Dr BINDU MANGLA

Associate Professor, Department of Chemistry,
J C Bose University of Science & Technology, YMCA,
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AREA OF RESEARCH

- Material Chemistry and Nanotechnology
- Corrosion Chemistry
- Atmospheric Chemistry

RESEARCH PROJECTS UNDERTAKEN

- "**Bioengineered Nanopatterned Renewable Carriers as Scaffolds for Enzyme Immobilization for Enhanced Stability & Catalytic Activities**", funded by Haryana State Council for Science, Innovation and Technology (HSCSIT), Haryana as Principal Investigator (Ongoing)

- **"Assessment and estimation of physico-chemical parameters, heavy metals and other pollutants in soil, water and crop of agricultural land irrigated with waste water of some cancer suffering villages of Palwal and Faridabad district of Haryana, India"**, funded by JCBose UST, YMCA, Faridabad as Principal Investigator (Completed)

PATENT

- Dinesh Kumar Sharma, Ananna Bardhan, Vandana Agrawal, **Bindu Mangla**, "Automated earthquake response and building stabilization system" **Indian Patent published** on 19.09.2025.

- Dinesh Kumar Sharma, Ananna Bardhan, **Bindu Mangla**, "A system for enhancing solar still desalination performance using cold plasma-treated hydrophobic condensation surfaces," **Indian Patent published** on 08.08.2025.

- Dinesh Kumar Sharma, Ananna Bardhan, Manju Singhal, **Bindu Mangla**, "Solar concentrator system for enhanced solar energy absorption in algal solar distillation for water purification" **Indian Patent published** on 25.04.2025.

- Dinesh Kumar Sharma, Ananna Bardhan, Vinayak Vandan Pathak, **Bindu Mangla**, "A solar desalination system utilizing activated carbon nanoparticles synthesised from bio-waste for performance enhancement" **Indian Patent published** on 28.02.2025.

- Dinesh Kumar Sharma, Ananna Bardhan, Pooja Sharma, Vinayak Vandan Pathak, **Bindu Mangla**, Narendra Singh, "Lipid enhancement in algal biomass using monochromatic optical filters" **Indian Patent published** on 06.12.2024.

- Dinesh Kumar Sharma, Ananna Bardhan, Sakshi Papnai, Shivani Singh, Narendra Singh, **Bindu Mangla**, "AI-Integrated apparatus for enhanced solar PV efficiency using adaptive optical filters" **Indian Patent certificate of registration of design (432011-001) granted** on 27.09.2024.

RECENT RESEARCH PUBLICATION

- Anubhav Kant Semwal, Arvind Singh Pangtey, Manvandra Kumar Singh, Vineet Kumar, **Bindu Mangla**, Sudhish Kumar Shukla, Priyanka Tyagi, Gopal Ji (2025). Synthesis of ethanolic extract of Buddhist pine leaves and its deposition on copper's surface by drop casting for corrosion prevention in salty water. *Canadian Metallurgical Quarterly*, 1–17. https://doi.org/10.1080/00084433.2025.2556577

- **Bindu Mangla**, Noor, D.K.Sharma,& Gopal Ji. (2025): A mini review of algae based Bioelectrochemical fuel cells for the sustainable production of clean energy and bioremediation: Review on Bioelectrochemical fuel cells, Moroccan Journal of Chemistry, 13(3), Mor. J. Chem., 13(3), 1480–1500. https://doi.org/10.48317/IMIST.PRSM/morjchem-v13i3.50007

- Bharti Sheokand, Monika Vats, Seema R. Pathak, Bhupender Yadav, Anand Kumar, Devender Singh Negi, Raj Kumar Singh, Atheesha Singh & **Bindu Mangla**, Development and Characterization of a Novel Wound-Healing Film Incorporating Aloe vera Extract and Copper Ferrite Nanoparticles. Topics in catalysis (2025). https://doi.org/10.1007/s11244-025-02129-5

- Rashmi Sehrawat, Sidhant Yadav, Rashmi Pundeer, D.K. Sharma, **Bindu Mangla**, Synthesis of novel thiazole derivatives and their assessment as efficient corrosion inhibitors on mild steel in acidic medium, Progress in Organic Coatings, Volume 203, 2025, 109156, ISSN 0300-9440, https://doi.org/10.1016/j.porgcoat.2025.109156.

