# BRIEF PROFILE OF THE FACULTY

**Department of Chemistry**

1. **Name** : Dr. Alka Tiwari
2. **Designation** : Professor
3. **Email Address** : [alkatiwari18@yahoo.co.in](mailto:alkatiwari18@yahoo.co.in) , [alkatiwari18@gmail.com](mailto:alkatiwari18@gmail.com)
4. **Teaching Experience** : **38 Years ( UG & PG)**
5. **Educational Qualification**:

* B. Sc. With Chemistry, Botany and Biology in 1977 from Jiwaji University, Gwalior
* M.Sc. in Chemistry in 1979 from SOS in Chemistry, Jiwaji University, Gwalior
* Ph.D. 1984 from SOS in Chemistry, Jiwaji University, Gwalior
* Received **CSIR fellowship** from 1980 to 1983 and worked as **JRF/SRF**

1. **Title of Ph.D. –** Uses of Polyphosphoric Acid as a reagent in Synthetic Organic Chemistry
2. **Specialization in P.G.** : Organic Chemistry
3. **Details of Research Projects completed:**

* two Minor Research Projects (UGC sponsored)
* One Major Research Project (BARC, BRNS sponsored)

1. **Ongoing Major Research Project:**

* Major Research Project (BARC, BRNS sponsored)

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| **S.**  **No**  . | **Project sanction No.& Amount Rs)** | **Title of project** | **Projects (Completed**  **/Ongoing)** |
| 1 | 4S-66/2006-07/MRP/CRO dt. 12.12.2006  **Rs. 65000/-** | Minor research project by **UGC-**  Removal of heavy metal ions from aq. Solution by adsorption onto Ca-alginate beads | **(2006-08)**  completed |
| 2 | MS-44/202008/09-10/CRO dt. 31.03.10  **Rs. 1,20,000/-** | Minor research project by **UGC-**  Iron oxide encapsulated Chitosan microspheres as  novel nano composite adsorbent for detoxification of water | **(2010-12)**  completed |
| 3 | 2010/37C/54/BRNS2535 dt. 23.2.11,  **Rs. 22 lacks** | Major research project by **BARC/ BRNS**  Magnetic Nano particles loaded cation exchanger sorbents for effective removal of toxic metal ions | **(2011-15)**  completed |
| 4 | MS42/202008/XII/13- 14/CRO dt. 1.7.2014  **Rs.4,20,000/-** | Minor research project by **UGC-**  Pesticides removal from aq. Solutions by adsorption onto paramagnetic Styrene based co-polymers | **(2014-16)**  completed |
| 5 | 35/14/24/2018-BRNS/10415 dt. 31.05.2018  **Rs. 32,51,400/-** | Major research project by **BARC/ BRNS**  Radiation induced modification of chitosan for adsorptive removal of Textile dyes. | **(2018-2021)**  **ongoing** |

**10**. **Details of Research (In Brief) : Field of Research**

* 1. Polymer Chemistry, Adsorption, Grafting & Drug delivery

1. Recognized Supervisor for Ph.D. Guidance at **Pt. R.S.U. Raipur** & now at **Hemchand Yadav University, Durg**

* No. of candidates supervised for Ph. D. degree – **12**
* Ph. D. degree awarded- **08**
* Candidates registered for Ph. D. Degree - **04**

**Details of Ph.D. awarded**

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| --- | --- | --- | --- |
| **S.No**  **.** | **Name of candidate** | **Topic** | **Date of Ph. D.** |
| 1. | Mrs. Tulika Dewangan | Removal of toxic metal ions by adsorption onto crosslinked sodium alginate and carboxymethyl  cellulose microspheres. | Degree awarded  Mar. 2011 |
| 2. | Mrs. Anjali Soni | Polymer and iron oxide nano composite microspheres. | Degree awarded  Oct. 2014 |
| 3. | Mrs. Chanchal  Dhiwar | Iron oxide encapsulated Chitosan microspheres as novel nano composite adsorbent for detoxification of water. | Degree awarded  Feb. 2015 |
| 4. | Mr. Neeraj Sharma | Application of Nano magnetite loaded Copolymeric hydrogels in the effective removal of Toxic metal ions from effluent water. | Degree awarded  Feb. 2015 |
| 5. | Mrs. Prerna Kathane | Polyvinyl alcohol-alginate bound magnetite nano particles as adsorbent for detoxification of water. | Degree awarded  Aug. 2017 |
| 6. | Mrs. Barna Paul | Gold nano particles encapsulated alginate microspheres as adsorbent for removal of organic and inorganic toxicants from water. | Degree awarded  Nov. 2018 |
| 7. | Mrs. Anita Bind | Pesticides removal from aqueous solutions by adsorption onto Styrene based co-polymers. | Degree awarded  Mar. 2018 |
| 8. | Mrs. K. Vijayasri | Removal of toxic metal ions by using Chitosan based biosorbents. | Degree awarded  Dec. 2020 |

**List of Publications**

46. Sandeep Kumar, Alka Tiwari, C.V. Chaudhri, Y.K. Bhardwaj, Low cost highly efficient   
 natural polymer based radiation grafted adsorbent I: synthesis and characterization,   
 *Radiation Physics and Chemistry,* 182, 109377, **2021**.

