

## Dr. Amit Kumar

Professor & Group Leader

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(Mb)Bioinorganic and Clinical Chemistry

Centre for Nano and Material Science, Email:

amit.kumar@jainuniversity.ac.in Jain (Deemed-to-be-University),

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## Academic qualifications

2006 Ph.D. in Chemistry, Indian Institute of Technology Roorkee (IITR), India

2002 M.Sc. in Inorganic Chemistry, Indian Institute of Technology Roorkee

(IITR), India 2000 B.Sc. in Chemistry, Vardhman College Bijnor, (M.J.P.R.

University Bareilly), India

## Professional positions

Sep 2018 – Present Professor, Centre for Nano and Material Science, Jain (Deemed-to-be-University), Bangalore India

Feb 2014 – Aug 2018 Associate Professor, Centre for Nano and Material Science, Jain (Deemed-to-be-University), Bangalore India

Dec 2010 – Dec 2013 Postdoctoral Research Fellow, Centro Química Estrutural, Instituto Superior Técnico Lisboa, Portugal

Oct 2007 – Nov 2010 Postdoctoral Research Fellow, Centro Química Estrutural, Instituto Superior Técnico Lisboa, Portugal

July 2006 – Sep 2007 Dy. Manager (R&D Biochemistry), SPAN Diagnostic Ltd. Surat, Gujrat India

## Research Interest

My interests are in the areas of biology and fundamental chemistry with special emphasis to explore medicinal aspects of coumarin, vanadium and copper-based moiety.

- as potent anticancer agent against human breast adenocarcinoma and lung carcinoma.
- as potent type II anti-diabetic agent: Evaluating the glucose uptake capacity of the compounds when injected to the insulin resistant human hepatocyte carcinoma cells.
- as anti-microbial agent: Evaluation against antibiotic resistant strains of bacteria and fungi
- as potent tuberculosis agent.
- to study their mode of action, transport and uptake properties which can further be tested for its clinical responses.
- to study speciation in aqueous and biological media, lipophilicity and stability in the presence of bio-macromolecules

## Environmental Chemistry:

- development of a bio-adsorbent with enhanced adsorption properties

## Scientific Achievements

**50 peer reviewed publications, 1939 citations, h-index: 25, i10 index: 36 (Google Scholar 28/3/2022)**

## Postdoctoral fellow supervised:

- **Dr. Manasa Kongot**, “Design and Synthesis of novel Transition Metal Complexes for Therapeutic Applications” April 2019- Feb 2021

## Curriculum Vita

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- **Dr Dinesh Reddy**, “Design, synthesis and evaluation of novel biomolecule-based pyrimidinederivatives for therapeutic applications” Feb 2017-Jan 2018
- **Dr Subrahmanya Bhatt**, “Design, synthesis of Bioactive molecule by using green methodology” Aug. 2015 to July 2016
- **Dr. Chinmaya Bhat**, “Design, synthesis of novel transition metal complexes for Biological applications & Oxidation Reactions” May 2014 to July 2015

### PhD fellow supervised/ awarded

- Aug 2021- Present Ms. Anamika Sinha, “Synthesis, Nano Formulation and Evaluation of effective Antidiabetic lead molecules to restore Glucose Homeostasis” Aug 2021 (ongoing)

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- Aug 2016 – Present Mr. Akhil Benny, “Electro-Chemical Examination of Trace Evidence” Aug 2016 (ongoing)
  - July 2014 – March 2019 Ms. Manasa K, “Design and Synthesis of Bioactive Compounds and their Concise Study in Therapeutic Applications” **Awarded**

### M.Sc. fellow supervised:

1. **Ms. Anamika Sinha**, “Coumarin-Thymidine conjugates: Synthesis, characterization and evaluation of their therapeutic potentials (2021).
2. **Mr. Abdallah Katmawi**, “Synthesis and biological evaluation of new coumarin based pyrrolidine derivatives” (2021)
3. **Ms. Riya Chaudhary**, “V<sup>(V)</sup>, Ni<sup>(II)</sup> and Cu<sup>(II)</sup> complexes appended with ON donor quinoline-isoniazid hybrid: Synthesis, characterization and evaluation of their therapeutic potentials” 2020
4. **Ms. Rashmi**, “Vanadium, nickel and copper complexes tethered with ONS donor ligands as potent candidates for biological activities” 2019
5. **Ms. B. R. Priyanka**, “Synthesis of novel coumarin-stavudine conjugates with BSA interaction and stability studies” 2019
6. **Mr. Ningaraju Gowda**, " Synthesis, characterisation and solution studies of potent bioactive vanadium, nickel and copper complexes derived from ONS donor Schiff base system " 2019
7. **Ms. Pooja Suresh**, Vanadium Complexes as pro-drugs for Type II Diabetes Treatment, 2018
8. **Ms. Aswani B.T.**, Design, synthesis and evaluation of novel biomolecule-based pyrimidinederivatives for anti-tubercular applications, 2018
9. **Ms. Priyanka A**, Synthesis, Characterization of Vanadium Complexes, *In vitro* Therapeutic Activity and Protein Interaction Studies, 2018
10. **Mr. Rajeev. V Hegde**, Dissertation title: Synthesis, anticancer study and BSA interaction behaviour of benzohydrazide derived V<sup>IV</sup> and Cu<sup>II</sup> complexes 2017
11. **Mr. Pandurang Kop Kulkarni**, Dissertation title: Vanadium pentoxide as a nano-photocatalyst for degradation of pollutant organic dyes 2017
12. **Mr. Nanjudeshwara**, Synthesis and Characterization of N-benzoyl-2-hydroxy benzohydrazide and its Vanadium and Copper Complexes 2016
13. **Mr. Chetan**, Development and Evaluation of LDH kit for in-vitro Diagnosis of Cytolysis 2007
14. **Mr. Mehul Patel**, “Role of Lactate Dehydrogenase (LDH) and Adenosine

