4th Bioprocessing India Conference (BPI-2016), organized by Center of Innovative and Applied Bioprocessing (CIAB), Mohali, Punjab, December 15-17, 2016.
- Presented an invited lecture on “Biorefinery: the future green industry with zero waste discharge” in the National Conference on Technologies to Eradicate and Control Industrial Pollution – 2016, organized by Chemical Engineering Department, Annamalai University, Chidambaram, Tamil Nadu, October 21-22, 2016.
- Presented an invited lecture on “Green synthesis of nanoparticles for environmental application” in the National conference on Recent advances in Environmental research, organized by Center for the Environment, IIT Guwahati, June 4-5, 2016.
- Presented an invited lecture on “Biorenewables and Biofuels: prospects and challenges” in the Non-Conventional Sources of Energy: Prospects and Challenges NCSE – 2016, organized by Royal Group of Institutions, Guwahati, Assam, January 30, 2016.
- Presented a keynote lecture on “Fungal pelleted bioreactor for wastewater treatment” in the 68th Annual Session of the Indian Institute of Chemical Engineering Congress CHEMCOM 2015, organized by Chemical Engineering Department, IIT Guwahati, Guwahati, Assam, December 27-30, 2015.

- Presented an invited lecture on “Heavy metal removal by bioaccumulation and biosorption using Nostoc muscorum, a cyanobacterium isolated from coal mining area in Meghalaya, India” in the DAE-BRNS Life Sciences Symposium (LSS-2015) on “Advances in Microbiology of Food, Agriculture, Health and Environment”, organized by Food Technology Division, Bhaba Atomic Research Centre, Mumbai, February 3-5, 2015.
- Presented an invited lecture on “Biorefinery: Future green industry” in the “Green Fuel Technologies”, organized by Chemical and Mechanical Engineering Departments, GMR Institute of Technology, Rajam, Srikakulam, December 12-13, 2014.
- Presented two invited lectures on “Biological Treatment of Industrial Wastewater” and ‘Bacterial Degradation of Aromatic Hydrocarbons**”** in the in the ONGC-CPBT Workshop on “Molecular Biology and analytical Techniques in Petroleum Biotechnology”, organized by Tezpur University, Tezpur, Assam, December 1-5, 2014.
- Presented an invited lecture on “Principles and applications of bioremoval of metals and metalloids” in the National Conference on Sustainable Development of Environmental Systems (NCODOES 2014), organized by Centre for the Environment, IIT Guwahati, Guwahati, June 20-21, 2014.
- Presented an invited lecture on “Artificial Neural Network (ANN) Modelling of a Packed Bed Bioreactor System Treating Substituted Phenol Containing Wastewater”in the 2nd International Conference on Intelligent Control, Modeling and Systems Engineering (ICMS 2014), at Boston Marriott Cambridge Hotel, Cambridge, Massachusetts, USA, January 29-31, 2014.
- Presented an invited lecture on “Pesticidal Crystal Protein Production by *Bacillus thuringiensis* PBT-732 using Agro-industry Wastes” in the 4th Biopesticides International Conference (BIOCICON 2013), organized by St. Xavier’s College, Palayamkottai, Tamil Nadu, India, November 28-29, 2013.
- Presented an invited lecture on “Microbial removal of metal ions” in the National Workshop on chemical Engineering and Environmental Engineering, organized by Chemical Engineering, IIT Madras, Chennai, 16th March, 2013.
- Presented an invited lecture on “Waste management in business organizations” in the Seminar on the Occasion of World Standards Day, organized by Bureau of Indian Standards (BIS), Guwahati, November 16, 2013.
- Presented an invited lecture on “Microbial surfactants and their role in environmental applications” in the National Workshop on “Advances in Applied Microbiology and Bioprocess Engineering with special reference to Petroleum Biotechnology”, organized by Tezpur University, Tezpur, Assam, August 24, 2012.
- Presented an invited lecture on “Traditional organic foods of select tribal communities of Northeast India: relevance to sustainable food and nutritional security of the region” in the International Workshop on Forming a Network for Education for Sustainable Development in Asia, organized by The Asia-Pacific Cultural Centre for UNESCO, Kyoto, Japan, October 27-31, 2010.
- Presented an invited lecture on “Utilization of agro-industrial wastes for the production of sophorolipids by the yeast *Candida bombicola*” in the First International Conference on Recycling and Reuse of Materials ICRM, organized by Institute of Macromolecular Science and Engineering, Kottayam, July 17 - 19, 2009.
- Presented an invited lecture on “Biohydrogen and biodiesel from microbes and microalgae” in the national conference seminar on ‘Biohydrogen: an innovative fuel’, organized by the departments of Petrochemical Technology and Biotechnology, Periyar Maniyammai University, Tanjaur, January 21-23, 2009.
- Presented an invited lecture on “Removal and Recovery of heavy metals from wastewaters using live fungal biomass of *Phanerochaete chrysosporium*” in the 78th Annual Session of The National Academy of Sciences India (NASI), organized by Panjab University, Chandigarh, November 21-23, 2008.
- Presented an invited lecture on “Enhanced production of sophorolipids from the yeast *Candida bombicola* using sugarcane molasses and soybean oil” in the 3rd International Congress on Bioprocesses in Food Industries (ICBF - 2008), organized by Osmania University, Hyderabad, November 2 – 5, 2008.
- Presented an invited lecture on “Heavy metals containing wastewaters: environmental significance and treatment by biosorption technique” in the national seminar on ‘Toxicity of Chemicals & their

