


Short CV of Prof. M K Purkait

<p>Dr. Mihir Kumar Purkait Professor Chair, National Jal Jeevan Mission (Min. of Jal Shakti) Professor (HAG), Department of Chemical Engineering, Former Dean of Alumni and External Relations, IITG Former Head, Centre for the Environment, IITG Indian Institute of Technology Guwahati Guwahati-781039, Assam, India, E-mail: mihir@iitg.ac.in mihirpurkait@gmail.com Phone: +91-9954248807</p> <p>Details CV: https://www.iitg.ac.in/chemeng/faculty_projects.php?name=mkp</p> <p>Publications: https://scholar.google.co.in/citations?user=9Z4kD-sAAAAJ&hl=en</p> <p>Books published: https://www.amazon.in/s?k=mihir+kumar+purkait&crd=1QLRVAT86FUSN&srefix=mihir+kumar+Purkait%2Caps%2C236&ref=nb_sb_ss_ts-doa-p_1_19</p>	 <p>DOB: 16/10/1974</p> <p>Permanent Address: 123, Bacharpara Road (1 no), Thakurpukur Kolkata - 700063, West Bengal</p>
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Dr. Mihir Kumar Purkait is a Professor in the Department of Chemical Engineering at Indian Institute of Technology Guwahati (IITG). Presently he is holding Professor Chair of National Jal Jeevan Mission (NJJM), Min. of Jal Shakti (Govt. of India). He is energetically involved in frontier areas of Chemical Engineering with his major research interest in the field of advanced separation processes and material science.

Prof. Purkait has completed his B.Tech from University of Calcutta (1999), M Tech (2001) and PhD (2004) from IIT Kharagpur in Chemical Engineering. He joined the Department of Chemical Engineering at IIT Guwahati in 2004 as faculty and served as the Dean of Alumni and External Relations (2021-2024), the Head of the Centre for the Environment (2018-2021), Wardens (2008-2010) and Associate wardens (2005-2008) of IITG Hostel.

Prof. Purkait has a portfolio of multifarious innovations and inventions in both fundamental and applied research. He has made an outstanding contribution to develop the fundamental concept and mechanism of smart and intelligent responsive materials (thermo-responsive, pH-responsive, dual / multi stimuli-responsive, and piezoelectric) for a wide range of separation applications. He has the credit for commercializing various technologies for up and downstream operation of water purification, many water treatment technologies for contaminated drinking water and industrial wastewater, bio-separation, value-added product separation from plant and agricultural resources, and electrochemical reduction of CO₂ to several liquid fuels.

Prof. Purkait has done outstanding contribution in translational and applied research on two major sustainable development goals, SDGs (SDG 6: Clean Water and Sanitation; SDG 9: Industry and Innovation; SDG 12: Production). Quality and quantity of his research is reflected in terms of large number of publications, patents, technology transfer, start-ups, projects,

consultancies and involvement with various national and international scientific committees. His work has remarkable relevance in societal as well as industrial sectors.

He has more than 24 years of experience in research & academics. With his research team he has **published more than 350 high quality International journal papers with h-index of 81 (citation > 20,000), 16 granted patents and made 3 technology transfer. He has authored 22 books, completed 42 sponsored projects/consultancies** funded by various Govt agencies and industries. Prof. Purkait has supervised 26 PhD students and >50 M Tech students on fundamental and applied research.

For his scientific and societal contribution, he has been awarded several national level prestigious award from INAE, NASI, INSA, DST etc. He has worked as visiting professor of 3 foreign universities and involved in various international scientific/funding organizations as ECC/PAC expert member like European Science Foundation (ESF, France), Fund for Scientific Research; FWO Flanders, Brussel (Belgium) etc.

He is also actively involved in different capacity like ECC / EC / PAC / selection committee member / advisor / consultant etc in various Govt (state & central) bodies including DST, SERB, DBT, AICTE, IITs, NITs, Universities, Waste to Wealth (W2W) mission and National Jal Jeevan Mission (JJM) of Principal Scientific Advisor (PSA) to the Govt of India and public sector companies.

