

**Prof. Deepak Pathania:**

**Area of Research:**

- Nanocomposite ion exchangers.
- Fabrication of novel nanocomposites for diverse application.
- Remediation of pollutants in water system.
- Bioadsorbents



### **List of Publications (3 years)**

1. S. Sood, V.K. Gupta, S. Agarwal and **Deepak Pathania**, Controlled release of antibiotic amoxicillin drug using carboxymethyl cellulose-cl- poly(itaconic acid-co-lactic acid) hydrogel, Carbohydrate Polymer, International Journal of Biological Macromolecules, 101, 612-620, 2017.
2. **Deepak Pathania**, Manita Kumari and A.K. Mishra, Alginate-Zr (IV) phosphate nanocomposite ion exchanger: Binary separation of heavy metals, photocatalysis and antimicrobial activity, Journal of Alloys and Compounds, 701, 153-162, 2017.
3. **Deepak Pathania**, Shikha Sharma and Pardeep Singh, Removal of methylene blue by adsorption onto activated carbon developed from Ficus carica bast, Arabian Journal of Chemistry, 10, S1445–S1451, 2017.
4. **Deepak Pathania**, Manita Kumari, Anu Sharma, S. Agarwal and V.K. Gupta, Synthesis of lactic acid–Zr(IV) phosphate nanocomposite ion exchanger for green remediation, Ionic, 23, 699-706, 2017.
5. G. Sharma, Amit Kumar, Ala'a H. Al-Muhtase, **Deepak Pathania**, Mu. Naushad, Genevieve Tessema Mola, Revolution from monometallic to trimetallic nanoparticle composites, various synthesis methods and their applications: A review, Materials Science and Engineering C, 71, 1216–1230, 2017.
6. A. Sharma, Z.M. Siddiqi and **Deepak Pathania**, Adsorption of polyaromatic pollutants from water system using carbon/ZnFe<sub>2</sub>O<sub>4</sub> nanocomposite: Equilibrium, kinetic and thermodynamic mechanism, Journal of Molecular Liquid, 240, 361-371, 2017.

7. Deepak Pathania, M. Thakur, S. Jasrotia, S. Agarwal and V.K. Gupta, Gelatin-zirconium dioxide nanocomposite as a Ni (II) selective potentiometric sensor: Heavy metal separation and photocatalysis, *International Journal of Electrochemical Sciences*, 12, 8477-8494, 2017.
8. Deepak Pathania, Shikha Sharma, Pardeep Singh, Removal of methylene blue by adsorption onto activated carbon developed from *Ficus carica* blast, *Arbian Journal of Chemistry*, 10, S1445-S1451, 2017
9. V.K. Gupta, Deepak Pathania and Shikha Sharma, Adsorptive remediation of Cu(II) and Ni(II) by microwave assisted  $H_3PO_4$  activated carbon, *Arbian Journal of Chemistry*, 10, S2836-S2844, 2017.
10. Deepak Pathania, Microwave induced graft copolymerization of binary monomers onto luffa cylindrica fiber: removal of congo red, Accepted, *Procedica Engineering*, 2017.
11. **Deepak Pathania**, Gaurav Sharma, Mu. Naushad and Divya gupta, Preparation of novel chitosan-g-poly(acrylamide)/Zn nanocomposite hydrogel and its application for controlled delivery of ofloxacin. *International Journal of Biological Macromolecules*, 84, 340–348, 2016.
12. Gaurav Sharma, Amit Kumar, M. Naushad and Deepak Pathania, M. Sillanpaa, Polyacrylamide@Zr(IV) vanadophosphate nanocomposite: Ion exchange properties, antibacterial activity, and photocatalytic behavior. *J. Ind. Eng. Chem.*, 33, 201–208, 2016.
13. Deepak Pathania, D. Gupta, A.H. Al-Mulitaseb, G. Sharma, A. Kumar and T. Ahamad, Photocatalytic degradation of highly toxic dyes using chitosan-g-poly(acrylamide)/ZnS in presence of solar irradiation, *Journal of Photochemistry and Photobiology*, 329, 61-68, 2016 (IF: 2.5)
14. **Deepak Pathania**, Rishu Katwal and H. Kaur, Enhanced photocatalytic activity of electrochemically synthesized aluminum oxide nanoparticles, *International Journal of Minerals, Metallurgy and Materials*, 23, 358-371, 2016.
15. **Deepak Pathania**, Divya Gupta, S. Agarwal, M. Asif and V.K. Gupta, Fabrication of chitosan-g-poly(acrylamide)/CuS nanocomposite for controlled drug delivery and antibacterial activity, *Materials Science and Engineering C*, 64, 428–435, 2016.
16. **Deepak Pathania**, M. Thakur, A. Sharma, S. Agarwal, and V.K. Gupta, Synthesis of lactic acid–Zr(IV) phosphate nanocomposite ion exchanger for green remediation, *Ionic*, 18 Oct, 2016.