- Parul, Harish Kumar, Minakshi, Antresh Kumar, Parvin Kumar, **Bindu Mangla**, Devender Singh, Decoding ZnO: multifunctional properties via theory and experiment, Materials Letters, Volume 397, 2025, 138814, ISSN 0167-577X, https://doi.org/10.1016/j.matlet.2025.138814.

- Himanshi Bairagi, Priya Vashishth, Rashmi Sehrawat, DK Sharma, **Bindu Mangla**, Inhibition studies of efficacy of nanoparticles-reinforced composite against mild steel degradation exposed to 1.0 M HCl, Canadian Metallurgical Quarterly, 1-20, 2025, https://doi.org/10.1080/00084433.2025.2503119

- Rashmi Sehrawat, **Bindu Mangla**, Coordination interaction of biologically important macromolecules with metals and alloys for corrosion protection: An extensive study, Coordination Chemistry Reviews, Volume 525, 2025, 216346, ISSN 0010-8545, https://doi.org/10.1016/j.ccr.2024.216346.

- Priya Vashishth, Himanshi Bairagi, Rashmi Sehrawat, **Bindu Mangla**, "Environmentally Sustainable Approach of Corrosion Inhibition of Mild Steel in 1 N HCl and 1 N H2SO4 via Antihistamine Loratadine (LT) and Its Amine Derivatives: Computational and Experimental Analysis." *ACS Omega* (2025) 10/6, 5332−5350, https://doi.org/10.1021/acsomega.4c06238

- Jan, Saima, Jyoti Varma, Ajit Sharma, Malik Aalim, Meenakshi Choudhary, and **Bindu Mangla.** "Wet Chemical Co-precipitation Route of CuS Nanoparticles: Synthesis and Characteristics Studies Towards Photo-Degradation of 2-Chlorophenol." *Topics in Catalysis* (2025): 1-11. https://doi.org/10.1007/s11244-025-02054-7

- R. Sehrawat, P. Vashishth, N. Raghav, A. Bendi, A.J. Ahamed, N. Mujafarkani, **B. Mangla**, Advanced synthesis and multifaceted characterization of a 4, 4-diaminodiphenylmethane-melamine-formaldehyde terpolymer: anti-corrosion performance and antimicrobial potential in 1 M hydrochloric acid, RSC Adv., 15 (2025), pp. 11098-11114. https://doi.org/10.1039/D5RA01095K

- Rashmi Sehrawat, Priya Vashishth, Vishwas Chaudhri, Rashmi Pundeer, Harish Kumar, Eno E. Ebenso, **Bindu Mangla**, Synergistic corrosion inhibition of mild steel by chalcone derivatives and KI in acidic media via computational and experimental methods, Progress in Organic Coatings, Volume 198, 2025, 108911, ISSN 0300-9440, https://doi.org/10.1016/j.porgcoat.2024.108911.