Academic qualifications:

Post PhD Research: Massachusetts Institute of Technology (MIT), USA (2010-2011).

Ph.D: Indian Institute of Technology, Kharagpur, 2004.

M.Tech: Chemical Engineering, Indian Institute of Technology, Kharagpur, 2001.

B. Tech: Chemical Engineering, University of Calcutta, 1999.

B.Sc (Hons in Chemistry), University of Calcutta, 1996

Present and past positions held:

- Professor Chair, National Jal Jeevan Mission (Govt. of India), 02/03/2022 onward.
- Dean, Alumni and External Relations, 1st January 2021 to 6th March 2024, IIT Guwahati.
- Head, Centre for the Environment: 15th May, 2018 to 31st January 2021, IIT Guwahati.
- HAG Professor (Level 15): July 2022 onward, Dept. of Chemical Engineering, IIT Guwahati.
- Professor: July 2015 onward, Dept. of Chemical Engineering, IIT Guwahati.
- Associate Professor: Nov. 2008 to July, 2015, Dept. of Chemical Engineering, IITG.
- Assistant Professor: Sept. 2005 to Nov. 2008, Dept. of Chemical Engineering, IITG.
- Sr. Lecturer: Dec. 2004 to Sept. 2005: Dept. of Chemical Engineering, IITG.

Honorary positions:

- Visiting Scientist, Department of Chemical Engineering, Massachusetts Institute of Technology (MIT), USA, July 2010 – June 2011.
- Visiting Professor, National Ilan University (NIU), Taiwan, May – July, 2017
- Visiting Expert, National Yunlin University of Sci. and Technology (Yun Tech), Taiwan, May 2018.
- Visiting Professor, National Ilan University (NIU), Taiwan, June – July, 2018
- Visiting Professor, GIFU university, Japan, May-June, 2019

Fellowships

1. Fellow of Royal Society of Chemistry (**FRSC**), UK (2017, F-638258)
2. Fellow of the Institution of Engineering and Technology (**FIET**), UK (2020)
3. Fellow of West Bengal Academy of Science and Technology (**FAScT**) 2021
4. Fellow of Institute of Engineers (India) (**FIE**) (2016, F-1219320)
5. Fellow of Indian Institute of Chemical Engineers (**IICChE**) (2020, LF-19472)
6. Fellow of Indian Desalination Association (**FInDA**)
7. BOYSCAST Fellow for the year (2010), (**DST**), Govt. of India.

Awards/Honors/Recognitions:

1. NASI-Reliance Industries Platinum Jubilee Awards – 2022 from National Academy of Sciences (**NASI**), 2022.
2. Abdul Kalam Technology Innovation National Fellowship from Indian National Academy of Engineering (**INAE**), 2020.
3. Young Scientist Medal Award from the Indian National Science Academy (**INSA**), 2009.
4. Young Scientist Award from the Department of Science & Technology (**DST**), (2009) Govt. of India.
5. Herdillia Award for Excellence in Basic Research in Chemical Engineering for the year 2018 from Indian Institute of Chemical Engineers (IICChE).
6. The Young Engineers Award in the field of Chemical Engineering from The Institute of Engineers (India), 2009.

7. Dr. A.V. Rama Rao Foundation's Best Ph.D Thesis and Research Award in Chemical Engineering/Technology" for the year 2007 from Indian Institute of Chemical Engineers (IChE).
8. Rajiv Gandhi Shiromani Award, from National Integration and Economic Council, 2007.
9. Indira Gandhi Sadbhavna Gold Medal Award for outstanding contribution in health, education, industry and social service from Global Economic Progress & Research Association, Bangalore, 2013.