Hazards with Special Reference to Heavy Metals', organized by St. Edmunds College, Shillong, October 23 -24, 2008.

Invited Speaker in Training Programs

- Presented an invited lecture on "A biorefinery approach toward biofuels and other value added products from biomass gasification waste" in AICTE sponsored Faculty Development Program on Waste to Bio-energy: A Sustainable Solution, organized by Biotechnology Department, National Institute of Technology Andhra Pradesh, September 13-17, 2021.
- Presented an invited lecture on "Bioenergy and nano biochar from biomass gasification waste: a biorefinery approach" in AICTE sponsored Short Term Training Programme on Expanding Horizons of Nanotechnology in Engineering, Medicine and Biotechnology, organized by Chemical Engineering Department, Coimbatore Institute of Technology, Coimbatore, Tamil Nadu, October 19-24, 2020.
- Presented an invited lecture on "Treatment and value addition of refinery wastewater using *Rhodococcus opacus*" in AICTE sponsored Faculty Development Program on Advances in Biological Wastewater Treatment Methods: Teaching and Learning Strategies, organized by Biotechnology Department, National Institute of Technology Warangal, September 7-11, 2020.
- Presented an invited lecture on "Microbial synthesis and characterisation of metal nanoparticles from contaminating metal ions in wastewater" in AICTE sponsored Short Term Training Programme on Expanding Horizons of Nanotechnology in Engineering, Medicine and Biotechnology, organized by Chemical Engineering Department, Coimbatore Institute of Technology, Coimbatore, Tamil Nadu, August 24-29, 2020.
- Presented an invited lecture on "Value added products from biomass gasification waste – a biorefinery approach" in KIC sponsored TEQIP short term course on Green Technology for Sustainable Development, organized by Chemical Engineering Department, Assam Engineering College, Guwahati, Assam, December 17-21, 2018.
- Presented an invited lecture on "Waste biorefinery for sustainable circular economy" in KIC sponsored TEQIP short term course on Energy Efficient and Green Energy Technology, organized by Mechanical Engineering Department, IIT Guwahati, Guwahati, Assam, November 26-30, 2018.
- Presented an invited lecture on "Environmental pollution: causes, effects and control" in Vigyan Jyothi Programme, organized by IIT Guwahati, Guwahati, Assam, August 30-September 19, 2018.
- Presented an invited lecture on "Writing and publishing first quality scientific manuscripts" in DST Inspire Internship Camp, organized by University of Science & Technology, Meghalaya, May 21-25, 2018.
- Presented an invited lecture on "Bioprocessing strategies for production of biofuels and value addition of waste water and waste sludge" in the 3rd Winter School, Gifu University, Gifu, Japan, December 19-21, 2017.
- Presented an invited lecture on "Novel biocatalysts for environmental applications" in KIC sponsored TEQIP short term course on Novel Catalysts for Industrial Use, organized by Chemical Engineering Department, IIT Guwahati, Guwahati, Assam, August 24-26, 2016.
- Presented an invited lecture on "Biohydrogen: prospects and potentials" in the Knowledge Incubation Cell sponsored TEQIP short term course on Advanced Clean Fuel Technologies and Alternative Energy Systems, organized by Chemical Engineering Department, IIT Guwahati, Guwahati, Assam, March 7-11, 2016.
- Presented three invited lectures on "Sophorolipids: production, characterization and properties", "Industrial wastewater treatment using surfactants" and "Bioremediation of contaminated soils using bio-surfactants" in Surfactant mediated Pollutant removal Techniques, organized by Centre for the Environment, IIT Guwahati, Guwahati, Assam, January 19-23, 2016.
- Presented an invited lecture on "Biohydrogen - Prospects and potentials as a renewable energy resource" in KIC sponsored TEQIP short term course on Solar Energy Harvesting, organized by Chemistry Department, IIT Guwahati, Guwahati, Assam, February 20-21, 2015.
- Presented two invited lectures on "Introduction to Biofilms" and "Biofilm Fundamentals" in the Summer school on Biofilms for Biotechnology, organized by UNESCO-IHE Institute for Water Education, Delft, The Netherlands, September 19-23, 2011.

