

**Proforma for information to be provided by the Teaching/ Academic/  
Research Staff**



1. Name : **KAUSHAL KUMAR UPADHYAY**

2. Designation: **Professor**

3. Academic Qualifications:

<b>Sr.</b>	<b>Degree</b>	<b>Institution</b>	<b>Year</b>
1.	High school	UP Board	1980
2.	Intermediate	UP Board	1982
3.	B.Sc.(Hons.)	B.H.U.	1985
4.	M.Sc.	B.H.U.	1988
5.	Ph.D.	B.H.U.	1994

4. Area of Specialization: (brief write up, 200 words)

1. Synthesis, characterization and evaluation of metal nano particles and their subsequent applications in the naked eye sensing of analytes.
2. Design and development of optical chemosensors (optodes) for naked eye recognition of biologically/ environmentally relevant analytes.
3. Studies on supramolecular interactions between sensor and analyte in context of self-assemblies formation.
4. Chemical modeling of a few metalloenzymes particularly Nucleases.
5. To develop economical and convenient catalytic methods for the synthesis of a few important organic compounds.

5. Contact Information: 08009460894,

[drkaushalbhu@yahoo.co.in](mailto:drkaushalbhu@yahoo.co.in)

6. Projects Undertaken as PI/ Co PI: 4 as PI

Grant agency	Title of the project and Reference number	Duration, (from mm/yy to mm/yy)	Percentage of time devoted/being devoted	Amount in lakh Rs.
CSIR	Design and development of a few cost effective fluorescent sensor for the cell imaging and bioassay of Al <sup>3+</sup> , Pb <sup>2+</sup> , Cd <sup>2+</sup> and Hg <sup>2+</sup>	01-04-2013 to 30-03-2016	36 Months	8,62,833/- + 10% overhead charges
UGC	Design and development of some new cost-effective optical sensors for the detection of Zn <sup>2+</sup> , Cd <sup>2+</sup> and Hg <sup>2+</sup>	01-07-2012 to 30-06-2015	36 Months	7,57,500/- + 10% overhead charges
CSIR	Designing and evaluation of some purine and pyrimidine based ion sensors.	01-11-08 to 31-10-11	36 Months	12,82,000/- + 10% overhead charges
UGC	Synthesis, Characterization and Evaluation of Superoxide ion scavenging activity of some Coumarin containing Schiff bases and their Mn (II), Cu (II), and Zn (II) Complexes.	01-04-08 to 31-03-11	36 Months	5,13,000/- + 10% overhead charges

7. Awards/ Recognitions if any:

1. Awarded **U.P. Government scholarship** in 1980 for two years.
2. Awarded **B.H.U. Medal** for standing first in M.Sc. (Chemistry) 1988 Exam.
3. Qualified **J.R.F. (NET) CSIR** in Dec. 1990.
4. Awarded **Prof. A.K. Dey award** in 1992 by Indian Chemical Society, Calcutta.
5. Placed **first** among all the selected candidates for the post of Lecturer (Chemistry) by U.P. higher education services commission in 1995.

Corrected an earlier mechanistic pathway for the optical sensing of bisulfate by the family of Schiff base receptors(Prof. Kim. et al. proposed hydrogen bonding while we proposed hydrolysis, Chemical Communications, Volume: 48 Issue: 76 Pages: 9540-9542, 2012.)