Association with professional bodies:

- LMEEIU (Life member, Eco Ethic International Union - Germany)
- LMIICHE (Life member, Indian Institute of Chemical Engineers - India)
- LMISLCA (Life member, Indian Society for Life Cycle Assessment, India)
- LMNEEF (Life member, National Ecology and Environment Foundation, India)
- LMGEPR (Life member, Global Economic Progress & Research Association)

Member of important committee

1. Member of **Board of Governors (BoG)** of Central Institute of Technology Kokrajhar (CITK) (AICTE Nominee) 06/08/2024 onward for 3 years.
2. **Expert Consultative Committee (ECC)** member of "**Waste to Wealth (W2W)** Mission". Office of Principal Scientific Advisor to the Govt of India, New Delhi, August, 2023 – August.
3. Core Member of Programme Advisory Committee on Chemical and Environmental Engineering (**PAC-CEE**). Science and Engineering Research Board (**SERB**), **DST**, New Delhi, 12/07/2021 onward for 3 years.
4. Chairman of Technical Sub-Committee on "**Agri-Waste Management**" of Waste to Wealth Mission of Office of Principal Scientific Advisor to the Government of India (**PSA-Gol**), 2022 onward.
5. Special Invitee Member in the Technical Committee under Chairmanship of Principal Scientific Advisor (**PSA**) to the Govt of India for examination and use of innovative technologies in drinking water and sanitation sector. September, 2022 onward.
6. Sectional Committee member of **Bureau of India Standards (BIS)** on "Water Conductor Systems: 2024 onwards.
7. State Level Task Force Member (**TFM**) in the Atal Mission for Rejuvenation and Urban Transformation (**AMRUT**), Govt of Assam, India, 2022 – 2023.

8. **Expert** Consultative Committee (**ECC**) member of “**Waste to Wealth**” Mission under The Prime Minister's Science, Technology and Innovation Advisory Council (**PM-STIAC**), New Delhi, January 2021 – 2022.
9. **Esteem Expert** Panel Member of Water Technology Initiative Programme, DST, Govt. of India (**WTI (DST)**), 2021 – 2024.
10. **PAC member** of Department of Biotechnology (**PAC-DBT**), Govt. of India, 2020-2022.
11. **Independent “Technical Expert”** of Water Quality India Association (WQIA), January 2023 onward.
12. **Expert** in Faculty selection committee in several IITs, NITs and Universities.
13. **Expert member** for the project evaluation committee European Science Foundation (ESF), France, 2020 onward and FWO (Belgium).
14. **International PAC** member of Fonds Voor Wetenschappelijk Onderzoek (*Fund for Scientific Research; Flanders, Belgium, Brussel*) **FWO** 2022 onward.
15. **Water Quality Task Force** member of **PHED**, Govt. of Assam, Since July, 2016.
16. **Advisory of 107 MLD drinking water supply plant** of **GAMMON India**, Ltd, Guwahati. Since Aug, 2017.
17. Core Committee member of **Task Force PHED**, Govt of Assam, Since Oct, 2017.
18. **Expert committee** member for the selection of sector expert for ground truthing and technical assistance in implementation of Jal Jeevan Mission (JJM), National centre for drinking water, sanitation and quality.
19. **Advisor** of IOCL, Betkuchi terminal for their Rain water harvesting plant since Oct, 2019.
20. **Technical director** of *M/s Vixudha Bio Products Pvt. Ltd.* for commercial production of various antioxidants from biological sources. Since July, 2018
21. **Technical director** of *RD Grow Green India Pvt. Ltd.* manufacturing water treatment plant. Since May. 2016
22. Associate Editor for 5 years from Oct. 18, 2010, International Journal of Chemical Research.
23. Associate Editor for 5 years from Oct. 18, 2010, Journal of Biomedical and Bioengineering.
24. Editorial Board Member Journal of Membrane Science & Technology.
25. Guest Editor, Special Issue on "Waste Management using BioScience and Technology" in the International Journal of BioSciences and Technology.(2008).
26. Editorial Board member of International Journal of Chemical Engineering Research

27. Honorary Member of the Editorial Board of the International Journal of BioSciences and Technology.(2008).
28. Member of the Editorial Board of the International Journal of Nano Science and Technology, (2012).