Deaminase (ADA) in the Diagnosis" 2007

## M. Tech fellow supervised:

1. Ms Pawanpreet Kaur Synthesis of V<sub>2</sub>O<sub>5</sub> Nanomaterials and their application in photocatalysis (2015)
2. Ms Gurleen Kaur, Synthesis of V<sub>2</sub>O<sub>5</sub> Nanomaterials and their application in photocatalysis (2015)
3. Ms Harjot Kaur Synthesis of CeO<sub>2</sub>-TiO<sub>2</sub> Nanoparticles for Photocatalytic Degradation Studies" (2015)
4. Ms Harpreet Kaur, Synthesis of Al<sub>2</sub>O<sub>3</sub>-TiO<sub>2</sub> Nanoparticles Nanoparticles based for Proteins Rejection Studies Using Membrane Technology" (2015)

## List of publications published:

1. N Momin, J Manjanna, ST Aruna, S Senthilkumar, DS Reddy, A Kumar, "Structural and electrical properties of M-doped TiO<sub>2</sub> (M= Ni, Cu, Zn) relevant to their application as electrolytes for solid oxide fuel cells" **Journal of Chemical Sciences** 134 (2022), 1-11 **IF: 1.573**
  2. Dinesh S Reddy, Manasa Kongot, Amit Kumar, Coumarin hybrid derivatives as promising leads to treat tuberculosis: Recent developments and critical aspects of structural design to exhibit anti-tubercular activity, **Tuberculosis** 127 (2021) 102050 **IF: 3.131**
  3. Manasa Kongot, Riya Chaudhary, Pooja MS, Dinesh Reddy, Vishal Singh, Fernando Avecilla, Nitin Kumar Singhal, Amit Kumar, Oxidovanadium (IV/V) complexes bound with a ONS donor backbone: The search for therapeutic versatility in one class of compounds, **Applied Organometallic Chemistry** 35 (2021) e6148 **IF: 4.105**
- 
4. Ritika Gupta, **Amit Kumar**, Sandeep Kumar, Anil Kumar Pinnaka, Nitin Kumar Singhal, Naked eye colorimetric detection of Escherichia coli using aptamer conjugated graphene oxide enclosed Gold nanoparticles" **Sensors and Actuators B: Chemical** 329 (2021) 129100 **IF: 7.460**
  5. Dinesh S Reddy, Manasa Kongot, Vishal Singh, Md Abrar Siddiquee, Rajan Patel, Nitin K Singhal, Fernando Avecilla, **Amit Kumar**, Biscoumarin-pyrimidine conjugates as potent anticancer agents and binding mechanism of hit candidate with human serum albumin, **Archiv der Pharmazie** 354 (2021) 2000181 **IF: 3.751**
  6. Smita G Mane, Dinesh S Reddy, Kariyappa S Katagi, **Amit Kumar**, Ravindra S Munnolli, Nikhil S Kadam, Mahesh C Akki, H Nagarajaiah, Shrinivas D Joshi, Design, synthesis, molecular docking, anti-proliferative and anti-TB studies of 2H-chromen-8-azaspiro[4.5]decane-7,9-dione conjugates, **Journal of Molecular Structure** 1227 (2021) 129530 **IF: 3.196**
  7. Naeemakhtar Momin, J Manjanna, KS Rane, Amit Kumar, S Senthilkumar, ST Aruna, Structural and ionic conductivity of Cu-doped titania (Ti<sub>0.95</sub>Cu<sub>0.05</sub>O<sub>2-δ</sub>) for high temperature energy devices, **Ceramics International**, 47 (2021) 10284-10290 **IF: 4.527**
  8. Manasa Kongot, Dinesh S.Reddy, Vishal Singh, Rajan Patel, Nitin Kumar Singhal, **Amit Kumar**, "A manganese (II) complex tethered with S-benzyl dithiocarbamate