RECENT BOOK CHAPTER

- Priya Vashishth, Rashmi Sehrawat, Himanshi Bairagi, D. K. Sharma, Bindu Mangla, (2025). Conclusive Insights from Biomedical Implant Surface In: Ashish Kumar, Abhinay Thakur; (eds) **Biomedical Implant Corrosion Mitigation Through Surface Engineering,** pp 380-402. RSC, Cham. https://doi.org/10.1039/9781837676606-00380
- Shirin Anwar, Priya Vashishth, Bindu Mangla & Sudheesh K. Shukla (2024). Future Perspective of Miniaturization /Lab-on-Chip for Environmental Application. In: Shukla, S.K., Hussain, C.M., Mangla, B., Choudhary, M., Patra, S. (eds) Nanotechnology in Miniaturization. Nanotechnology in the Life Sciences. Springer, Cham. https://doi.org/10.1007/978-3-031-72004-8_7
- G. Padma Priya, G. Subbulakshmi, Rashmi Sehrawat & Bindu Mangla (2024). Nano Materials in Energy Sectors Tool for Green Technology. In: Shukla, S.K., Hussain, C.M., Mangla, B., Choudhary, M., Patra, S. (eds) Nanotechnology in Miniaturization. Nanotechnology in the Life Sciences. Springer, Cham. https://doi.org/10.1007/978-3-031-72004-8_11
- G. Subbulakshmi, R. Thiruneelakandan, G. Padma Priya, Himanshi Bairagi & Bindu Mangla, (2024). Nano-Remediation: Miniature Technology for Sustainable Environment. In: Shukla, S.K., Hussain, C.M., Mangla, B., Choudhary, M., Patra, S. (eds) Nanotechnology in Miniaturization. Nanotechnology in the Life Sciences. Springer, Cham. https://doi.org/10.1007/978-3-031-72004-8_8

- Bindu Mangla, Noor, Smita S. Kumar, Sudheesh K. Shukla, Suresh Kumar, "Microbial fuel cells as sustainable method of wastewater treatment", In Bioelectrochemical Systems: The way forward, Algae Based Bioelectrochemical Systems for Carbon Sequestration, Carbon Storage, Bioremediation and Bioproduct Generation, Academic Press, Volume 3, 2024, Pages 107-124, https://doi.org/10.1016/B978-0-323-91023-1.00013-2.

- Anupama Rajput, Sudheesh K. Shukla, Ravi Kumar, Gaurav Jha, Vikas Kalia, Bindu Mangla, "A Sustainable Catalytic Approach for Wastewater Bodies An Innovation and

Technological Point of View", in Electrocatalytic Materials for Renewable Energy, Wiley Scrivener, 2024, pp. 353-376, https://doi.org/10.1002/9781119901310.ch13

➢ Priya Vashishth, Himanshi Bairagi, Rajni Narang Rashmi, Bindu Mangla, Sudhish K Shukla, "Phytochemicals as Corrosion Inhibitors for Different Metals in Acidic Medium", in Phytochemistry in Corrosion Science, CRC Press, 2024, pp. 363-383.

➢ Bindu Mangla, Pooja Moyal, Divyanshi Mangla, Sunil Kumar, Sudheesh K. Shukla, Atul Sharma, "Biosensors: A promising approach for healthcare application", In Woodhead Publishing Series in Electronic and Optical Materials, Functionalized Nanomaterials for Biosensing and Bioelectronics Applications, Woodhead Publishing, 2024, Pages 305-333, https://doi.org/10.1016/B978-0-12-823829-5.00005-1.

BOOKS

➢ Book titled '**Nanotechnology in miniaturization: an emerging trend to fabricate future devices**.' with editors Sudheesh K Shukla, C H Munstansar, **Bindu Mangla**, Meenakshi Choudhary, Santanu Patra, 2024 for Springer.

➢ Book titled '**Functionalized Nanomaterials for Catalytic Application'** with editors **Bindu Mangla,** C H Munstansar, Sudheesh K Shukla, 2021 for Wiley Scrivner.

➢ Book titled '**ENGINEERING PRACTICAL CHEMISTRY'** for the publishing house Manakin Press in 2018

➢ Book titled '**JEE MAIN CHEMISTRY'** for the publishing house MTG Learning Media

ACADEMIC QUALIFICATION

➢ **Doctor of Philosophy (Ph D)** in Chemistry, "Study of Ionic Behaviour of F-2 Region Using Satellite Data".

➢ **Master of Technology (M Tech)** in Polymer Technology from Delhi College of Engineering, University of Delhi (Now Delhi Technological University DTU), New Delhi, India

➢ **Master of Science (M Sc)** in Chemistry from Department of Chemistry, MD University, Rohtak, Haryana, India

➢ **Bachelor of Science (B Sc)** in Chemistry, Botany and Zoology from MD University, Rohtak, Haryana, India

❖ **Qualified CSIR-UGC – NET in Chemical Sciences**

- **Qualified GATE in Chemical Sciences**