Research output: (Contribution and citation)

Books Published = <u>22</u> Book Chapters = <u>68</u> Paper published <u>>350</u>	Citation: <u>>20,000</u> h - index: <u>81</u> i10 - index: <u>222</u>	Post doc = 4 PhD supervised : <u>26</u> Current PhD students: <u>11</u> M Tech Thesis supervised: <u>44</u>
Project completed: >42 (DST, DBT, DRDO, CSIR, State Govt. etc)	Patent granted = <u>14</u>	Startup company: <u>2</u> Centre for Excellence = <u>2</u> Technology transferred = <u>3</u>

Books Published

Authored Books

- 1) M K Purkait and P P Das. Ozonation-Based Treatment of Water and Wastewater: Advancements and Environmental Applications. Publisher: **Elsevier** (2025). **ISBN: 9780443275982**, **No of Pages: 320.**
- 2) M K Purkait, P P Das, and M Bharti. Electrocoagulation: Fundamentals and Applications in Water and Wastewater Treatment. Publisher: **Taylor & Francis** (2025). **ISBN: 9781003499671**, **No of Pages: 180.**
- 3) M K Purkait, P Mondal, S Kumar, Emerging and Innovative Smart Materials for Water Treatment Applications. **CRC Press (Taylor & Francis)** (2025).
- 4) M.K. Purkait, A.D. Sontakke, Anweshan, Carbon-Based Nanocarriers for Drug Delivery, 1st ed., **CRC Press**, Boca Raton, 2023, **ISBN 9781032414447**, No of Pages: 332.
- 5) M K Purkait, P Mondal, N S Samanta, P P Das, Waste-based Zeolite: Synthesis and Environmental Applications, **Elsevier - Health Sciences Division (2024)**, ISBN: 978-0-443-22316-7. No pages: 282.

- 6) M K Purkait, M Sharma, P P Das, "*Blue Energy Extraction Using Salinity Gradients: A Critical Evaluation of Case Studies*", ISBN-13: 978-0443216121, **Elsevier** - **Health Sciences Division (2024)**, No of Pages: 276.
- 7) M K Purkait, P P Das, M Sharma, "Electrocoagulation Based Treatment of Water and Wastewater: Overview and Applications", **ISBN: 978-0443138928, Elsevier** - Health Sciences Division (2024), No of Pages: 224.
- 8) M K Purkait, P Mondal, P P Das, Deepti, Wastewater Treatment in Steel Industries: Case Studies, Advances, and Prospects, **CRC Press (Taylor & Francis (2023))**. ISBN: 9781003366263, No of Pages: 128.
- 9) M K Purkait, D Halder, B Debnath, Technological Advancements in Product Valorization of Tea Waste, **Elsevier** - Health Sciences Division (2023), ISBN: 0443192405, 9780443192401, No of pages: 222.
- 10) M K Purkait, P Durah, PP Das, Recovery of Bioactives from Food Wastes. **CRC Press (Taylor & Francis (2024))**, ISBN:9781000862690, 1000862690, No pages: 220.
- 11) P Mondal, **M K Purkait**, Green Synthesized Iron-Based Nanomaterials: Application and Potential Risk, CRC Press **Taylor & Francis (2022)**, ISBN: 9781003243632. SBN:9781032153261, 1032153261, No of pages: 138.
- 12) M K Purkait, D Haldar, P Duarah, Advances in Extraction and Applications of Bioactive Phytochemicals, **Academic Press, (Elsevier)** (2022) Paperback ISBN: 9780443185359, eBook ISBN: 9780443185366, No of pages: 256.
- 13) R Singh, P Mondal, **M K Purkait**, pH responsive membranes: Biomedical Applications, **CRC Press, Taylor & Francis**, (2021) ISBN: 9781000520705, 1000520706, 9781032061672, 1032061677.
- 14) **M K Purkait**, P Mondal, M Changmai, V Volli, C M Shu, Hazards and Safety in Process Industries: Case Studies. Publisher: CRC Press, **Taylor & Francis**, ISBN 9781000362442, 1000362442 (2021), eBook ISBN 9781003054764, No of pages: 352.
- 15) **M K Purkait**, D Haldar, Lignocellulosic Biomass to Value-Added Products, Publisher: **Elsevier Science**, (2021), Paper back ISBN: 9780128235348 , e-Book ISBN: 9780128235911. No of page: 240.
- 16) **M K Purkait**, R Singh, P Mandal, D Haldar, Thermal Induced Membrane Separation Processes, Publisher: **Elsevier Science**, (2020) ISBN: 9780128188019, No of pages: 318.
- 17) **M K Purkait**, P Mondal, C T Chang, Treatment of Industrial Effluents: Case Studies, Publisher: CRC Press, **Taylor & Francis**, (2019), ISBN: 9780429401763, No of pages: 364.
- 18) **M. K. Purkait** and R Singh, Membrane Technology in Separation Science, Publisher: CRC Press, **Taylor & Francis**, 2018, ISBN: 9781138626263, No of pages: 340.

