

# Dr. Komal M. Vyas

M.Sc., Ph.D.(Inorganic Chemistry)



## Assistant Professor

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## Educational Qualification

Ph.D.(Inorganic Chemistry), The Maharaja Sayajirao University of Baroda, Vadodara-2013

M.Sc.(Inorganic Chemistry), School of Sciences, Gujarat University, Ahmedabad-2009

B.Sc.(Chemistry), Gujarat University-2007

## Research Experience

### 1. Designation: Post-Doctoral Fellow

Institution : Indian Institute of Technology-Indore

Topic : Synthesis and characterization of Organometallic Ruthenium complexes and their applications

Guide : Dr. Suman Mukhopadhyay,  
Associate Professor, Discipline of Chemistry, IIT Indore

Duration : June 2016 to July-2017

### 2. Designation: Research Scholar

Institution : The Maharaja Sayajirao University of baroda, Vadodara

Topic : Acyl pyrazolones & their structural analogues: Synthesis, characterization, crystal structure and studies on their bio-active metal complexes

Guide : Dr. R. N. Jadeja  
Assistant Professor, Department of Chemistry, M.S.University of Baroda, Vadodara

Duration : July 2009-March 2013

## Teaching Experience

### 1. Assistant Professor, Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar

Duration: July 2017 to till date

### 2. Institute of Infrastructure, Technology, Research And Management (IITRAM), Ahmedabad, Gujarat, India

Duration : August 2013-May 2016

### 3. Department of Chemistry, M.S.University of Baroda, Vadodara

Duration : August 2012-June 2013

## Research Interest

### Specialization: Inorganic Chemistry

**Current:** Organometallic Chemistry, Coordination Chemistry, Targeted Anti-cancer drugs, Catalysis

**Future:** Metal Organic Frameworks, Quantum Dots, Nano Materials

## Awards/Achievements

### Fellowships:

1. **Institute Post-Doctoral Fellowship**  
Funded by: Indian Institute of Technology-Indore  
Duration: 08-06-2016 to
2. **Alembic Research Fellowship**  
Funded by: Alembic Pvt. Ltd., Vadodara  
Duration: 01-12-2009 to 29-12-2011
3. **University Research Fellowship**  
Funded by: The M. S. University of Baroda, Vadodara  
Duration: 30-12-2011 to 07-08-2012

### Awards:

1. Award: “**Young Scientist Award**”, 2012  
Conference: XXXI Annual Conference of the Indian Council of Chemists  
Host University: Department of Chemistry, Saurashtra University, Rajkot
2. **Prof. Talati Parivar Prize**  
Award for the report on research work carried out during 2009-10.

### Achievements:

1. **K. M. Vyas**, R. N. Jadeja, D. Patel, R. V. Devkar, V. K. Gupta, **Polyhedron** 65 (2013) 262-274 article was appeared in “The Most Downloaded Articles from ScienceDirect in last 3 months” in November, 2013.
2. **Invited article for the special issue in honor of Prof. V. Leovac**  
**K. M. Vyas**, R. N. Jadeja, D. Patel, R. V. Devkar, V. K. Gupta, “*Effect of ligand substitution in pyrazolone based binary and ternary Cu(II) complexes on DNA Binding, Protein Binding and Anti-cancer activity on A549 Lung carcinoma cell lines*” **Polyhedron** 80 (2014) 20–33.

## Book

“Crystal structures of 4-acyl pyrazolone based metal complexes”, Scholar's press, Germany, 2013

## List of Publications

1. P. Mandal, B. Kundu, **K. Vyas**, V. Sabu, A. Helen, S. Dhankhar, C. M. Nagaraja, K. Bhabak, D. Bhattacharjee, S. Mukhopadhyay, *Ruthenium(II) Arene NSAID Complexes : Inhibition of Cyclooxygenase and Antiproliferative Activity Against Cancer Cell Lines*, **Organometallics** Communicated, **2017**
2. R. N. Jadeja, **K. M. Vyas**, K. K. Upadhyay, R. V. Devkar, “*In vitro apoptosis-inducing effect and gene expression profiles of mixed ligand Cu(II) complexes derived from 4-acyl pyrazolones on Human Lung Cancer cells*”, **RSC Adv.**, 7 (2017) 17107–17116.

