INTELLECTUAL PROPERTY RIGHTS (IPR) – 24 PATENTS

National:

1. Design of Clamping Pulley [Patent No. 350143-001, **Granted**- 25/01/2023]: **INDIA**
2. Electrochemical Membrane Bioreactor [Patent No. 350145-001, **Granted**- 27/06/2023]: **INDIA**
3. Municipal Wastewater Treatment Device [Patent No. 350144-001, **Granted**- 17/02/2023]: **INDIA**
4. A Method of Treatment of Domestic Wastewater by Electrochemical Membrane Bioreactor and Generation of Bioelectricity [Patent No. 202311010019, **Granted**- 22/05/2024]: **INDIA**
5. Removal of Chromium from Industrial Wastewater Using Magnetic Nanoparticles [Patent No. 202311027431, **Granted**-21/02/2025]: **INDIA**
6. Thermal Catalytic Cracking Unit [Patent No. 388557-001, **Granted**- 02/02/2024]: **INDIA**
7. Microbial Fuel cell Set-up for Continuous Process [Patent No. 404283-001, **Granted**- 4/05/2024]: **INDIA**
8. An Electrospinning Set-up for Wound Patches [Patent No. 407680-001, **Granted**- 09/04/2024]: **INDIA**
9. An electrochemical device for measuring current and voltage in electrochemical membrane bioreactor [Patent No. 425141-001, **Granted** - 24/10/2024]: **INDIA**
10. Biofilm reactor for multiple substratum [Patent No. 432264-001, **Granted**- 09/12/2024]: **INDIA**
11. Adsorption Column for Dye Removal from Textile Wastewater [Patent No. 383691-001 **Granted**- 12/06/2025]: **INDIA**
12. Biochemical reactor for production of biofuel [Patent No. 439728-001, **Filed** - 06/12/2024]: **INDIA**
13. Magnetic Chemical Pump for Waste Water Treatment Using Nano Technology [Patent No. 463915-001, **Filed** - 28/06/2025]: **INDIA**
14. Hybrid Reactive Distillation with Side Draw for the Selective Production of Dehydrated Adol [Patent No. 461397-001, **Filed** - 06/06/2025]: **INDIA**
15. Hybrid Axial Centrifugal Compressor for Interdisciplinary Industrial Applications [Patent No. 463915-001, **Filed** - 24/07/2025]: **INDIA**

International:

1. Electrochemical Biosensor Device for Measuring Water Quality Parameter [Patent No.- 6275686, **Granted**- 26/04/2023]: **UNITED KINGDOM**
2. Integrated Anaerobic Sludge Reactor having Microbial Fuel Cell for Wastewater Treatment [Patent No.- 6310988, **Granted**- 25/09/2023]: **UNITED KINGDOM**
3. Semi-Continuous Biochemical Reactor for Biodiesel [Patent No.- 6310987, **Granted**- 25/09/2023]: **UNITED KINGDOM**
4. Artificial Intelligence Based Membrane Bioreactor for Treatment of Wastewater [Patent No.- AMCZ-2312907656, **Granted**- 31/01/2024]: **AUSTRALIA**
5. Thermal Catalytic Cracking Unit for Biofuel Production [Patent No.- 6338387, **Granted**-19/01/2024]: **UNITED KINGDOM**
6. A Process for Treatment of Municipal Wastewater and Generation of Bioelectricity by Electrochemical Membrane Bioreactor [Patent No.- 2023/10692, **Granted-** 26/06/2024]: **SOUTH AFRICA**
7. An electrochemical device for measurement of current and voltage [Patent No.- 6387517, **Granted**- 06/09/2024]: **UNITED KINGDOM**
8. A Superparamagnetic Fe_3O_4 Nanoparticles from *Hibiscus rosa-sinensis* Leaf Extract and Application Thereof [Patent No.- 202411040955, **Granted-**15/11/2024]: **GERMAN**

9. Electrochemical Process for Monitoring Membrane Fouling in Bioreactors for Wastewater Treatment [Patent No.- 202511004650, **Filed-** 05/02/2025]: **SOUTH AFRICA**

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9. Sushil Kumar, **Suantak Kamsonlian** and Neha Chomal (2014). Equilibrium Study on Reactive Extraction of Nicotinic Acid from Aqueous Solution. *International Journal of Chemical Engineering and Applications*, Vol. 5, pp. 6.
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15. Shashi Bala Gautam, Siraj Alam and **Suantak Kamsonlian**, *Sorption of As (III) ion onto the surface of raw and modified coconut husk in fixed bed column* for oral presentation at CHEM-CONFLUX20, an International Conference on Energy and Environmental Technologies For Sustainable Development organized by Department of Chemical Engineering, MNNIT, Allahabad during February 14-16, 2020

16. Kajal Gautam, Sushil Kumar, **Suantak Kamsonlian***, Optimization of Reactive Black B Decolourization by Electrocoagulation using RSM and ANN* for oral presentation at 'CHEM-CONFLUX20, an International Conference onEnergy and Environmental Technologies For Sustainable Development organized by Department of Chemical Engineering, MNNIT, Allahabad during February 14-16, 2020.