6. One of my research paper in the *Journal of Molecular Structure* was ranked at **No.1 position** among the **25 hottest articles** from **Jan – March 2008** of the same Journal.
  7. One of my research paper (*Bulletin of the Chemical Society of Japan*; 82, **2009**, 813) was ranked at **7<sup>th</sup> position** among the top 100 accessed articles for the period of July **2009**.
  8. One of my research article (*New Journal of Chemistry*; 34, **2010**, 1862) was amongst the top ten most accessed articles during the month of September 2010.
  9. Reviewed chemical manuscripts for various international journals of chemistry like, New journal of Chemistry, RSC Advances, Organic and Biomolecular chemistry, Dalton Transaction, Journal of Molecular Structure, Sensors and Actuators, Spectrochemical acta, Dyes and pigments etc.
8. List of 10 major Publications: (in order of importance)
1. V. Kumar, A. Kumar, U. Diwan, K. K. Upadhyay, **2012**, “Uncovering the true mechanism of optical detection of  $\text{HSO}_4^-$  in water by Schiff-base receptors – hydrolysis vs. hydrogen bonding” **Chemical Communications**, 48, 9540.
  2. R. K. Mishra, K. K. Upadhyay, S. Shukla, R. Mishra. **2012**, “A zinc(II) directed triple-stranded helicate incorporating a nine membered metallamacrocycle: supramolecular cylinders mimicking P1 nuclease” **Chemical Communications**, 48, 4238.
  3. S. K. Asthana, A. Kumar, Neeraj, Shweta, S. K. Hira, P. P. Manna, and K. K. Upadhyay, **2017**, “Brightening quinolineimines by  $\text{Al}^{3+}$  and subsequent quenching by PPI/PA in aqueous medium: Synthesis, Crystal structures, Binding behaviour, Theoretical and Cell imaging studies”; **Inorganic Chemistry**, 56, 3315.
  4. K. K. Upadhyay, A. Kumar, **2010**, “Pyrimidine based highly sensitive fluorescent receptor for  $\text{Al}^{3+}$  showing dual signaling mechanism” **Organic & Biomolecular Chemistry**, 8, 4892.
  5. V. Kumar, A. Kumar, U. Diwan, M. K. Singh and K. K. Upadhyay, **2015**, “A radical approach for fluorescent turn ‘on’ detection, differentiation and bioimaging of methanol” **Org. Biomol. Chem.**, 13, 8822.
  6. S. K. Asthana, A. Kumar, Neeraj, Shweta and K. K. Upadhyay, **2016**, “Efficient visualization of  $\text{H}_2\text{S}$  via a fluorescent probe with three electrophilic centres” **Org. Biomol. Chem.**, 14, 3690.
  7. K. K. Upadhyay, A. Kumar, **2010**, “Pyrimidine based highly sensitive fluorescent receptor for  $\text{Al}^{3+}$  showing dual signalling mechanism” **Organic & Biomolecular Chemistry**, 8, 4892.
  8. Neeraj, A. Kumar, V. Kumar, R. Prajapati, S. K. Ashthana, K. K. Upadhyay and J. Zhao, **2014**. “A remarkable effect of N, N diethylamino functionality on the optoelectronic properties of a salicylimine-based probe for  $\text{Al}^{3+}$ ” **Dalton Trans.**, 43, 5831.
  9. V. Kumar, A. Kumar, U. Diwan, and K. K. Upadhyay, **2013**, “A  $\text{Zn}^{2+}$  responsive highly sensitive fluorescent probe and 1D coordination polymer based on a coumarin platform” **Dalton Trans.**, 42, 13078
  10. I. Sanskriti and K. K. Upadhyay, **2017**, “Cysteine, Homocysteine and Glutathione guided hierarchical self-assemblies of spherical silver nanoparticles paving the way for their naked eye discrimination in human serum”, **New J. Chem.**, 41, 4316-4321.

9. Additional Information/ Achievements:

Ph.D. awarded/Submitted/Working – 6/2/4

**Administrative Experience:**

1. Served as proctor in CMP degree college from 1996-1999.
2. Served as warden of Brocha and Bhabha hostels in the years 2005-2006 and 2007-2008 respectively.
3. Rendered my services as programme officer in the national service scheme (NSS) B.H.U. unit for the year 2006-2009.
4. Served as proctor in the proctorial board of B.H.U. in the year 2012.