- Schiff base: Synthesis, characterization, *in-vitro* therapeutic activity and protein interaction studies” **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 231 (2020) 118123 **IF: 4.098**
9. Manasa Kongot, Dinesh S. Reddy, Vishal Singh, Rajan Patel, Nitin Kumar Singhal, Amit Kumar, “Physicochemical, in-vitro therapeutic activity and biomolecular interaction studies of Mn(II), Ni(II) and Cu(II) complexes tethered with O<sub>2</sub>N<sub>2</sub> ligand backbone” **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 241 (2020) 118613 **IF: 4.098**
  10. Neeraj Dohare, Md Abrar Siddiquee, Mehrajud din Parray, Amit Kumar, Rajan Patel, “Esterase activity and interaction of human hemoglobin with diclofenac sodium: A spectroscopic and molecular docking study” **Journal of Molecular Recognition** 33 (2020) e2841 **IF: 2.137**
  11. Manasa Kongot, Dinesh S.Reddy, Vishal Singh, Rajan Patel, Nitin Kumar Singhal, **Amit Kumar**, "Oxidovanadium(IV) and iron(III) complexes with O<sub>2</sub>N<sub>2</sub> donor linkage as plausible antidiabetic candidates: Synthesis, structural characterizations, glucose uptake and model biological media studies” **Applied Organometallic Chemistry** 34 (2019) e5327 **IF: 4.105**
  12. Dinesh S.Reddy, Manasa Kongot, Vishal Singh, Neha Maurya, Rajan Patel, Nitin Kumar Singhal, Fernando Avecilla, **Amit Kumar**, “Coumarin tethered cyclic imides as efficacious glucose uptake agents and investigation of hit candidate to probe its binding mechanism with human serum albumin” **Bioorganic Chemistry** 92 (2019) 103212 **IF: 5.275**
  13. M. Kongot, D. Reddy, V. Singh, R. Patel, N.K. Singhal, **Amit Kumar** “ONS donor entwined iron(III) and cobalt(III) complexes with exemplary safety profile as potent anticancer and glucose uptake agents” **New Journal of Chemistry** 43 (2019) 10932-10947 **IF: 3.591**
  14. M.R. Maurya, B. Sarkar, **Amit Kumar**, N. Ribeiro, A. Miliūtė, J.C. Pessoa, “New thiosemicarbazide and dithiocarbazate based oxidovanadium(IV) and dioxidovanadium(V) complexes. Reactivity and catalytic potential” **New Journal of Chemistry** 43 (2019) 17620-17635 **IF: 3.591**
  15. M Kongot, D Reddy, V Singh, R Patel, NK Singhal, **Amit Kumar** “Potent drug candidature of an ONS donor tethered copper (II) complex: Anticancer activity, cytotoxicity and spectroscopically approached BSA binding studies” **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy** 212 (2019) 330-342 **IF: 4.098**
  16. Manasa Kongot, Neeraj Dohare, Dinesh S Reddy, Neha Pereira, Rajan Patel, Mahesh Subramanian, **Amit Kumar**, In vitro apoptosis-induction, antiproliferative and BSA binding studies of a oxidovanadium (V) complex, **Journal of Trace Elements in Medicine and Biology** 51 (2019) 176–190. **IF: 3.849**
  17. Manasa Kongot, Neeraj Dohare, Vishal Singh, Nitin Kumar Singhal, Rajan Patel, **Amit Kumar**, A novel biocompatible Ni<sup>II</sup> tethered moiety as a glucose uptake agent and a hit against methicillin-resistant *Staphylococcus aureus*, **Eur. J. Pharma. Sci.** 123 (2018) 335 – 349. **IF: 4.384**