17. Shashi Bala Gautam, Siraj Alam and **Suantak Kamsonlian,** *Sorption of As(III) ion onto surface of raw and modified coconut husk in fixed bed column* for oral presentation at CHEM-CONFLUX20, an International Conference onEnergy and Environmental Technologies For Sustainable Development organized by Department of Chemical Engineering, MNNIT, Allahabad during February 14-16, 2020.

18. Kirti, **Suantak Kamsonlian** and Vishnu Agarwal. *Superparamagnetic Fe3O4 nanoparticles: green production by Hibiscus rosa-sinensis leaf aqueous extract and its characterization* for poster presentation at BioSangam-2022, an International Conference on Emerging Trends in Biotechnology organized by Department of Biotechnology, MNNIT Allahabad during March 10-12, 2022.

19. Saurabh Yadav and **Suantak Kamsonlian**. *A Review of Electrochemical Methods for Treatment of Wastewater,* for oral presentation at CHEM-CONFLUX22, an International Conference on Technological Interventions for Sustainability, jointly organised by Chemical Engineering Department, Motilal Nehru National Institute of Technology and School of Chemical Engineering, Universiti Sains Malaysia which was held at Motilal Nehru National Institute of Technology Allahabad, Prayagraj during April 14-16, 2022.

20. Saurabh Yadav, **Suantak Kamsonlian** and Shubham Pal. *Treatment of Municipal Wastewater Using Electrochemical Membrane Bioreactor,* for oral presentation at CHEM-CONFLUX22, an International Conference on Technological Interventions for Sustainability, jointly organised by Chemical Engineering Department, Motilal Nehru National Institute of Technology and School of Chemical Engineering, Universiti

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21. Kirti, **Suantak Kamsonlian** and Vishnu Agarwal. *Review on Synthesis of Plant-Mediated Green Iron Nanoparticles and their Application for Decolourisation of Dyes,* for oral presentation at CHEM-CONFLUX22, an International Conference on Technological Interventions for Sustainability, jointly organised by Chemical Engineering Department, Motilal Nehru National Institute of Technology and School of Chemical Engineering, Universiti Sains Malaysia which was held at Motilal Nehru National Institute of Technology Allahabad, Prayagraj during April 14-16, 2022.

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23. Shabnam Dan, Amit Chattree, Jishnu Naskar, **Suantak Kamsonlian**. *Comparative study of ferromagnetic behaviour in bare and DDMAB-PMMA-PEG modified Manganese Ferrite ($MnFe_2O_4$) nanoparticles* for oral presentation at CHEM-CONFLUX22, an International Conference on Technological Interventions for Sustainability, jointly organised by Chemical Engineering Department, Motilal Nehru National Institute of Technology and School of Chemical Engineering, Universiti Sains Malaysia which was held at Motilal Nehru National Institute of Technology Allahabad, Prayagraj during April 14-16, 2022.

24. Kajal Gautam, **Suantak Kamsonlian,** Yatindra Kumar, Sushil Kumar. *Electrochemical Treatment of Wastewater containing Reactive Blue-4 (RB4) Dye by using Airlift Electrocoagulation and Optimization of Multivariate Parameters* for oral presentation at CHEM-CONFLUX22, an International Conference on Technological Interventions for Sustainability, jointly organised by Chemical Engineering Department, Motilal Nehru National Institute of Technology and School of Chemical Engineering, Universiti Sains Malaysia which was held at Motilal Nehru National Institute of Technology Allahabad, Prayagraj during April 14-16, 2022.

25. Sajal Agarwal, Himanshu Gupta, Ankur Gaur, **Suantak Kamsonlian.** *Synthesis and Characterization of Carboxy-Methyl Cellulose Obtained from Different Bio Waste Material* for oral presentation at CHEM-CONFLUX22, an International Conference on Technological Interventions for Sustainability, jointly organised by Chemical Engineering Department, Motilal Nehru National Institute of Technology and School of Chemical Engineering, Universiti Sains Malaysia which was held at Motilal Nehru National Institute of Technology Allahabad, Prayagraj during April 14-16, 2022.

26. Kirti, **Suantak Kamsonlian** and Vishnu Agarwal. *Removal of MB and CV dyes from aqueous solutions by adsorption on iron oxide nanoparticles synthesized by Hibiscus Rosa-Sinensis leaf aqueous extract: Kinetics, equilibrium and thermodynamics*, CHEMCON 2022 and 75th Annual Session of Indian Institute of Chemical Engineers with a conference theme: Sustainability in Chemical Processes through Digitalization, Artificial Intelligence and Green Chemistry held at HBTU Kanpur during 27th to 30th December 2022.