**Membership of academic bodies:**

1. Life member of Chemical Research Society of India (CRSI)
2. Annual member of ROYAL SOCIETY OF CHEMISTRY(MRSC)

10. Full List of Publications:

1. Abha pandey, Dr.Ajit Kumar, Siddharth viswakarma, Prof. Kaushal Kumar Upadhyay, **2018**, “An Optical Chemodosimeter Coumarin Nosylate for probing Fluoride ion: Synthesis, Crystal structures, Photophysical and Theoretical studies”; **ChemistrySelect**, 3, 3444.
2. Dr. Virendra Kumar, Dr. Uzra Diwan, Isha Sanskriti, Dr. Rakesh K. Mishra, Prof. K. K. Upadhyay, **2017**, “A Categorical Naked-Eye Detection of Cu<sup>2+</sup> and Zn<sup>2+</sup> through a Donor-Acceptor-Donor (D-A-D)-Type Salicylaldimine: An Experimental and Theoretical Approach” ; **ChemistrySelect**, 2, 34 , 11358
3. Isha Sanskriti and Prof. Kaushal K. Upadhyay , **2017**, “Facile Designing of a Colorimetric Plasmonic Gold Nanosensor for Selective Detection of Cysteine over Other Biothiols,” ; **ChemistrySelect**, 2, 34, 11200
4. Shweta, Ajit Kumar, Neeraj, Sharad Kumar Asthanaa and K. K. Upadhyay, **2017**, “A smart ratiometric red fluorescent chemodosimeter for fluoride based on anthraquinone nosylate”, **New J. Chem.**, 41, 5098
5. I. Sanskriti and K. K. Upadhyay, **2017**, “Cysteine, Homocysteine and Glutathione guided hierarchical self-assemblies of spherical silver nanoparticles paving the way for their naked eye discrimination in human serum”, **New J. Chem.**, 41, 4316-4321
6. S. K. Asthana, A. Kumar, Neeraj, Shweta, S. K. Hira, P. P. Manna, and K. K. Upadhyay, **2017**, “Brightening quinolineimines by Al<sup>3+</sup> and subsequent quenching by PPI/PA in aqueous medium: Synthesis, Crystal structures, Binding behaviour, Theoretical and Cell imaging studies”; **Inorganic Chemistry**, 56, 3315.
7. S. Vishwakarma, A. Kumar, A. Pandey, K.K. Upadhyay, **2017**, “A multi writable thiophene-based selective and reversible chromogenic fluoride probe with dual –NH functionality” **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 170, 191.
8. U. Diwan, V. Kumar, R. K. Mishra, N. K. Rana, B. Koch and K. K. Upadhyay, **2016**, “Harvesting red fluorescence through design specific tuning of ICT and ESIPT: an efficient optical detection of cysteine and live cell imaging” **RSC Adv.**, 6, 95722.