18. Dinesh S. Reddy, Manasa Kongot, Sandeep P. Netalkar, Mahantesh M. Kurjogi, Rakesh Kumar, Fernando Avecilla, **Amit Kumar**, "Synthesis and Evaluation of Novel Coumarin-Oxime Ethers as Potential Anti-tubercular Agents: Their DNA Cleavage Ability and BSA Interaction Study" *Eur. J. Med. Chemistry* 150 (2018) 864-875 **IF: 6.514**
19. N Maurya, M ud din Parray, JK Maurya, **Amit Kumar**, R Patel, "Interaction of promethazine and adiphene to human hemoglobin: A comparative spectroscopic and computational analysis" *Spectrochimica Acta Part A: Mole. Biomole Spect.* 199 (2018) 32–42 **IF: 4.098**
20. Aparajita Shankar, Manasa Kongot, Vipin Kumar Saini, **Amit Kumar**, "Removal of Pentachlorophenol Pesticide from Aqueous Solutions using Modified Chitosan" *Arab. J Chem.* 13(2020) 1878-5352 **IF: 5.165**
21. Jitendra Kumar Maurya, Abbul Bashir Khan, Neeraj Dohare, Anwar Ali, **Amit Kumar**, Rajan Patel "Effect of aromatic amino acids on the surface properties of 1-dodecyl-3-(4-(3-dodecylimidazolidin- 1-yl)butyl)imidazolidine bromide gemini surfactant" *J. Disp. Sci. Tech.* 39 (2018) 174-180 **IF: 2.262**
22. B Aneja, M Kumari, A Azam, **Amit Kumar**, M Abid, R Patel "Effect of triazole-tryptophan hybrid on the conformation stability of bovine serum albumin" *Luminescence* 33 (2018) 464-474 **IF: 2.464**
23. Manasa K., Neha Maurya, Neeraj Dohare, Mehraj ud din Parray, Jitendra K Maurya, **Amit Kumar**, Rajan Patel; "Enthalpy-driven interaction between dihydropyrimidine compound and bovine serum albumin: A spectroscopic and computational approach" *J. Biomolec. Stru. Dyn.* 36 (2018) 1161- 1170 **IF: 3.310**
24. Dash S.P, Roy S., Mohanty M., Carvalho M.F.N.N., Kuznetsov M. L., Pessoa J. C., **Kumar Amit.**, Patil Y. P., and Dinda R., "Versatile Reactivity and Theoretical Evaluation of Monomeric and Dimeric Oxidovanadium(V) Compounds: Electrogeneration of Mixed-Valence  $V^{IV}V^V$  Complexes" *Inorg. Chem.* 55 (2016) 8407 – 8421. **IF: 5.165**
25. Kuntikana S., Bhat C., Kongot M., Bhat S.I., and **Kumar Amit.**, An Expeditious Green Cascade Synthesis of 3-Arylideneaminoquinazolin-4(1H)-one Derivatives via 'Solvent Drop Grinding' and Their Antioxidant and DNA, Protective Studies, *Chemistry Select* 1 (2016) 1723 – 1728 **IF: 2.109**
26. Patel R., Kumari M., Dohare N., Khan A.B., Singh P. and **Kumar Amit.**, Binding interaction between pyrrolidinium based ionic liquid and bovine serum albumin: A spectroscopic and molecular docking insight" *Biochem. Anal. Biochem.* (2016), 265 , 2161-1009.1000265 **IF: 2.66**
27. Bhat C and **Kumar Amit.**, Synthesis of allokainic acid, A review *Asian. J. Org. Chem*, 4 (2015) 102-115. **IF: 3.319**
28. Mukherjee T., Pessoa J.C, **Kumar Amit.**, Sarkar A.R., Formation of an unusual pyridoxal derivative: Characterization of Cu(II), Ni(II) and Zn(II) complexes and evaluation of binding to DNA and to human serum albumin, *Inorg. Chim. Acta.* 426 (2015) 150-159. **IF: 2.545**
29. Maurya M.R., Chaudhary N., **Kumar Amit.**, Avecilla F., Pessoa J.C., "Polystyrene