17. R. Sharma, S. Kalia, B.S. Kaith, A. Kumar, P. Thakur and **Deepak Pathania**, Ggum-poly(Itaconic Acid) Based Superabsorbents Via Two-Step Free-Radical Aqueous Polymerization for Environmental and Antibacterial Applications, *Journal of Polymer and Environment*, 24, 2016.
18. Gaurav Sharma, V.K. Gupta, S. Agarwal, Amit Kumar, S. Thakur and Deepak Pathania, Fabrication and characterization of Fe@MoPO nanoparticles: Ionexchange behavior and photocatalytic activity against malachite green. *J Mol. Liquid*, 219, 1137-1143, 2016.
19. Amit Kumar, Changsheng Guo, Gaurav Sharma, **Deepak Pathania**, Mu Naushad, Susheel Kalia and Pooja Dhiman, Magnetically recoverable  $ZrO_2/Fe_3O_4$ /chitosan nanomaterials for enhanced sunlight driven photoreduction of carcinogenic Cr(VI) and dechlorination & mineralization of 4-chlorophenol from simulated waste water, *RSC Adv.*, 6, 13251-13263, 2016.
20. **Deepak Pathania**, Arush Sharma and Z.M. Siddiqi, Removal of congo red dye from aqueous system using Phoenix dactylifera seeds, *J. Mol. Liquid*, 219, 359-376, 2016.
21. **Deepak Pathania**, Rishu Katwal, Gaurav Sharma, Mu. Naushad, Mohammad Rizwan Khan, Ala'a H. Al-Muhtaseb, Novel guar gum/ $Al_2O_3$  nanocomposite as an effective photocatalyst for the degradation of malachite green dye, *International Journal of Biological Macromolecules* 87, 366–374, 2016.
22. Kamini Thakur, Susheel Kalia, B.S. Kaith, **Deepak Pathania**, Amit Kumar, Pankaj Thakur, Chelsea E. Knittel, Caroline L. Schauer, Grazia Totaro, The development of antibacterial and hydrophobic functionalities in natural fibers for fiber-reinforced composite materials, *Journal of Environmental Chemical Engineering* 4, 1743–1752, 2016.
23. Kamini Thakur, Susheel Kalia, **Deepak Pathania**, Amit Kumar, Neha Sharma, Caroline L. Schauer, Surface functionalization of lignin constituent of coconut fibers via laccase-catalyzed biografting for development of antibacterial and hydrophobic properties, *Journal of Cleaner Production*, 113 (2016) 176-182.
24. Anu Sharma, Gaurav Sharma, Mu.Naushad and **Deepak Pathania**, Estimation of arsenic (III) in organic arsines and its complexes using potassium bromate and potassium iodate as oxidants. *J. Chil. Chem. Soc.* 71, 2940-2948, 2016.