9. Shweta, A. Kumar, Neeraj, S. K. Asthana, A. Prakash, J. K. Roy, I. Tiwari and K. K. Upadhyay, **2016**, "A highly sensitive naphthoazole-based cell-permeable ratiometric chemodosimeter for hydrazine" **RSC Adv.**, 6, 94959.
10. U. Diwan, V. Kumar, R. K. Mishra, N. K. Rana, B. Koch, M. K. Singh, K.K. Upadhyay, **2016**, "A pyrene-benzthiazolium conjugate portraying aggregation induced emission, a ratiometric detection and live cell visualization of HSO<sub>3</sub><sup>-</sup>" **Analytica Chimica Acta**, 929, 39.
11. Neeraj, A. Kumar, S. K. Asthana, Shweta, K.K. Upadhyay, **2016**, "A dichloro-substituted salicylimine as a bright yellow emissive probe for Al<sup>3+</sup>" **Journal of Photochemistry and Photobiology A, Chemistry**, 329, 69–76
12. Shweta, Neeraj, Sharad Kumar Asthana, R. K. Mishra and K. K. Upadhyay, **2016**, "Design-specific mechanistic regulation of the sensing phenomena of two Schiff bases towards Al<sup>3+</sup>", **RSC Adv.**, 6, 55430
13. S. K. Asthana, A. Kumar, Neeraj, Shweta and K. K. Upadhyay, **2016**, "Efficient visualization of H<sub>2</sub>S via a fluorescent probe with three electrophilic centres" **Org. Biomol. Chem.**, 14, 3690.
14. I. Sanskriti and K. K. Upadhyay, **2016**, "Silver nanoparticles as highly efficient and selective optical probe for sulphide via dendrimer formation in aqueous medium" **RSC Adv.**, 6, 14563
15. V. Kumar, A. Kumar, U. Diwan, M. K. Singh, and K. K. Upadhyay, **2016**, "Turn 'off-on' Fluorescent Recognition of Cu<sup>2+</sup> and Cys in Aqueous Medium: Implementation of Molecular Logic Gate and Cell Imaging Studies" **Bulletin of the Chemical Society of Japan**, 89, 754.
16. Abha Pandey, Ajit Kumar, Siddharth Vishwakarma and K. K. Upadhyay, **2016**, "A highly specific 'turn-on' fluorescent detection of Mg<sup>2+</sup> through a xanthene based fluorescent molecular probe" **RSC Advance**, 6, 6724.
17. V. Kumar, A. Kumar, U. Diwan, M. K. Singh and K. K. Upadhyay, **2015**, "A radical approach for fluorescent turn 'on' detection, differentiation and bioimaging of methanol" **Org. Biomol. Chem.**, 13, 8822.
18. V. Kumar, A. Kumar, U. Diwan, Shweta, Ramesh, S. K. Srivastava and K. K. Upadhyay, **2015**, "Salicylideneimines as efficient dual channel emissive probes for Al<sup>3+</sup>: Harnessing ESIPT and ICT processes" **Sensor Actuat. B: Chem.**, 207, 650.
19. U. Diwan, A. Kumar, V. Kumar, K. K. Upadhyay, P.K. Roychowdhury, **2014**, "A water compatible turn 'on' optical probe for Cu<sup>2+</sup> based on a fluorescein-sugar conjugate" **Sensor Actuat. B: Chem.**, 196, 345.
20. S. K. Asthana, A. Kumar, Neeraj, K. K. Upadhyay, **2014**, "A reaction based chromofluorogenic turn-on probe for specific detection of fluoride over sulfide/thiols" **Tetrahedron Letters**, 55, 5988.
21. Neeraj, A. Kumar, V. Kumar, R. Prajapati, S. K. Asthana, K. K. Upadhyay and J. Zhao, **2014**. "A remarkable effect of N,N-diethylamino functionality on the optoelectronic properties of a salicylimine-based probe for Al<sup>3+</sup>" **Dalton Trans.**, 43, 5831.
22. U. Diwan, A. Kumar, V. Kumar and K. K. Upadhyay, **2013**, "Solvent viscosity tuned highly selective NIR and ratiometric fluorescent sensing of Fe<sup>3+</sup> by a symmetric chalcone analogue" **Dalton Trans.**, 42, 13889
23. V. Kumar, A. Kumar, U. Diwan, and K. K. Upadhyay, **2013**, "A Zn<sup>2+</sup> responsive highly sensitive fluorescent probe and 1D coordination polymer based on a coumarin platform" **Dalton Trans.**, 42, 13078
24. V. Kumar, R. K. Mishra, S. Shukla, R. Mishra, M. Singh, I. Tiwari, K. Thapliyal, K. K. Upadhyay, **2013**, "Synthesis, Crystal Structure and Nuclease Activity of a Cu (II) Complex Having Two Different Co-ordination