- bound dioxidovanadium(V) complexes of 2-acetylpyridine derived ligands for catalytic oxidations” *Inorg. Chim. Acta.*, 420 (2014) 24-38 **IF: 2.545**
30. Maurya M.R., Haldar C., **Kumar Amit.**, Kuznetsov M., Avecilla F. and Pessoa J.C.; “Effect of coordination sites on vanadium complexes having  $[\text{VO}]^{2+}$ ,  $[\text{VO}]^{3+}$  and  $[\text{VO}_2]^+$  cores with hydrazones of 2,6-diformyl-4-methylphenol: Synthesis, characterization, reactivity, and catalytic potential” *Dalton Trans.* 42 (2013) 11941-11962 **IF: 4.390**
31. Mukherjee T., Pessoa J.C., **Kumar Amit.**, Sarkar A.R., “Synthesis, Structure, Magnetic Properties and Biological Activities of Supramolecular Copper<sup>(II)</sup> and Nickel<sup>(II)</sup> Complexes with Schiff Base Ligand Derived from Vitamin B6” *Dalton Trans.* 42 (2013) 2594–2607 **IF: 4.390**
32. Maurya M.R., Bisht M., Chaudhary N., **Kumar Amit.**, Avecilla F., Pessoa J.C, “Spectroscopic and structural characterization of oxidovanadium(V) mixed ligand complexes” *Eur. J. Inorg. Chem.*, (2012) 4846–4855 **IF: 2.524**
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33. Maurya M.R., Haldar C., Khan A., Azam A., Salahuddin A., **Kumar Amit.**, Pessoa J.C., “Synthesis, characterization, catalytic and antiamebic activities of vanadium complexes of binucleating bis(dibasic tridentate ONS donor) ligand systems” *Eur. J. Inorg. Chem.* (2012) 2560–2577 **IF: 2.524**
34. Mukherjee T., Pessoa J.C, **Kumar Amit.**, Sarkar A.R., “Synthesis, spectroscopic characterization, insulin-enhancement, and competitive DNA binding activity of a new Zn(II) complex with a vitamin B-6 derivative-a new fluorescence probe for Zn<sup>(II)</sup>” *Dalton. Trans.*, 41 (17) (2012) 5260–5271 **IF: 4.390**
35. Maurya M.R, Sani P., **Kumar Amit.**, Pessoa J.C, “Oxidovanadium<sup>(IV)</sup> Complexes of Tetradentate Ligands Encapsulated in Zeolite-Y as Catalysts for the Oxidation of Styrene, Cyclohexene and Methyl Phenyl Sulfide” *Eur. J. Inorg. Chem.* 31 (2011) 4846–4861 **IF: 2.524**
36. Maurya M.R., **Kumar Amit.**, Pessoa J.C., “Vanadium complexes immobilized on solid supports and their use as catalysts for oxidation and functionalization of alkanes and alkenes” *Coord. Chem. Rev.* 255 (2011) 2315–2344 4361 **IF: 22.315**
37. Mukherjee T., Pessoa J.C, **Kumar Amit.**, Sarkar A.R, “Oxidovanadium<sup>(IV)</sup> Schiff Base Complex Derived from Vitamin B-6: Synthesis, Characterization, and Insulin Enhancing Properties” *Inorg. Chem.*, 50 (2011) 4349–4361 **IF: 5.165**
38. Maurya M.R, Bisht M., **Kumar Amit.**, Kuznetsov M.L., Avecilla F., Pessoa J.C., “Models of vanadate-dependent haloperoxidases: Synthesis, characterization, reactivity and catalytic activity of oxidovanadium<sup>(IV)</sup>, oxidovanadium<sup>(V)</sup> and dioxidovanadium<sup>(V)</sup> complexes of benzimidazole modified ligands” *Dalton. Trans.*, 6968–6983 (2011) **IF: 4.390**
39. Maurya M.R., Arya A., **Kumar Amit.**, Avecilla F., Pessoa J.C., “Polymer-Bound Oxidovanadium(IV) and Dioxidovanadium(V) Complexes As Catalysts for the Oxidative Desulfurization of Model Fuel Diesel” *Inorg. Chem.*, 49 (2010) 6586–6600 **IF: 5.165**
40. Maurya M.R, Khan A., Azam A., Ranjan S., Mondal N., **Kumar Amit.**, Avecilla F., Pessoa J.C., “Vanadium complexes having  $[\text{VO}]^{2+}$  and  $[\text{VO}_2]^+$  cores with

binucleating dibasic tetradentate ligands: Synthesis, characterization, catalytic and antiameobic activities” *Dalton.Trans.*, (2010) 1345–1360 **IF: 4.390**

41. Maurya M.R., Khan A., Azam A., **Kumar Amit.**, Ranjan S., Pessoa J.C., “Dinuclear oxidovanadium(IV) and dioxidovanadium<sup>(V)</sup> complexes of 5, 5'-methylenebis(dibasic tridentate) ligands: synthesis, spectral characterisation, reactivity, catalytic and antiameobic activities” *Eur.J. Inorg. Chem.* 35 (2009) 5377–5390 **Impact factor: 2.578**
  42. Maurya M.R., Arya A., **Kumar Amit.**, Pessoa J.C, “Polymer-bound oxidovanadium<sup>(IV)</sup> and dioxidovanadium<sup>(V)</sup> complexes: synthesis, characterization and catalytic application for the hydroamination of styrene and vinyl pyridine” *Dalton.Trans.*, (2009) 9555–9566 **IF: 4.390**
  43. Maurya M.R., Arya A, **Kumar Amit.**, Pessoa J.C, “Polystyrene bound oxidovanadium<sup>(IV)</sup> and dioxidovanadium<sup>(V)</sup> complexes of histamine derived ligand for the oxidation of methyl phenyl sulfide, diphenyl sulfide and benzoin” *Dalton.Trans.*, (2009) 2185–2195 **IF: 4.390**
  44. Maurya M.R., Kumar M., **Kumar Amit.**, Pessoa J.C, “Oxidation of *p*-chlorotoluene and cyclohexene catalysed by polymer-anchored oxovanadium<sup>(IV)</sup> and copper<sup>(II)</sup> complexes of amino acid derived tridentate ligands” *Dalton.Trans.*, (2008) 4220–4232 **IF: 4.390**
  45. Maurya M.R., **Kumar Amit.**, Ebel M., Rehder D., “Synthesis, characterization, reactivity and catalytic potential of model vanadium<sup>(IV,V)</sup> complexes with benzimidazole derived ONN donor ligands” *Inorg. Chem.*, 45 (2006) 5924–5937 **IF: 5.165**
  46. Maurya M.R, **Kumar Amit.**, “Oxovanadium<sup>(IV)</sup> based coordination polymers and their catalytic potentials for the oxidation of styrene, cyclohexene and *trans* stilbene” *J. Mol. Catal. A: Chem.*, 250 (2006) 190–198 **IF: 5.062**
  47. Maurya M.R., **Kumar Amit.**, Abid M., Azam A., “Dioxovanadium<sup>(V)</sup> and  $\mu$ -oxo bis[oxovanadium<sup>(V)</sup>] complexes containing thiosemicarbazone based ONS donor set and antiameobic activity” *Inorg. Chim. Acta.*, 359 (2006) 2439–2447 **IF: 2.545**
- 
48. Maurya M.R., **Kumar Amit.**, Bhat A.R., Azam A., Bader C., Rehder D., “Dioxo and oxovanadium<sup>(V)</sup> complexes of thiohydrazones ONS donor ligands: Synthesis, characterization, reactivity, and antiameobic activity” *Inorg. Chem.*, 45 (2006) 1260–1269 **IF: 5.165**
  49. Maurya M.R., **Kumar Amit.**, Manikandan P., Chand S., “Synthesis, characterisation and catalytic potential of oxovanadium<sup>(IV)</sup> based coordination polymers having a bridging methylene group” *Appl. Catal. A: Gen* 277 (2004) 45–53 **IF: 5.706**
  50. Maurya M.R., Saklani H., **Kumar Amit.**, Chand S., “Dioxovanadium<sup>(V)</sup> complexes of dibasic tridentate ligands encapsulated in zeolite-Y for the liquid phase catalytic hydroxylation of phenol using H<sub>2</sub>O<sub>2</sub> as oxidant” *Catal. Lett.* 93 (2004) 121–127 **IF: 3.186**