45. Nishi Verma, Alka Tiwari, Neha Sonker, Jaya Bajpai & Anil Kumar Bajpai, Invitro   
 investigation of swelling triggered release of 5- fluorouracil from Gelatin coated Gold   
 nano particles, *Inorganic and Nano Metal Chemistry*, doi.org/ 10.1080/24701556,   
 **2020**,1862217.

44. K. Vijayasri and Alka Tiwari, C.V. Chaudhri, Mitigation of As V from aqueous solution in   
 fixed bed column using functionally modified column, I*norganic and Nano Metal   
 Chemistry*, doi.org/ 10.1080/24701556, **2020**,1808994

43. Archana, Alka Tiwari & A.K. Bajpai, Synthesis of Chitosan-co-lactic acid Nano particles   
 and their potential as a career for anticancer drug, *Academic Journal of Polymer Science*,   
 JUNIPER Publications, 4 (2) **2020**, AJOP.MS. ID 555631.

42. K. Vijayasri and Alka Tiwari, Fixed – bed Column Studies on Removal of As (V) by   
 Radiation Grafted Polymer “Chitosan-g-MAETC”, TACL, *Analytical Chemistry Letters,*   
 Vol. 9(4), pp- 486-503. **2019.**

41. K. Vijayasri and Alka Tiwari, Radiation degraded Chitosan: Efficiency and Investigation   
 of Adsorption of Arsenic (V) from Aqueous Solution, TACL *Analytical Chemistry   
 Letters,* Vol. 9 (2) pp- 182-195 **2019**

40. K. Vijayasri and Alka Tiwari, Chemical and radiation grafted chitosan for the mitigation   
 of arsenic from contaminated water, *Journal of Dispersion Science and Technology*,   
 ISSN:0193-2691 (print) 1532-2351 (online) journal homepage https;//www. Tandfonline.  
 com/doi/ldis20. **2019**

39. K. Vijayasri and Alka Tiwari, Development of Functional Adsorbent from natural   
 Biosorbent “Chitosan” by Radiation induced grafting of MAETC for removal of Arsenic   
 (V), *J. Polymer Materials*, Vol. 36, no.1**, 2019**, 41-60.

38. A. Tiwari and Anita Bind, Removal of Pesticide ( Monocrotophos) from aqueous   
 solution using nano iron oxide loaded Poly (styrene –co-maleic anhydride) co-polymer   
 by batch and fixed bed column method, *International Journal of Creative Research   
 Thoughts*  (IJCRT), Vol. 6, issue 2, April **2018**