- Geometries in the Same Unit Cell” **Journal of Molecular Structure**, 1047, 66.
25. A. Kumar, V. Kumar, and K. K. Upadhyay, **2013**, “An  $\text{Al}^{3+}$  and  $\text{H}_2\text{PO}_4^-$  / $\text{HSO}_4^-$  selective conformational arrest and bail to a pyrimidine-naphthalene anchored molecular switch” **Analyst**, 138, 1891.
  26. A. Kumar, V. Kumar, U. Diwan and K. K. Upadhyay, **2013**, “Highly sensitive and selective naked-eye detection of  $\text{Cu}^{2+}$  in aqueous medium by a ninhydrin-quinoxaline derivative” **Sensor Actuat. B: Chem.**, 176, 420.
  27. A. Kumar, V. Kumar, Neeraj, K. K. Upadhyay and P. K. Roychowdhury, **2013**, “Inculcating total selectivity for fluoride in pyrene based chromogenic receptors: An experimental and theoretical study” **Journal of Molecular Structure**, 1035, 174.
  28. R. K. Mishra, V. Kumar, U. Diwan, K. K. Upadhyay, P. K. Roychowdhury, **2012**, “Designing of a fluoride selective receptor through molecular orbital engineering” **Journal of Molecular Structure**, 1027, 167.
  29. K. K. Upadhyay, S. Upadhyay, A. Kumar, K. Thapliyal, **2012**, “Synthesis, crystal structures and studies on  $\text{Hg}^{2+}$  sensing by the diazo derivatives of sulfathiazole and sulfamethoxazole” **Journal of Sulfur Chemistry**, 33, 573.
  30. V. Kumar, A. Kumar, U. Diwan, K. K. Upadhyay, **2012**, “Uncovering the true mechanism of optical detection of  $\text{HSO}_4^-$  in water by Schiff-base receptors – hydrolysis vs. hydrogen bonding” **Chemical Communications**, 48, 9540.
  31. R. K. Mishra, K. K. Upadhyay, S. Shukla, R. Mishra. **2012**, “A zinc(II) directed triple-stranded helicate incorporating a nine membered metallamacrocycle: supramolecular cylinders mimicking P1 nuclease” **Chemical Communications**, 48, 4238.
  32. A. Kumar, V. Kumar, K. K. Upadhyay, **2011**, “A ninhydrin based colorimetric molecular switch for  $\text{Hg}^{2+}$  and  $\text{CH}_3\text{COO}^-/\text{F}^-$ ”, **Tetrahedron Letters**, 52, 6809.
  33. R. K. Mishra, K. K. Upadhyay, **2011**, “Coumarin-Based Chromogenic Receptor for  $\text{Ni}^{2+}$  in Aqueous Medium Exhibiting a Reconfigurable Logic Gate Pattern” **European Journal Of Organic Chemistry**, 4799.
  34. K. K. Upadhyay, S. Upadhyay, A. Kumar, K. Thapliyal and S. K. Srivastava, **2011**, “Solvent-Assisted Naked Eye Sensing of  $\text{Hg}^{2+}$  by a Chemoreceptor Derived from Diazocoupling of Sulfathiazole with Diethyl Malonate” **Phosphorus Sulfur And Silicon And The Related Elements**, 186, 1820.
  35. K. K. Upadhyay, A. Kumar, **2010**, “Pyrimidine based highly sensitive fluorescent receptor for  $\text{Al}^{3+}$  showing dual signalling mechanism” **Organic & Biomolecular Chemistry**, 8, 4892.
  36. K. K. Upadhyay, A. Kumar, R. K. Mishra, S. Upadhyay and K. Thapliyal, **2010**, “Reversible colorimetric switching of thiophene hydrazone based on complementary IMP/INH logic functions”, **New Journal of Chemistry**, 34, 1862.
  37. K. K. Upadhyay, R. K. Mishra, V. Kumar, P. K. Chowdhury, **2010**, “A coumarin based ICT probe for fluoride in aqueous medium with its real application” **Talanta**, 82, 312.
  38. K. K. Upadhyay and Ajit Kumar, **2010**, “ $\text{Al}^{3+}$  selective an efficient colorimetric receptor derived from 5-aminouracil” **Talanta**, 82, 845.
  39. K. K. Upadhyay, V. Kumar, P. Rai, S. Srivastva, K. K. Singh and S. Singh, **2010**, “Naked-eye analyte sensing through strategically designed chemosensors”, *Journal of Scientific Research*, BHU, 54, 171.
  40. K. K. Upadhyay, A. Kumar, J. Zhao and R. K. Mishra, **2010**, “Naked-eye recognition of  $\text{Cu}^{2+}$ ,  $\text{Zn}^{2+}$  and acetate ion by the first guanine-based difunctional chromophore” **Talanta**, 81, 714