#### Publication in national science magazine

- Manasa Kongot and **Amit Kumar**, “Metal in Medicine” Science Reporter 55 (2018)

41-43

- Sinha A; Chaudhary R; Kongot M; Kumar, A, “**Elements of Life**” Science Reporter 58 (2021) 30-34

### Book published

2011      Role of Vanadium Complexes in Biological Systems & Oxidation Reactions”  
by **Amit Kumar** ISBN: 978-3-8465-4955-1 LAP Lambert  
Academic Publishing Germany

### Projects Approved

#### **DST-FIST 2018 (Approved)**

Title: An Integrated Approach to Solve Issues in the Areas of Health, Energy and Environment  
Funded by: Department of Science and Technology (DST) India,  
**Amount:** Rs: 220 lakh      Role:      **Principal Investigator**

### Projects Completed

1. Title: The development of novel transition metal therapeutic compounds and their interaction between bio-macromolecules, **Funded by:** SERB, Department of Science and Technology (DST) India, **Duration** Aug 2014 to Sep 2017 **Amount:** Rs: 20.66 lakh, **Ref:** SB/FT/CS-100/2013 Role: **Principal Investigator**
2. Title: Homogeneous and supported catalysts. Development of a new recyclable and widely applicable platform Role: **Investigator** (50% contribution) **Ref. no:** SFRH / BPD / 34835 / 2007 **Duration** Nov 2010 to Oct 2013 Cost: approx. 60000-euro **Funding Agency:** Fundação para a Ciência e a Tecnologia Portugal
3. Title: Chiral vanadium complexes with tridentate reduced Schiff base ligands for asymmetric oxidation reactions Role: **Investigator** (50% contribution) Ref. no: SFRH / BPD / 34835 / 2007 Duration: Oct 2007 to Oct 2010 Cost: approx. 60000-euro Funding Agency: Fundação para a Ciência e a Tecnologia Portugal This project was further extended after having a positive review (**Ref. no:** SFRH / BPD / 34835 / 2007)

### Invited talks

- Talk on “Bioactive Compounds and their Therapeutic Applications” at FDP – Global Academy of Technology Bangalore Dec 2021
- Challenge and Emerging Trends in Chemistry, Online Lecture Series under DBT Star College Scheme-2021 Vardhaman College, Bijnor Affiliated to M.J.P. Rohilkhand University, Bareilly (U.P.), Feb 22, 2021
- Deliver a talk at National Level Conference “**Emerging trends in Chemistry**” Conducted by St. Philomena’s College, Mysore on 12, March 2016
- Deliver a talk on **Vanadium complexes and prospective therapeutic applications** at National Conference on Interdisciplinary Approaches in Chemical Sciences Centre for Interdisciplinary Research in Basic Sciences Jamia Millia Islamia, New Delhi 16<sup>th</sup> December 2015
- Talk on Interaction of transition metal complexes with bio-macromolecules for therapeutic applications Seminar at Department of Chemistry Director, Shiv Nadar University, India, August 6, 2013



- Prospective therapeutic applications of Vanadium Complexes and & Emerging Trends in Chemistry at Jain University Bangalore, India May 22, 2016

## Other activities

- Advisory Committee member of **International Conference on Frontiers in Materials from Basic Science to Real Time Applications 2019** Organized by Centre for Nano and Material Sciences Jain (Deemed-to-be-University) Bangalore India
- External Expert for **Doctoral Advisory Committee (DAC) at SABIC Bangalore**. SABIC is a global leader in diversified chemicals headquartered in Riyadh, Saudi Arabia.
- Advisory Committee member of **National Seminar on Biophysics (Biophysika 2017)** organized by Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia New Delhi- 110025
- Organizing Committee member for **6<sup>th</sup> International Vanadium Symposium, July 17 to 19<sup>th</sup>, 2008 Lisbon, Portugal**.