25. **Pathania D**, Gupta D, Kothiyal NC, Eldesoky GE, Naushad M. Preparation of a novel chitosan-g-poly (acrylamide)/Zn nanocomposite hydrogel and its applications for controlled drug delivery of ofloxacin. *International journal of biological macromolecules*. 2016 84:340-348.
26. **Deepak Pathania**, Gaurav Sharma and Rinku Thakur, Pectin @ zirconium (IV) silicophosphate nanocomposite ion exchanger: Photo catalysis, heavy metal separation and antibacterial activity, **Chemical Engineering Journal**, 267, 235-244, 2015 (IF: 4.2).
27. Divya Gupta, Devender Singh, N.C. Kothiyal, Adesh K. Saini, **Deepak Pathania**, Microwave induced synthesis of chitosan-g-poly(acrylamide)/ZnS nanocomposite for controlled drug delivery and antimicrobial activity, **International Journal of Biological Macromolecules**, 74, 547-557, 2015 (IF: 3.2).
28. V.K. Gupta, Gaurav Sharma, **Deepak Pathania** and N.C. Kothiyal, Nanocomposite pectin Zr(IV) selenotungstophosphate for adsorptional/photocatalytic remediation of methylene blue and malachite green dyes from aqueous system, **Journal of Industrial and Engineering Chemistry**, 21, 957-964, 2015 (IF: 2.1).
29. S. Kango, S. Kalia, P. Thakur, B. Kumari and **Deepak Pathania**, Semiconductor–Polymer Hybrid Materials, **Advanced Polymer Science**, 267, 283-312, 2015 (IF: 3.7).
30. **Deepak Pathania**, Bhanu Priya and A.S. Singha, Synthesis and kinetics of ascorbic acid initiated graft copolymerized delignified cellulosic fibre, **Polymer Engineering & Science**, 474-482, 2015 (IF: 1.9).
31. Amar Singh Singha, Bhanu Priya and **Deepak Pathania**, Corn starch/poly(vinyl alcohol) biocomposite blend films: mechanical properties, thermal behaviour, fire retardancy and antibacterial activity, **International Journal of Polymer Analysis and Characterization**, 20, 357-366, 2015 (IF: 1.2).
32. Reena Sharma, B.S. Kaith. S. Kalia, **Deepak Pathania**, Amit Dhiman, N. Sharma, C. Schauer, Biodegradable and conducting hydrogels based on guar gum polysaccharide for antibacterial and dye removal applications, **Journal of Environmental Management**, 162, 37-45, 2015 (IF: 3.2).
33. **Deepak Pathania**, Mamta Kumari and V.K. Gupta, Fabrication of ZnS–cellulose nanocomposite for drug delivery, antibacterial and photocatalytic activity, *Materials and Design*, **85**, 1056-1064, 2015.

34. Kamini Thakur, B.S. Kairh, S. Kalia, **Deepak Pathania**, Laccase-mediated biografting of p-coumaric acid for development of antibacterial and hydrophobic properties in coconut fibers, *Journal of Molecular Catalysis. B, Enzymatic*, 289-295, 2015.
35. **Deepak Pathania**, Bhanu Priya and A.S. Singha, Ascorbic acid/H<sub>2</sub>O<sub>2</sub> initiated free radical graft polymerization of delignified *grewia optiva* cellulosic fibre, **Malaysian Polymer Journal**, Vol. 10(1), 1-8, 2015.
36. Kamini Thakur, B.S. Kairh, S. Kalia, **Deepak Pathania** and Amit Kumar, Surface functionalization of coconut fibers by enzymatic biografting of syringaldehyde for the development of biocomposites, **RSC Advances** 5, 76844 – 76851, 2015, (IF: 3.8).
37. Rishu Katwa, H. Kaur, Gaurav Sharma, Mu. Naushad, **Deepak Pathania**, Electrochemical synthesized copper oxide nanoparticles for enhanced photocatalytic and antimicrobial activity, *Journal of Industrial and Engineering Chemistry*, 31, 173-184, 2015.
38. Gaurav Sharma, Amit Kumar, M. Naushad and **Deepak Pathania**, A multifunctional nanocomposite pectin thorium (IV) tungstomolybdate for heavy metal separation and photoremediation of malachite green, **Desalination and water treatment**, 1-13, 2015.
39. V.K. Gupta, S. Agarwal, I. Tyagi, **Deepak Pathania**, Bhim Singh Rathore, Gaurav Sharma, Synthesis, characterization and analytical application of cellulose acetate-tin (IV) molybdate nanocomposite ion exchanger: binary separation of metal ions and antibacterial activity, **Ionics**, In Press, 2015, DOI 10.1007/s11581-015-1368-4 (IF: 1.8).
40. **Deepak Pathania**, Gaurav Sharma, Amit Kumar, Mu. Naushad, Susheel Kalia, Anu Sharma and Z.A. Al-Othman, Combined sorptional\_photocatalytic remediation of dyes by polyaniline Zr(IV) selenotungstophosphate nanocomposite, **Toxicological & Environmental Chemistry**, 97, (5), 526-537, 2015.