19) **M K Purkait**, M K Sinha and P Mondal and R Singh, Stimuli Responsive Polymeric Membranes, Publisher: **Academic Press** (Elsevier), 2018 ISBN: 9780128139615. No of pages: 312.

20) S Mondal, **M K Purkait**, S De, Advances in Dye Removal Technologies, Publisher: **Springer**, (2017) ISBN: 978-981-10-6293-3, No of pages: 350.

21) Edited Books:

22) K. Mohanty and **M.K. Purkait**, Membrane Technologies and Applications (Edited), Publisher: CRC Press, **Taylor & Francis**, (2011), ISBN 10: 1439805261, ISBN 13: 9781439805268. No of pages: 350.

23) D Deka, S K Majumder, **M K Purkait**, Sustainable Environment: **Springer**, ISBN: 9811984638, ISBN-13 : 978-9811984631, No of pages: 318.

(More books to be added)

Patent

- 1) B. Prem Kumar, R. Uppaluri, D.S. De, M.K. Purkait, Surfactant composition and method for enhanced oil recovery utilizing aqueous surfactant composition. Application Number: 597/KOL/2007. Date of Filing: 18/04/2007. Indian **Patent No. 245703, Granted on 04/02/2011.**
- 2) Vijaykumar L. Dhadge, Chitta Ranjan Medhi and Mihir Kumar Purkait, Apparatus and method for removal of fluoride, iron, arsenic and microorganism from contaminated drinking water. Application Number: 481/KOL/2010. Date of Filing: 29/04/2010. Indian **Patent No. 286481, Granted on 21/08/2017.**
- 3) Vijaykumar L. Dhadge and Mihir Kumar Purkait, Production of catechins from natural sources using membrane based technology. Application Number: 240/KOL/2010. Date of Filing: 11/03/2010. Indian **Patent No. 291190. Granted on 29/12/2017.**
- 4) Vijaykumar L. Dhadge and Mihir Kumar Purkait, Formulations containing Catechin flavonoids mixture produced by membrane separation technology, Application Number: 840/KOL/2010. Date of filing: 30/7/2010. Indian **Patent No. 296935, Granted on 21/05/2018.**
- 5) P. Biswas, V.K. Chandaliya, P.K. Banerjee, C. Das, M.K. Purkait, " A fabrication process to produce defect-free inorganic ultrafiltration range ceramic membrane device, Application Number: 725/KOL/2010. Date of filing: 02/07/2010. **Patent No. 345860, Granted on 01/09/2020.**