3. M. Saha, **K. M. Vyas**, L. M. D. R. S. Martins, N. M. R. Martins, A. J. L. Pombeiro, M. M. Shaikh, D. Bhattacharjee, K. P. Bhabak, S. Mukhopadhyay, “*Copper(II) Tetrazolato Complexes: Role in Oxidation Catalysis and Protein Binding*”, **Polyhedron**, 132 (2017) 53-63
4. **K. M. Vyas**, R.V. Devkar, A. Prajapati, R. N. Jadeja, “*Pyrazolone incorporating bipyridyl metallointercalators as effective DNA, Protein and lung cancer targets: Synthesis, Characterization and in vitro biocidal evaluation*” **Chem-Biol. Interact.**, 240 (2015) 250-266.
5. **Invited article for the special issue in honor of Prof. V. Leovac**  
**K. M. Vyas**, R. N. Jadeja, D. Patel, R. V. Devkar, V. K. Gupta, “*Effect of ligand substitution in pyrazolone based binary and ternary Cu(II) complexes on DNA Binding, Protein Binding and Anti-cancer activity on A549 Lung carcinoma cell lines*” **Polyhedron** 80 (2014) 20–33.
6. **K. M. Vyas**, R. N. Jadeja, D. Patel, R. V. Devkar, V. K. Gupta, “*New pyrazolone based ternary Cu(II) complex: Synthesis, characterization, crystal structure, DNA binding, protein binding and anti-cancer activity towards A549 human lung carcinoma cells with a minimum cytotoxicity to non-cancer cells* ” **Polyhedron** 65 (2013) 262-274.
7. N. Sharma, **K. M. Vyas**, R. N. Jadeja, R. Kant, V. K. Gupta, “*(Z)-3-Methyl-4-[1-(4-methylanilino)-propylidene]-1-phenyl-1H-pyrazol-5(4H)-one*” **Acta Cryst. E.**, 69 (2013) o1271.
8. Joseph V. A., **K. M. Vyas**, R. N. Jadeja, V. K. Gupta “*Studies on DNA binding behavior of biologically active Cu(II) complexes of Schiff bases containing acyl pyrazolones and 2-ethanolamine*” **J. Coord. Chem.**, 66 (2013) 1094–1106.
9. S. I. Thakore, J. Y. Soni, **K. Vyas**, R. N. Jadeja, R. V. Devkar, P. Rathore, “*Synthesis and cytotoxicity evaluation of novel acylated starch nanoparticles*” **Bioorg. Chem.** 46 (2013) 26-30.
10. R. N. Jadeja, **K. M. Vyas**, V. K. Gupta, R.G. Joshi, C. Ratna Prabha “*Syntheses, characterization and molecular structures of calcium(II) and copper(II) complexes bearing O2-chelate ligands: DNA binding, DNA cleavage and anti-microbial study*” **Polyhedron** 31 (2012) 767-778.
11. R. N. Jadeja, S. Parihar, **K. Vyas**, V. K. Gupta, “*Synthesis and crystal structure of a series of pyrazolone based Schiff base ligands and DNA binding studies of their Copper complexes*” **J. Mol. Struct.**, 1013 (2012) 86–94.
12. N. Sharma, **K. M. Vyas**, R. N. Jadeja, Rajni Kant, V. K. Gupta, “*2-Amino-7,7-dimethyl-5-oxo-4-(p-tolyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile*” **Acta Cryst. E.**, 68 (2012) o3036.
13. **K. M. Vyas**, V. K. Shah, R. N. Jadeja, “*Synthesis and Characterization of Ni(II) complexes of some O,N donor Schiff bases derived from acyl pyrazolone analogues*” **J. Coord. Chem.** 64 (2011) 1069–1081.
14. **K. M. Vyas**, R. N. Jadeja, V. K. Gupta, K. R. Surati, “*Synthesis, characterization and crystal structure of some bidentate heterocyclic Schiff base ligands of 4-toluoyl pyrazolones and its mononuclear Cu(II) complexes*” **J. Mol. Struct.** 990 (2011) 110–120.
15. **K. M. Vyas**, R. G. Joshi, R. N. Jadeja, C. Ratna Prabha, V. K. Gupta, “*Synthesis, spectroscopic characterization and DNA nuclease activity of Cu(II) complexes derived from pyrazolone based NSO-donor Schiff base ligands*” **Spectrochim. Acta A.**, 84 (2011) 256-268.
16. R. J. Yadav, **K. M. Vyas**, R. N. Jadeja, “*Synthesis and spectral characterization of Cu(II) complexes of some Thio-Schiff bases of acyl pyrazolone analogues*” **J. Coord. Chem.** 63 (2010) 1820–1831.
17. N. P. Moorjani, **K. M. Vyas**, R. N. Jadeja, “*Synthesis & Characterization of Cu(II) complexes derived from acyl pyrazolones & 2-amino phenol*” **PRAJÑĀ - Journal of Pure and Applied Sciences**, 18 (2010) 68-72.