- Presented a lecture on "FT diesel, methanol, glycerol and ABE (butanol)" in the Quality Improvement Programme – Short Term Course on " Advances in Biofuel Research", organized by Centre for Energy and Department of Chemical Engineering, IIT Guwahati, November 29-December 3, 2010.
- Presented a lecture on "Biological soil treatment" in the Quality Improvement Programme – Short Term Course on "Role of Environmental Geotechnology in Waste Management", organized by Civil Engineering department, IIT Guwahati, November 2-6, 2009.
- Presented a lecture on "Alkaloids" in the Quality Improvement Programme – Short Term Course on "Advances in Drug Discovery", organized by Biotechnology department, IIT Guwahati, July 20-24, 2009.
- Presented a lecture on "Bioactive compounds of alkaloids class" in the Quality Improvement Programme – Short Term Course on "Approaches to the Screening of Bioactive Molecules from Natural Resources", organized by Biotechnology department, IIT Guwahati, June 13-17, 2009.
- Presented two invited lectures on "Biofuels from microbes and microalgae" and "Biocatalysts for industrial biotransformations" in the Summer School on 'Green Chemistry', organized by the department of Chemical Sciences, Tezpur University, Napaam, June 2-22, 2009.
- Presented a two-hour lecture on "Biosurfactants – properties, production and application" in the Quality Improvement Programme – Short Term Course on "Surfactants and Interfacial Phenomena in Process Technology", organized by Chemical Engineering department, IIT Guwahati, 14 – 18 July 2008.
- Presented lectures on "Biological waste gas purification technologies", "Membrane bioreactors in water and wastewater treatment' and "Biosorption for heavy metal removal from contaminated wastewaters" in the Quality Improvement Programme – Short Term Course on "Recent Trends and Technologies in Industrial Waste Treatment and Management ", organized by Civil Engineering department, IIT Guwahati, 3 – 7 December 2007.
- Presented a lecture on "Arsenic treatment methods: bioremediation techniques" in a training workshop for the analysts and public health engineers of Assam state involved in the UNICEF-IITG Project on tackling the groundwater arsenic contamination problem of Assam, organized at IIT Guwahati on 17th and 18th July, 2007.
- Presented a lecture on "Design and operational aspects of biosensors" in the Quality Improvement Programme – Short Term Course on "Sensors: Fabrication to Application", organized by Chemistry department, IIT Guwahati, 18 – 22 June 2007.
- Presented lectures on "Bioreaction engineering" and "Biocatalyst in organic chemical synthesis" in the Quality Improvement Programme – Short Term Course on "Green Chemistry and Green Technology", organized by Chemistry department, IIT Guwahati, 5 – 9 June 2006.
- Presented a lecture on "Technical paper writing" in the Early Faculty Induction Programme on "Pedagogy and Teaching Skill Course", organized at IIT Guwahati, 3 – 12 January 2005.

Technical Reports:

1. Ph.D. Thesis: Studies on heavy metal removal by biosorption using *Phanerochaete chrysosporium*. Indian Institute of Technology Madras, Chennai, March 2004.
2. M.Tech. Thesis: Cell surface hydrophobicity of acidophilic heterotrophic bacteria of mine origin under metal stress. Jadavpur University, Kolkata, June 1999.
3. B.Pharm Thesis: New spectrophotometric method for determination of cefotaxime sodium. The Tamilnadu Dr. M.G.R. Medical University, Chennai, April 1997.

Research Guidance

Post-Doctoral students:

- Dr Akoijam Chingkheihunba worked as a post-doctoral fellow under the Department of Biotechnology-Research Associate programme during 2012-2014.
- Dr Siddhartha Narayan Borah worked as a post-doctoral fellow under the Department of Biotechnology-Research Associates programme during 2018-2020.