27. Saurabh Yadav and **Suantak Kamsonlian**. *Removal of BOD, COD and TDS from municipal wastewater by application of electrochemical methods and generation of bioelectricity simultaneously*, CHEMCON 2022 and

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29. Saurav Kandpal, Mod. Anas, **Suantak Kamsonlian** and Ashish N. Sawarkar. Hydrogen-rich syngas production through co-gasification of biomass and petcoke in a horizontal tubular furnace and modelling the intricate process through machine learning, International Conference on Health and Agriculture Biotechnology: Interdisciplinary Trends (HABIT-2025) organised by Department of Biotechnology, MNNIT Allahabad during February 28 – March 02, 2025.

BOOK PUBLICATIONS

S. No.	Title	Editor's/ Author's Name	Publisher	Year of Publication
1.	Environmental Management in Hostel	Saurabh Yadav, Rohit Kumar Singh, **Suantak Kamsonlian**, Manoj Kumar Yadav, MS Karuna	1st Edition, P.K Publishers and Distributors, New Delhi *ISBN 978-93-92239-30-4*	2022
2.	Thermal Catalytic Cracking of Jatropha Oil	Saurabh Yadav, **Suantak Kamsonlian,** Neeru Anand, Dinesh Kumar	1st Edition, P.K Publishers and Distributors, New Delhi *ISBN 978-93-92239-48-9*	2022
3.	Treatment of Domestic Wastewater by Electrochemical Membrane Reactor	Shubham Pal, Anant Prakash Agarwal, **Suantak Kamsonlian,** Saurabh Yadav	1st Edition, P.K Publishers and Distributors, New Delhi *ISBN 978-93-92239-81-6*	2023
4.	Emerging Trends in Chemical and Biochemical Engineering - Volume - 1	Mr. Saurabh Yadav **Dr. Suantak Kamsonlian** Dr. Karthick S Ms. Niharika Dutt	IIP (Iterative International Publishers) Selfypage Developers Pvt. Ltd., Paisley Circle, Novi, Michigan, USA. *ISBN 978-1-68576-456-2*	2023
5.	Emerging Trends in Chemical and Biochemical Engineering - Volume - 2	**Dr. Suantak Kamsonlian** Dr. Vishnu Agarwal Dr. Saurabh Yadav	IIP (Iterative International Publishers) Selfypage Developers Pvt. Ltd., Paisley Circle, Novi, Michigan, USA. *ISBN 978-1-68576-457-9*	2023
6.	Application of Plant Based Nano-particles for Dye Removal from Contaminated Wastewater	Dr. Kirti **Dr. Suantak Kamsonlian** Dr. Vishnu Agarwal	1st Edition, P.K Publishers and Distributors, New Delhi *ISBN 978-81-19428-78-6*	2024
7.	Emerging Trends in Chemical and Biochemical Engineering-Volume - 3	**Dr. Suantak Kamsonlian** Dr. Arvind Kumar Gautam Dr. Sanjay Singh Mr. Ankit Kumar Dr. Saurabh Yadav	IIP (Iterative International Publishers) Selfypage Developers Pvt. Ltd., Paisley Circle, Novi, Michigan, USA. *ISBN 978-1-68576-503-3*	2024

8.	Current Trends in Engineering and Technology - Volume - 1	**Dr. Suantak Kamsonlian** Dr. Arvind Kumar Gautam Ms. Niharika Dutt Dr. Saurabh Yadav	P.K Publishers and Distributors, New Delhi *ISBN 978-81-19428-37-3*	2024
9.	Current Trends in Engineering and Technology - Volume - 2	Dr. Saurabh Yadav Dr. M.S. Karuna Er. Thejus Jacob **Dr. Suantak Kamsonlian**	P.K Publishers and Distributors, New Delhi *ISBN 978-93-49060-14-2*	2025

BOOK CHAPTER PUBLICATIONS

S. No.	Title	Author's Name	Chapter Contribute/ Book Name	Page No.	Publisher	Year of Publication
1.	Biosorption of Cd (II) and As (III) Ions from Aqueous Solution by Tea Waste Biomass	**Suantak Kamsonlian**, Chandrajit Balomajumder, Shri Chand and S. Suresh	Chapter 7, Vol. 3 Book: ***Current Perspectives of Environment and Climate Change***	83-91	Book Publisher (BP) International, UK *ISBN 978-93-89816-72-3*	2020
2.	Green synthesis of El-Fe nanoparticle from eucalyptus globulus leaf extract and their usage for methylene blue removal	Praveen Dubey, Satish Kumar Singh, Kirti, Saurabh Yadav, **Suantak Kamsonlian**, Ankur Gaur	Chapter 4, Vol. 1 Book: ***Industrial Application of Nanoscience and Nanotechnology***	19-30	Excel India Publishers, New Delhi *ISBN 9789389947267*	2020
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