1. A. Tiwari and P. Kthane, Effective removal of dye Alizarine Red S using CTAB modified PVA- Alginate bound nano magnetic microspheres, *International Journal of Scientific and technical research in Engineering*, Vol. 2, Issue 61, June **2017**, 33-41.
2. A. Tiwari and P. Kthane, Defluoridation of Water using an Effective Adsorbent PVA-Alginate/CTAB Bound Nano Magnetite microspheres: Kinetic & Equilibrium study, *Advance Physics Letter,* ISSN (Print) : 2349-1094, ISSN (Online) : 2349-1108, Vol\_3, Issue\_2**, 2016,** 36-42
3. A. Tiwari and Barna Paul, Gold Nanoparticles Encapsulated Alginate Microspheres as an Adsorbent for the Separation of Mn (II) Ions from the Aqueous Solutions, *Advance Physics Letter* ,ISSN (Print) : 2349-1094, ISSN (Online) : 2349-1108, Vol\_3, Issue\_2, **2016** 30
4. A. Tiwari and Barna Paul, A Brief Review on the Application of Gold Nanoparticles as Sensors in Multi Dimensional Aspects, *IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT),* E-ISSN: 2319-2402,. Vol. 1 Issue. 4, PP 01-07 *September –* ***2015****)*
5. Tiwari and P. Kthane, Adsorption of Cu2+ ions onto Polyvinyl alcohol-Alginate bound Nano Magnetite Microspheres: A Kinetic and Thermodynamic Study *International Research Journal of Environment Sciences,* ISSN 2319–1414 Vol. **4(4),** 12-21, April **2014**.
6. A. Tiwari and N. Sharma, Efficiency of superparamagnetic nano iron oxide loaded poly (acrylamide-co-maleic acid) hydrogel in uptaking Cu2+ ions from water, *Journal of Dispersion Science and Technology, 34:1437-1446,* ***2013***
7. N. Sharma and A. Tiwari, Kinetic and thermodynamic studies of Zn2+ adsorption onto super paramagnetic poly (styrene-co-acrylic acid) hydrogel, *Synthesis and Reactivity in Inorganic, Metal-Organic, and Nano-Metal Chemistry, Accepted, November,* ***2014***
8. N. Sharma and A. Tiwari, Effective removal of Cu2+ ions from aqueous solution in Fixed-bed micro column using nanomagnetite-loaded poly (acrylamide-co-maleic acid) hydrogel as adsorbent, *Desalination and Water Treatment, 1-14,* ***2014****, (online)* DOI: 10.1080/19443994.2014.991945.
9. N. Sharma and A. Tiwari, Nanomagnetite-loaded poly (acrylamide-co-itaconic acid) hydrogel as adsorbent for effective removal of Mn2+ from contaminated water, *Desalination and Water Treatment, 1-18,* ***2015****, (online)*DOI:10.1080/19443994.2015.1004117
10. N. Sharma and A. Tiwari, Nano ZnO-loaded poly (acrylamide-co-itaconic acid) hydrogel as adsorbent for effective removal of iron from contaminated water, *Desalination and Water Treatment, 1-14, 2015, (online)*DOI: 10.1080/19443994.**2015**.1005158
11. N. Sharma and A. Tiwari, Assessment of Pb2+ ions removal efficiency of nanomagnetite-loaded poly (acrylamide-co-acrylic acid) hydrogel in fixed-bed micro column from aqueous solution, *Desalination and Water Treatment, 1-12,* ***2014****, (online)* DOI: 10.1080/19443994.2014.987178
12. A. Tiwari and A. Bind, Adsorption of pesticide (Captan) onto super paramagnetic poly (styrene-co-acrylic acid) hydrogel from aqueous solution using batch and column studies, *Analytical Chemistry Letters,4(4):267-278,* ***2014***
13. A. Tiwari and A. Bind, Effective removal of pesticide (Dichlorvos) by adsorption onto super paramagnetic poly (styrene-co-acrylic acid)hydrogel from water, *International Research Journal of Environment Sciences, 3(11):44-46,* ***2014***
14. N. Sharma and A. Tiwari, Nano iron oxide loaded Poly (Acrylonitrile-co-Acrylic acid) hydrogel applied as novel adsorbent for effective removal of toxic Cd2+ ions using fixed-bed micro column technology, *Research Journal of Chemical Sciences, 4(9):88-100,* ***2014***
15. A. Tiwari and N. Sharma, Adsorption of Hg2+ ions onto super paramagnetic poly (acrylamide-co-crotonic acid) hydrogel: kinetic and thermodynamic studies, *Analytical Chemistry Letters (Taylor & Francis),* Vol. 3 (4), **2013**, 249-263 DOI:10.1080/22297928.2013.856149
16. A. Tiwari and Prerna Kthane, Super paramagnetic PVA-Alginate Microspheres as Adsorbent for Cu2+ ions Removal from Aqueous Systems, *International Research Journal of Environment Sciences*, Vol.2 (7**),(2013**), 44-53
17. A. Tiwari and N. Sharma, Kinetic and thermodynamic studies of Cd2+ adsorption onto super paramagnetic nano iron oxide loaded Poly (Acrylonitrile-co-Acrylic acid) hydrogel, *Research on Chemical Intermediates – (Springer),* DOI:10.1007/s11164-013-1330-x