41. K. K. Upadhyay, R. K. Mishra, A. Kumar, J. Zhao, R. Prasad, **2010**, "Self assembled pseudo double helix architecture and anion sensing behavior of a coumarin based ICT probe" **Journal of Molecular Structure**, , 963, 228
42. K.K. Upadhyay, S. Upadhyay, K. Kumar, R. Prasad, **2009**, "X-ray crystallographic study of 3-Oxo-2-[[4-(thiazol-2-ylsulfamoyl)-phenyl]-hydrazono]-butyric acid ethyl ester and its application in the solvent assisted naked eye sensing of Hg(II)" **Journal of Molecular Structure**, 927, 60.
43. P. Rai, S. Upadhyay , M. Nethaji and K. K. Upadhyay, **2009**, "3-Oxo-2-[(4-sulfamoyl-phenyl)-hydrazono]-butyric acid ethyl ester" **Acta Crystallographica Section E**, 65.
44. K. K. Upadhyay, P. Rai, S. Upadhyay and M. Nethaji, **2009**, "4-[2-(1-Acetyl-2 oxopropylidene)hydrazino]-N-(pyrimidin-2-yl)benzenesul fonamide" **Acta Crystallographica Section E**, 65, O1397
45. K. K. Upadhyay, S. Upadhyay, K. Kumar, R. Prasad, **2009**, "X-ray crystallographic study of 3-Oxo-2-[[4-(thiazol-2-ylsulfamoyl)-phenyl]-3 hydrazono]-butyric acid ethyl ester and its application in the solvent assisted naked eye sensing of Hg(II)" **Journal of Molecular Structure**, 927, 60.
46. K. K. Upadhyay, A. Kumar, R. K. Mishra, R. Prasad, **2009**, "Colorimetric recognition of d10 metal ions through an adenine based ICT probe" **Bulletin of the Chemical Society of Japan**, 82, 813.
47. P. K. Roychowdhury, K. K. Upadhyay, R. K. Mishra, A. Kumar, S. Mehrotra, S. Srivastava and S. Upadhyay, **2008**, "Synthetic and Spectroscopic Studies of Some New 2 - [1-Aryl -4 {4-methoxypheny}-6-thioxo-1,6-dihydro 1,3,5-triazinyl]amino/ hydrazonothiazolidin-4-ones" **Journal of Heterocyclic Chemistry**, 45, 1.
48. K. K. Upadhyay, A. Kumar, S. Upadhyay, R. K. Mishra, and P. K. Roychowdhury, **2008**, "p-Nitrophenyl Triazenyl Purine: First Adenine-based Colorimetric Anion Sensor" **Chemistry Letters**, 37, 186.
49. K. K. Upadhyay, R. K. Mishra A. Kumar, **2008**, "A Convenient Synthesis of Some Coumarin Derivatives Using SnCl<sub>2</sub>. 2H<sub>2</sub>O as Catalyst". **Catalysis Letters**, 121,118.
50. K. K. Upadhyay, A. Kumar, S. Upadhyay, P.C. Mishra, **2008**, "Synthesis, characterization, structural optimization using density functional theory and superoxide ion scavenging activity of some Schiff bases" **Journal of Molecular Structure**, 87, 5.
51. K. K. Upadhyay, R. K. Mishra, A. Kumar and S. Upadhyay, **2008**, "From Molecules to Material Through Supramolecule" **Journal of Scientific Research, BHU**, 52, 217.
52. K. K. Upadhyay, R. K. Mishra, A. Kumar and S. Upadhyay, **2008**, "From Molecules to Material Through Supramolecule" **Journal of Scientific Research, BHU**, 52, 217.
53. L. Mishra, K. K. Upadhyay and A. K. Pandey, **1996** "Co (II), Zn (II) and Ni (II) Complexes of Some Bisheterocycles as Potential Fungicides – II" **Journal of Indian Chemical Society**.
54. L. Mishra and K. K. Upadhyay, **1994**, "Synthetic, Spectroscopic and Superoxide Dismutase Studies of Some Cu (II)-Zn (II) containing Heterobimetallic Complexes of Tetradentate N<sub>2</sub>O<sub>2</sub> Donor Schiff bases" **Indian J. Chem.**, 33A, 683.
55. L. Mishra, K. K. Upadhyay and V. K. Singh, **1993**, "Synthetic, Spectroscopic and Antifungal studies of Co (II), Ni. (II) and Zn (II) complexes derived from Tetradentate Thiominato Schiff base ligands and some Nitrogenous Base Adducts" **Synth. React. Inorg. Met. Org. Chem.**, 23, 1767

56. L. Mishra and K. K. Upadhyay, **1993**, "Synthetic and Spectroscopic Studies of Dinuclear Rh (III), Pd(II), Pt(II), Pt(IV), and mononuclear Ir(III) Complexes with N,N'-hexylenebis (Monothioacetylacetonimine)" **Indian J. Chem.**, 32A, 538.
57. L. Mishra and K. K. Upadhyay, **1992**, "Metal Directed Condensation of Ethylacetoacetate with 1, 6-diamino Hexane" **Indian J. Chem.**, 31A, 642.

Date: 01/09/2018

Signature

Place: Varanasi