

**Dr. Avinash S. Kumbhar**

**Associate Professor**

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**Academic Background:**

Ph.D. Department of Chemistry, University of Pune (1993)

M.Sc. (Department of Chemistry, University of Pune, 1987)

B.Sc. (University of Pune, 1985)

**Professional Experience:**

**Lecturer Department of Chemistry University of Pune, 1991-2003**

**Postdoc.: BOYSCAST Fellow: 1998-99 University of North Carolina, Chapel Hill, USA (Mentor : Prof. H. Holden Thorp)**

**Associate Professor: Department of Chemistry, University of Pune, 2003-onwards**

**Coordinator NCFRR( 2005 onwards )**

**Research Interests:**

- **Coordination Chemistry**
- **Metal-DNA Interactions**
- **Supramolecular Chemistry**
- **Pulse Radiolysis of Inorganic Complexes**

**Ongoing Research Schemes:**

- **BARC-Pune University Collaborative Project (2005-2010)**
- **DST, 2007-2010.**
- **UGC, 2007-2010.**

## Collaborations:

1. Dr. V. G. Puranik, NCL, Pune
2. Prof. M. Nethaji, IISc. Bangalore.
3. Dr. D.B.Naik, BARC, Mumbai.
4. Prof. Ray Butcher, Howard University, USA.
5. Prof. Evamarie Hey-Hawkins, Leipzig University, Germany.
6. Prof. Christian Nather, University of Kiele, Germany.
7. Prof. Andrea Erxleben, University of Galaway, Ireland..
8. Dr. Bimba Joshi, ARI, Pune.
9. Dr. Rajendra Joshi, C-DAC, Pune.
10. Dr. Jurek Krzystek, Florida State University, USA

## Consultancy:

Vacuum Plant Industries, Pune,

Battele India Ltd.

## Research Publications (last 10 years)

1. Stabilization of acyclic water tetramer in a Copper(II) malonate framework structure.  
M. S. Deshpande, **A. S. Kumbhar**, C. Nather *Dalton Trans*, (2010)(In Press).
2. Self-Association of Ruthenium(II) Polypyridyl Complexes and Their Interactions with Calf Thymus DNA.  
S. S. Bhat, **A. S. Kumbhar**, P. Leonnecke, and E. Hey Hawkins *Inorg. Chem.* (2010), 49, 4843.

3. Synthesis, Characterization and Pulse Radiolysis of Cobalt(II) Complexes of 2-Picolinate and Polypyridyl Ligands,  
Kawade, V. A., **Kumbhar, A. S.**, Naik, D. B., Butcher, R. J. , *Dalton Trans.* (2010), 5664.
4. Pulse radiolytic studies on cis-dichlorobis(1,10-phenanthroline-5,6-dione)Cobalt(III) complex.  
V. A. Kawade, S. Ghosh, A. V. Sapre, **A. S. Kumbhar.** *J.Chem.Sci.* 2010, 120, 225.
5. Mixed-Ligand Copper (II) – maltolate complexes: Synthesis, characterization, DNA binding, DNA cleavage and cytotoxicity.  
A. Barve, **A. S. Kumbhar**, M. Bhat, B. Joshi. Ray Butcher, U. Sonawane and R. Joshi, *Inorg. Chem.* 2009, 48, 9120.
6. Synthesis, Characterization and redox chemistry of Ru(II) complexes of N-methyl pyridyl quinoxaline,  
**A.S. Kumbhar**, M. S. Kulkarni, H. Mohan, B. S. M. Rao, *Dalton Trans.* (2009) 6185.
7. Ruthenium (II) bipyridine Complexes and their interactions with DNA.  
Deshpande, M. S.; Kumbhar, A. A.; **Kumbhar, A.S**, Kumbhakar, M, Pal, H, Sonawane, U, Joshi, R.R. *Bioconjugate Chem.* (2009) 20, 447.
8. H-bond directed open-Framework of bis(bipyridine-glycoluril)phosphatocobalt(III) with solvent accessible void Space.  
Deshpande, M. S.; **Kumbhar A. S.** Puranik, V. G. *CrystEngComm.* (2008); 10, 1520.
9. Tetranuclear Manganese (III) salicylaldoxime ensemble.  
**Avinash S.Kumbhar**, M. P. Muley, S. B. Padhye, S. S. Tavale, V. G. Puranik, *Structural Chemistry* (2008); 19, 735.
10. Pulse radiolytic studies on cis-dichlorobis(2,2'-bipyridine)Cobalt(III) and cis-dichlorobis(1,10-phenanthroline) Cobalt(III) complexes.  
S. Ghosh, A. V. Sapre, V. A. Kawade and **A. S. Kumbhar.** *Indian J. Chem.* (2008); 47A, 690.
11. Hydrogen Bonding-Directed Metallosupramolecular Structural Motifs Based on a Peripheral Urea Fused Bipyridine Tecton,.  
M. S. Deshpande, **A. S. Kumbhar**, V.G. Puranik, *Cryst. Growth Des.* (2008); 8; 1952.