## Awards, Honors and Recognitions

- 2018 Best paper award in Recent Advances in Chemical and Material Sciences (RACMS) at Jain (Deemed-to-be-University) Bangalore India
- 2017 Best paper award in 'Green Chemistry & Nanotechnology- Opportunities and Challenges (GCNOC), St. Aloysius College, Mangalore, India
- 2017 Best paper award in 'New Trends in Applied Chemistry (NTAC)', Kochi, India
- 2016 Prof. B. C. Haldar Memorial Award' by Indian Chemical Society in the 'Annual Convention of Chemists', GITAM University Vizag, India for the best paper in Inorganic Chemistry section.
- 2015 Best poster award in 'Interdisciplinary approaches in Chemical Sciences (IACS), JMI New Delhi, India
- 2014 Traveling grant by **SERB-DST to attend 9<sup>th</sup> International Vanadium Symposium, in Padova, Italy** from June 29<sup>th</sup> -July 2<sup>nd</sup>, 2014
- 2013 Postdoctoral Fellowship by Foundation of Science & Technology (FCT) Portugal
- 2012 Traveling grant by Foundation of Science & Technology (FCT) Portugal to attend The XXV International Conference on Organometallic Chemistry (XXV ICOMC, Lisbon, Sept. 2-7) 2012
- 2011 Three-month research grant by Foundation of Science & Technology (FCT) Portugal for collaborative research between IST Lisbon Portugal – IIT Roorkee India
- 2010 Postdoctoral Fellowship by Foundation of Science & Technology (FCT) Portugal
- 2009 Traveling grant by Foundation of Science & Technology (FCT) Portugal to attend The 10<sup>th</sup> Netherlands Catalysis and Chemistry Conference March 2-4, 2009, Noordwijkerhout, the Netherlands
- 2009 Traveling grant by Foundation of Science & Technology (FCT) Portugal to attend 8<sup>th</sup> Inorganic Chemistry Conference, 16 & 17 October 2009, Curia, Portugal.
- 2007 Postdoctoral Fellowship by Foundation of Science & Technology (FCT)

## Portugal

- 2004 Prof. B.C. Haldar Memorial Award 2004 – 41<sup>st</sup> Annual Convention of Chemists (Indian Chemical Society) at University of Delhi
- 2003 Indian Chemical Society Award 2003 – 40<sup>st</sup> Annual Convention of Chemists (Indian Chemical Society) at Bundelkhand University, Jhansi
- 2002 Institute Fellowship by Ministry of Human Resource Development (MHRD), Govt. of India for Ph.D. program of Indian Institute of Technology Roorkee
- 2004 Selected for **Shyama Prasad Mukherjee Fellowship Test, (JRF) Net awardees who secured top 20% position at all India level on the basis of Joint CSIR-UGC JRF)**
- 2003 **Qualified CSIR-UGC National Eligibility Test (NET)**
- 2002 **Qualified CSIR-UGC National Eligibility Test (NET)**
- 2002 Graduate Aptitude Test in Engineering (GATE) (95.17 percentile) (**All India Rank 121**)
- 2001 **Qualified CSIR-UGC National Eligibility Test (NET)**
- 

## Paper presented in Conferences:

### International Conferences

1. International Conference on New Trends in Applied Chemistry held in Crowne Plaza, Kochi and organized by SH College, Thevara, Kochi, Kerala held from 9<sup>th</sup>-11<sup>th</sup> Feb 2017
2. Green Chemistry & Nanotechnology- Opportunities and Challenges (GCNOC), an International Conference held in St. Aloysius College, Mangalore, India, February, 2017.
3. The 9<sup>th</sup> International Vanadium Symposium, in Padova from June 29<sup>th</sup> until July 2<sup>nd</sup>, 2014
4. The XXV International Conference on Organometallic Chemistry (XXV ICOMC, Lisbon, Sept. 2-7) 2012
5. The 8<sup>th</sup> International Vanadium Symposium, August 15–18, 2012 Washington, DC USA.
6. 8<sup>th</sup> Inorganic Chemistry Conference, 16 & 17 October 2009, Curia, Portugal.
7. The 10<sup>th</sup> Netherlands Catalysis and Chemistry Conference March 2-4, 2009, Noordwijkerhout, the Netherlands
8. The 6<sup>th</sup> International Vanadium Symposium, July 17 to 19th, 2008 Lisbon, Portugal.