Ph.D. students

Name of the scholar	Title of thesis	Year of award	Co-guide
Achlesh Daverey	Studies on sophorolipids production and pretreatment of fat and oil containing wastewater using *Candida bombicola*	2011	-
Ajay Kumar Chhantyal		Ongoing	-
Arif Ahmed		Ongoing	Prof. G. Pugazhenthi Chemical Engineering Department IIT Guwahati Guwahati
Arindam Sinharoy	Biological carbon monoxide conversion for hydrogen production and environmental applications	2019	-
Arun Sakthivel	Ammonium rich wastewater treatment and value addition using microalgae-bacterial consortia in photo-activated systems	2021	-
Atreyi Ghosh	Studies on microbial reduction of perchlorate in batch and continuous systems	2014	Prof. P.K. Ghosh Civil Engg. Department IIT Guwahati. Guwahati
Bapi Mandal	Improved microbial lipid production from *Rhodococcus opacus* PD630: Molecular and systems biology approach	2021	Prof. V. Venkata Dasu Biotechnology Department IIT Guwahati. Guwahati
Biswanath Mahanty	Studies on biodegradation of pyrene using *Mycobacterium frederiksbergense*	2009	Prof. V. Venkata Dasu Biotechnology Department IIT Guwahati. Guwahati
Dipak Kumar Kanaujiya	Biological treatment of endocrine disrupting compounds	Ongoing	-
Kausik Sen	Textile dyeing wastewater treatment potential of *Phanerochaete chrysosporium*: experiments and simulation	2013	Prof. S.B. Santra Physics Department IIT Guwahati. Guwahati
Lalit Goswami	Biodegradation of polycyclic hydromatic hydrocarbons in contaminated systems and biodiesel production using *Rhodococcus opacus*	2019	Prof. G. Pugazhenthi Chemical Engineering Department IIT Guwahati Guwahati
M. M. Tejas Namboodiri	Fungal chitosan production using agricultural and industrial wastes and heavy metal removal using chitosan derived nano-biosorbents	2020	-
Madhavi Singh	Photoinactivation of *Escherichia coli* and *Enterococcus hirae* in aqueous solution	2017	Dr. Vishal Trivedi Biotechnology Department IIT Guwahati. Guwahati
Manoj Kumar	Biogenic metal sulfide nanoparticles from wastewater	2022	-

	and their potential applications		
Mothe Gopi Kiran	Heavy metal removal and recovery from wastewater by biological sulfate reduction	2018	Prof. Gopal Das, Department of Chemistry, IIT Guwahati
N. Arul Manikandan	Bioprocess development for polyhydroxybutyrate (PHB) production from waste carob pods and its application in food packaging: A biorefinery approach	2021	Prof. G. Pugazhenthi, Chemical Engg. Department IIT Guwahati. Guwahati
Naorem Bela Devi		Ongoing	-
Naresh K. Sahoo	Studies on biodegradation of substituted phenols by *Arthrobacter chlorophenolicus* A6	2012	Prof. P.K. Ghosh Civil Engg. Department IIT Guwahati. Guwahati
Pichiah Saravanan	Biodegradation of phenolic compounds using an indigenous mixed microbial culture	2008	Prof. P. Saha Chemical Engg. Department IIT Guwahati. Guwahati
Ravi Gadela		Ongoing	Prof. V. Venkata Dasu Biotechnology Department IIT Guwahati. Guwahati
Sanjay Kumar	Production, purification and characterization of L-asparaginase from *Pectobacterium Carotovorum* MTCC 1428	2011	Prof. V. Venkata Dasu Biotechnology Department IIT Guwahati. Guwahati
Surjith Ramasamy	lutein production by *Chlorella vulgaris* using poultry litter anaerobic digestate and its potential applications	Thesis submitted	-
Tanushree Paul	Refinery wastewater treatment and value addition using Rhodococcus opacus - a hydrocarbonoclastic oleaginous bacterium	2021	Prof. G. Pugazhenthi, Chemical Engg. Department IIT Guwahati. Guwahati
Vibha Sinha	Chromium Removal by *Tradescantia pallida* (Rose) D.R. Hunt: Batch and Continuous Studies	2017	Prof. Rakhi Chaturvedi Biotechnology Department IIT Guwahati. Guwahati

M.Tech. students:

Name of the scholar	Title of thesis	Year of award	Co-guide
A. Sivashankar	Decolourization of textile dyeing wastewaters using *Phanerochaete chrysosporium* in a rotating biological contactor reactor	2010	-
Bharat Bhushan Negi	Batch and continuous removal of selenite from wastewater and recovery as selenium nanoparticles using fungal pellets	2019	
Joyabrata Mal	Synthesis gas purification using native hydrogenogenic microorganisms isolated from a local wastewater treatment plant	2013	-
Manoj Kumar	Biological sulfate reduction by immobilized	2017	-

	anaerobic biomass using carbon monoxide as sole carbon source : batch and continuous studies		
Moumita Nandi	Biodegradation of benzyl butyl phthalate and di-butyl phthalate by *Arthrobacter* sp. via micellar solubilization in a surfactant-aided system	2020	
Nikhil Gupta	Biodiesel production using Dairy wastewater as a cheap substrate by *Rhodococcus opacus*: Batch, Fed-Batch and Continuous studies	2015	-
Rohit P. James	Fungal Chitosan Production from Kraft black liquor	2016	-
Sanjay Kumar	Dairy wastewater as a cheap substrate for biodiesel production by using *Rhodococcus opacus*	2014	-
Selvanayaki S.	Biodegradation of individual and mixture phthalates in a continuous stirred tank reactor system	2021	-
Sudeshna Saikia	Biological removal and recovery of selenium from wastewater	2018	-
Sumeet Kheira	Industrial wastewater treatment using *Phanerochaete chrysosporium* in a rotating biological contactor reactor	2011	-

Research Students from Abroad:

1. Addis Kokeb Alemu, University of Gondar, Ethiopia (C.V. Raman African Fellowship)
2. Ben Dolman, The University of Manchester, United Kingdom (Newton Bhabha PhD Placement Program)
3. Tondossama Koromory, CIAPOL, Abidjan, Ivory Coast (C.V. Raman African fellowship)

Conferences or Training programs organized:

Conference:

- **Chairman** of the 5th International Conference on "Bioprocessing India – 2017" organized by Department of Biosciences and Bioengineering, IIT Guwahati, December 9-11, 2017.

Training Programs:

- **Coordinator** of the Global Initiative of Academic Networks (GIAN) course on Biofuel Cell Technology: Fundamentals and Applications" organized during April 23-27, 2018, at IIT Guwahati, Assam, India.
- **Coordinator** of "Industrial Research in Development of Biopharmaceuticals" organized by DSIR, Ministry of Science & Technology, Govt. of India at IIT Guwahati, 3rd March, 2015.
- **Coordinator** of QIP STC on "Biotechniques for Pollution Control & Resource Recovery", Sponsored by AICTE New Delhi, organized by Centre for the Environment, IIT Guwahati, July 1-5, 2013.
- **Coordinator** of the Quality Improvement Programme – Short Term Course on "Engineering Aspects of Enzyme and Microbial Processes", organized by Biotechnology department, IIT Guwahati, 4 – 8 June 2007.

Membership in Professional Scientific Bodies

- Executive Committee Member, Bioprocessing Society-India (BPI)
- Member, Indian Institute of Chemical Engineers (IIChE)
- Member, Association of Microbiologists of India (AMI)

- Member, Biotechnology Research Consortium of India (BRSI)
- Member, Tamilnadu Pharmacy Council

Research and Industrial Training

- Worked on a six-month research project at Indian Institute of Chemical Biology, Kolkata for the fulfilment of MTech in Biotechnology offered by Jadavpur University, Kolkata, during the year 1999.
- Underwent one month research training in the departments of Molecular Biology, Bacteriology, Immunology, Epidemiology and Pathology at Tuberculosis Research Center (TRC), Indian Council of Medical Research, Chennai, in the year 1998.
- Underwent two month industrial training in the various departments of Research & Development, Parenteral, Quality Control, Non-parenterals at M/s. TTK Pharma Ltd., Pallavaram, Chennai, in the year 1995.

Select Administrative Posts Held at IIT Guwahati

Name of the Post	Period	
	From	To
Head, Biosciences and Bioengineering Department	February 2016	January 2019
Associate Dean, Students Affairs	Nov. 2014	Feb. 2016
Secretary, Postgraduate Programme Committee, Biotechnology Department & Member, Institute Postgraduate Programme Committee	May 2011	July 2013
Warden, Umiam Hostel & Chairman, Hostel Affairs Board	July 2008	July 2010
Coordinator, Technical Committee, Department of Biosciences and Bioengineering	May 2009	May 2010
Coordinator, Placement, Department of Biosciences and Bioengineering	August 2007	April 2009
Warden, Manas Hostel	Nov. 2004	July 2008
Secretary, Undergraduate Programme Committee, Biotechnology Department & Member, Institute Undergraduate Programme Committee	Sep. 2005	October 2007
Coordinator, B.Tech Project, Department of Biosciences and Bioengineering	March 2005	May 2007
Associate Warden, Manas Hostel	July 2004	Nov. 2004

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