18. A. Tiwari and Anjali Soni, Removal of malachite green from aqueous solution using nano-iron oxide- loaded alginate microspheres : batch and column studies, *Research on Chemical Intermediates- (Springer*), DOI 10.1007/s 11164-012-1011-1.
19. A. Tiwari and Chanchal Dhiwar, Nano Iron Oxide Encapsulated Chitosan Microspheres as Novel Adsorbent For Removal Of Ni (II) Ions From Aqueous Solution, *Research on Chemical Intermediates- (Springer),* DOI:10.1007/s11164-012-0812-6
20. A. Tiwari and N. Sharma, Efficiency of Super paramagnetic Nano Iron Oxide Loaded Poly (Acrylamide-co- Acrylic acid)Hydrogel in Uptaking Pb2+ Ions from Water, *International Research Journal of Environment Sciences*, Vol.1 (5**),(2012),** 06-13.
21. A. Tiwari and Anjali Soni, Adsorption of o-nitrophenol onto Nano iron oxide and alginate microspheres: Batch and column studies, *African Journal of Pure and Applied Chemistry*, Vol.6 (2) DOI: 10.5897/AJPAC11.071,**2012**
22. A. Tiwari and Anjali Soni, Nano particles loaded alginate beads as potential adsorbent for removal of phenol from aqueous solution, *Synthesis and Reactivity in Inorganic, Metal-Organic, and Nano-Metal Chemistry (Taylor &Francis*), Vol. 42 (**2012**) 1158-1166
23. A. Tiwari and Chanchal Dhiwar, Adsorption of Chromium onto composite microspheres of Chitosan and nano – Iron Oxide, *Journal of Dispersion Science and Technology, (Taylor &Francis)*, Vol.32 (**2011**)1661-1667
24. A. Tiwari and Tulika Dewangan, Removal of chromium (VI) ions by adsorption onto binary bio-polymeric beads of sodium alginate and carboxymethyl cellulose, *Journal of Dispersion Science and Technology*, (Taylor &Francis), Vol.32 **(2011**) 1075-1082
25. A. Tiwari and Tulika Dewangan, Adsorption of Hg (II) ions onto Binary Biopolymeric beads OF Carboxy methyl Cellulose and Alginate, *Journal of Dispersion Science and Technology,(Taylor &Francis)*, Vol.31 (2010) 844 – 851
26. Manju Kaushal and Alka Tiwari, Removal of Rhodamine-B from aqueous solution by adsorption onto cross-linked alginate beads, *Journal of Dispersion Science and Technology,(Taylor &Francis*), Vol.31 (2010) 438-441
27. A. Tiwari and Tulika Dewangan, Removal of arsenic (v) ions from aqueous solutions by adsorption onto biopolymeric crosslinked calcium alginate beads, *Toxicological and Environmental Chemistry. Taylor &Francis,* Vol. 91, No. 6, August 2009, 1055– 1067
28. A. Tiwari and Tulika Dewangan, Binary biopolymeric beads of alginate and carboxymethyl cellulose as potential adsorbent for removal of cobalt (II) ions: A dynamic and equilibrium study, *Toxicological and Environmental Chemistry. Taylor &Francis*, 92(02), **(2009)** 211 - 222.
29. A. Tiwari and Ritu Tiwari, Dynamic and Equilibrium Studies on adsorption of Cu(II) ions onto biopolymeric crosslinked pectin and alginate beads, Journal of Dispersion Science and Technology,(Taylor &Francis), 30, 6, **(2009).**1208-1215.
30. A. Tiwari and Tulika Dewangan, Removal of Cobalt ions from aqueous solution by adsorption onto crosslinked calcium alginate beads, *Journal of Dispersion Science and Technology (Taylor &Francis)*, 30 **(2009)** 1.
31. A. Tiwari and Tulika Dewangan, Removal of toxic As (V) ions by adsorption onto alginate and carboxymethyl cellulose beads*, Journal of the Chinese Chemical Society*, 55-(5), **(2008),** 952-961.
32. Removal of Cu (II) ions by adsorption onto crosslinked calcium alginate beads,*Biosciences, Biotechnology Research Asia*, 04 (2), 675-680 **(2007).**
33. Synthesis of some Biphenyl Compounds by Rearrangement of Salicyl hydrazones in Polyphosphoric acid, *Asian Journal of Chemistry*, 19(4), **(2007)**3256-3258
34. Intramolecular Thermal cyclizations of substituted N- Phenyl Cinnamamides by Polyphosphoric acid, *Asian Journal of Chemistry*, 19 (4), **(2006)** 3262-3264.
35. Synthesis of Coumarins by Cyclocondensation in presence of Polyphosphoric acid (PPA), *Research Link*, **(2005)** 30(5).
36. Fries Rearrangement : A new, Practical synthesis of 5 -Acetyl resacetophenone4-methyl ether in Polyphosphoric acid (PPA), *Research Link*, **(2005)** 30(6),18.
37. Synthesis of Diaryl Sulphones by Sulphonylation of Carboxylic acids in Polyphosphoric acid (PPA), *Research Link*, **(2005)** 30(6),16
38. **Fellow and Life member:**

* Indian Council of Chemists (ICC)
* Indian Society of Surface Science & Technology (JSSST)
* Journal of Indian Chemical Society (J Ind Chem Soc).
* International Science Congress association (ISCA)
* The Indian Science Congress Association (ISCA)
* Asian Polymer Association (APA)
* Society for Materials Chemistry (SMC)