## Seminars/Conferences/Workshops

1. Oral presented on "*Effect of ligand substitution in pyrazolone based binary and ternary Cu(II) complexes on DNA Binding, Protein Binding and Anti-cancer activity on A549 Lung carcinoma cell lines*" at International Conference on "Chemistry-Frontiers & Challenges" held at Post Graduate and Research Department of Chemistry, PSGR Krishnammal College for Women, Coimbatore, Tamilnadu during February 5-7, 2014.
2. Oral presented on "*Synthesis, Characterization, Crystal Structure, DNA Binding, Protein Binding and Anticancer activity of Novel ternary Cu(II) complex Derived From 4-Propionyl Pyrazolone and 2, 2' Bipyridyl Ligands*" at the XXXI Annual Conference of the Indian Council of Chemists held at Department of Chemistry, Saurashtra University, Rajkot during December 26-28, 2012.
3. Oral presented "*Novel efficient anti-cancer ternary Cu(II) complex containing pyrazolone based thiosemicarbazone and polypyridyl ligands: Synthesis, characterization, crystal structure, DNA binding, protein binding and anticancer activity towards A549 human lung carcinoma cells*" at the Regional Science Congress 2012 held at the Department of Chemistry M. S. University of Baroda, Vadodara during September 15-16, 2012.
4. Oral presented on "*Synthesis, characterization, crystal structure, DNA interaction and DNA cleavage activities of Copper(II) thiocyanato complex with 4-tolouyl pyrazolone and phenanthroline base*" at the XXVI Gujarat Science Congress 2012 held at the Department of Chemistry, M. S. University of Baroda, Vadodara on February 26, 2012.
5. Poster presented on "*Schiff bases derived from acyl pyrazolone and DNA nuclease of their copper complexes*" at National Conference on Chemical Sciences in New Millennium held at the Department of Chemistry, Pacific College of Basic & Applied Sciences, Pacific University, Udaipur on 8<sup>th</sup> January, 2012.
6. One Day Seminar on Innovations in Collegiate Science Education and Research held at VP & RPTP Science College, V.V.Nagar on January 8, 2011.
7. A 5 Day School of Bioinorganic Chemistry held at the Department of Chemistry, M. S. University of Baroda during March 8-12, 2011.
8. National Conference on Chirality 2011 held at the Department of Chemistry, M. S. University of Baroda during December 2-3, 2011.
9. Poster presented on "*Synthesis and Characterization of Ni(II) complexes of some O, N donor Schiff bases*" at "Sixth All Gujarat Research Scholars Meet" held at the Department of Chemistry, M. S. University of Baroda on January 31, 2010.
10. National Workshop on Radiochemistry and Applications of Radioisotopes held at the Department of Chemistry, M. S. University of Baroda during January 4-12, 2010.
11. National Symposium on Emerging Horizons in Catalysis held at Department of Chemistry, Baroda Chapter during September 25-26, 2009.

## Other Activities

1. Participated as an exhibitor and volunteer in Vibrant Gujarat-2015 & Celebration of Pravasi Bhartiya Divas organized by Government of India held at Ahmedabad during January 7-13, 2015.
2. Participated as volunteer in National Education Summet-2014 organized by Government of Gujarat held at Mahatma Mandir, Ahmedabad during January 10-11, 2014.
3. Participated as a volunteer in Summer Camp-2013 held at the University Pavilion at The M.S.University of Baroda, Vadodara during May 6-12, 2013.

4. Participated in Open House Science Fair in the celebration of 150th Birth Anniversary of MSU, Baroda during March 11-12, 2012.
5. Participated in Special Practical Demonstration Session for School Students organized at different schools by Department of Chemistry M. S. University of Baroda, Vadodara under the auspices of International Year of Chemistry 2011.

### **Training**

1. Attended "1<sup>st</sup> International Faculty Development Program" organized by UGC-HRDC, S.P.University, Vallabh Vidyanagar during 01-02 August, 2017.

### **Responsibilities at IITRAM**

1. Examination Coordinator, 2013-16
2. Warden, Girl's Hostel, 2015-16
3. Mess Coordinator, 2013-16
4. Member, Anti-ragging Committee, 2013-16