- 6) P K Saha, M K Purkait, A B Paul, R Saikia, Anweshan, J K Deka, S K Saikia, Apparatus/System for electrolytic treatment of water, India Patent Application No. 201831027259. Date of filing: 20/07/2018. **Patent No. 347762, Granted on 25/09/2020.**
- 7) M K Purkait, Deepti, A Sinha, P. Biswas, S Sarkar, "Separation of ions from rejected stream of industrial wastewater", Application Number: 201831044754. Date of filing: 27/11/2018. **Patent No. 358357, Granted on 11/02/2021.**
- 8) A Sinha, P. Biswas, S Sarkar, M Changmai, M K Purkait, A ceramic membrane, A process of preparation and application thereof. Patent Application No: 201831041890. Date of filing: 05/11/2018. **Patent No. 363544, Granted on 30/03/2021.**
- 9) P Mandal, M K Purkait, Aromatic carbon coated iron aluminium nanocomposite and its green synthetic process. Patent Application No. 202031047652, Date of filing: 01/11/2020. **Patent No. 385299, Granted on 28/12/2021.**
- 10) M K Purkait, Deepti, Removal of Chromium from Linz-Donawitz slag, Patent Application No. 202231007598 (TEMP/E-1/8706/2022-KOL), Date of filing: 13/02/2022. **Patent No. 452334, Granted on 18/09/2023.**
- 11) M K Purkait, Somnath Chanda, P Mandal, Process for preparation of high surface area activated carbon by using waste tea leaves. Patent Application No. 202131062319 (TEMP/E-1/70593/2021-KOL), Date of filing: 31/12/2021. **Patent No. 472466, Granted on 23/11/2023.**
- 12) P Mandal, M K Purkait, Green technique for preparing iron nanoparticles embedded polymeric membrane. Patent Application No. 202231018062 (TEMP/E-1/20234/2022-KOL), Date of filing: 28/03/2022. (Hearing completed: 14/01/2024). **Granted.**
- 13) M K Purkait, Somnath Chanda, Piyal Mondal, Process for enhancing the shelf-life of green tea catechins and total polyphenolic content. Patent Application No. 202231059038 (TEMP/E-1/67974/2022-KOL), Date of filing: 16/10/2022. Hearing completed, **Granted.**
- 14) M K Purkait, Somnath Chanda, Green tea catechine formulations with super diluent. Patent Application No. 202331075844 (TEMP/E-1/89595/2023-KOL), Date of filing: 07/11/2023. **FER submitted, Granted.**
- 15) M K Purkait, Piyal Mondal, Vikranth Saha, Saptarshi Gupta, Low cost sensor for arsenic (as +5) detection developed by electrodeposition of spherical silver nanoparticles. Patent Application No. 202431013304 (TEMP/E-1/15483/2024-KOL), Date of filing: 23/02/2024. Hearing completed 31/01/2025.

- 16) M K Purkait, B Gupta, L Kumar, Photocatalytic reactor for efficient removal of pharmaceutical contamination from water Patent Application No. 202431103915 (TEMP/E-1/120448/2024-KOL), Date of filing: 27/12/2024.
- 17) M K Purkait, Piyal Mondal, Photoluminescent Iron nanoparticles and their green synthesis for heavy metal ion sensing and dye degradation. Patent Application No. 202431013304 (TEMP/E-1/15483/2024-KOL), Date of filing: 23/02/2024. Hearing completed 31/01/2025.
- 18) M K Purkait, B Gupta, L Kumar, Integrated system with photocatalytic reactor for continuous treatment of wastewater. Patent Application No. 202431103915 (TEMP/E-1/120448/2024-KOL), Date of filing: 27/12/2024.

[\(More Patents to be added\)](#)

Technology Transferred:

i) Name of Technology: Production of powder catechins from Green tea leaves using smart membrane technology

Patent Number: **Indian Patent No. 291190. Granted on 29/12/2017.**

Transferred to (Company name): M/s Vixudha Bio Products Pvt. Ltd., Registration Number: 18349. Date: 03/03 2022

Commercialized or not: Yes

ii) Name of Technology: Formulations of various flavonoids based antioxidants for tablet and capsule production

Patent Number: **Indian Patent No. 296935, Granted on 21/05/2018**

Transferred to (Company name): *Brahmaputra Techno Pharmaceuticals Pvt. Ltd,* Registration number: 19778.

Commercialized or not: Yes

iii) Name of Technology: Electrolytic treatment plant for fluoride, iron, arsenic and microorganism free drinking water

Patent Number: **Indian Patent No. 286481, Granted on 21/08/2017**

Transferred to (Company name): *RD Grow Green India Pvt. Ltd. Registration Number: 56645. Date: 22/08/2019*

Commercialized or not: Yes