- 12.** An Unexpected Metal-Promoted Transformation Yields An Anthrylmethyl Spiroanthracene.  
A. A. Kumbhar, **A. S. Kumbhar**, V. G. Puranik, *J. Org. Chem.* (2008) 73; 3559.
- 13.** Hydrolytic Cleavage of DNA by a Ruthenium(II) Polypyridyl Complex.  
M.S. Deshpande, A.A. Kumbhar, **A. S. Kumbhar** *Inorg. Chem.* (2007) 46(14); 5450.
- 14.** Supramolecular Self-assembled Ruthenium-Polypyridyl Framework Encapsulating Discrete Water Cluster.  
M. S.Deshpande, **A. S. Kumbhar** V. G. Puranik, K. Selvaraj *Cryst.Growth & Design*, (2006) 6, 743.
- 15.** Synthesis, characterization, X-ray structure and DNA photocleavage by *cis*-dichlorobis(diimine)Co(III) complexes.  
S. Ghosh, A.C. Barve, A. A.Kumbhar, **A. S. Kumbhar**, V. G. Puranik, P. A.Datar, U. B. Sonawane, R. R. Joshi  
*J.Inorg.Biochem.*, (2006)100, 331.
- 16.** Self-activating nuclease activity of copper(II) complexes of hydroxyl-rich ligands.  
S. S. Tonde, **A. S. Kumbhar**, S. B.Padhye, R.J. Butcher, *J. Inorg.Biochem.*, (2006)100, 51.
- 17.** Mixed-ligand complexes of ruthenium(II) incorporating a diazo ligand : Synthesis, characterization and DNA Binding.  
M.S.Deshpande, **A. S. Kumbhar** *J.Chem.Sci.*, (2005)117, 153.
- 18.** DNA-binding studies of mixed ligand cobalt(III) complexes.  
A. C. Barve, S. Ghosh, A. A. Kumbhar, **A. S. Kumbhar** and V. G. Puranik, *Trans.Met.Chem.*, (2005) 30, 312.
- 19.** Theoretical and experimental investigations on the structure and vibrational spectra of 4{[(1Z)-1-methyl-3-oxobut-1-enyl]amino}benzoic acid.  
Kaustubh A.Joshi, M. S.Deshpande, **A. S. Kumbhar**, R. J. Butcher, S. P. Gejji *J.Mol.Structure* (2005) THEOCHEM, 722, 57.
- 20.** Pulse radiolysis study of pyridine substituted quinoxalines.  
M. S. Kulkarni, **A. S. Kumbhar**, H.Mohan, B.S.M.Rao, *Res. Chem.Intermediates*, (2005) 31, 63.
- 21.** Hartree-Fock and density functional studies on the structure and vibrational frequencies of quinoxalines – the building blocks for dendrimers

**A. S. Kumbhar**, N. R. Dhumal and S. P. Gejji *J.Mol.Str.THEOCHEM*, (2002) 589, 310.