### National Conferences

1. National Seminar on Biophysics (Biophysika-2017), March 16, 2017 held at Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi-110025, India.
2. 53<sup>rd</sup> Annual Convention of Chemists-2016 organized by the Indian Chemical Society in GITAM University, Visakhapatnam from 27<sup>th</sup>-29<sup>th</sup> Dec 2016
3. National Conference on Interdisciplinary approaches in Chemical Sciences (IACS) in Jamia Millia Islamia, New Delhi held on Dec 16th 2015
4. Nascent Developments in Chemical Sciences (NDCS), an International Conference held in BITSPilani, Rajasthan from October 16-19, 2015
5. XI symposium on Modern trend in Inorganic chemistry at IIT–Delhi, Dec. 2005.
6. 41<sup>st</sup> Annual Convention of Chemist of Indian Chemical Society at Delhi University,

- Delhi, Dec 23-27, 2004
7. 23<sup>rd</sup> Conference of Indian Council of Chemist at K. C. College Mumbai, October 2004.
  8. 40<sup>th</sup> Annual Convention of Chemist of Indian Chemical Society at Bundelkhand University, Jhansi, December 2003
  9. 22<sup>nd</sup> conference of Indian Council of Chemists (ICC) at IIT– Roorkee, October 2003
  10. Manasa Kongot, Amit Kumar, Transition Metal Complexes as Drugs for Health Remediation, present in ‘Recent Advances in Chemical and Materials Science, Jnana Chilume’, a National Conference held in SET, Jain University, Bangalore, India, February **2018**
  11. Pooja M Suresh, Manasa Kongot, Amit Kumar, Vanadium Complexes as pro-drugs for Type II Diabetes Treatment; Presented a paper in ‘Recent Advances in Chemical and Materials Science, Jnana Chilume’, a National Conference held in SET, Jain University, Bangalore, India, February **2018**
  12. Dinesh Shrikant Reddy, Amit Kumar, Synthesis and evaluation of novel coumarin-oxime analogs as potential Antitubercular agents: Their Cytotoxicity, DNA cleavage and BSA interaction study, Presented a paper in ‘54<sup>th</sup> Annual National Convention of Chemists 2017’ by Indian Chemical Society held in Uka Tarsadia University, Bardoli, Surat, Gujarat, India, December, **2017**.
  13. Manasa Kongot, Neeraj Dohare, Rajan R Patel, Amit Kumar, Spectroscopical Insight of BSA Binding Studies with a Metallodrug-like molecule Tethered with Bio-Active ONS Donor Ligand; Presented a poster in ‘Biophysica-2017’, a national symposium held at Jamia Millia Islamia, New Delhi, India, March **2017**;
  14. Pandurang K. Kop Kulkarni, Manasa Kongot, Amit Kumar, Photocatalytic degradation of a model organic pollutant by employing V<sub>2</sub>O<sub>5</sub> nanomaterial; Presented a poster in ‘Biophysica-2017’, a national symposium held at Jamia Millia Islamia, New Delhi, India, March **2017**;
  15. Rajeev Hegde, Manasa Kongot, Rajan Patel, Amit Kumar, Spectroscopic studies for the binding of BSA with a benzohydrazide based copper complex exhibiting antifungal activity; , Presented a poster in ‘Biophysica-2017’, a national symposium held at Jamia Millia Islamia, New Delhi, India, March **2017**
- 
16. Dinesh Shrikant, Amit Kumar, Coumarin based analogs as possible drug candidature for treating cancerous disease, Presented a poster in ‘Biophysica-2017’, a national symposium held at Jamia Millia Islamia, New Delhi, India, March **2017**
  17. Dinesh Shrikant Reddy, Amit Kumar, Design, synthesis and evaluation of novel benzocoumarin– pyrimidine hybrids as potent anti-tubercular agents; Presented a paper in ‘Jnana Chilume’, a National Conference held in SET, Jain University, Bangalore, India, March, **2017**;
  18. Manasa Kongot, N. K. Singhal, Amit Kumar. Presented, Tailored transition metal complexes encompassing bio-active ONS donor ligand for antidiabetic activity and interaction with BSA; Presented a paper in ‘Green Chemistry & Nanotechnology- Opportunities And Challenges (GCNOC), an International Conference held in St. Aloysius College, Mangalore, India, February, **2017**;
  19. Manasa Kongot, Rajeev Hegde, Amit Kumar, Vanadium and Copper complexes derived from a benzohydrazide based ligand for Antimicrobial Activity and Interaction with BSA; Presented a poster in ‘Green Chemistry & Nanotechnology- Opportunities And Challenges (GCNOC), an International Conference held in St.

- Aloysius College, Mangalore, India, February, **2017**;
20. Manasa Kongot, Pandurang K. Kop Kulkarni, Amit Kumar, Utility of Vanadium oxide nanomaterial for Photocatalytic Degradation of Model Organic Pollutants, Presented a poster in 'Green Chemistry & Nanotechnology- Opportunities And Challenges (GCNOC)', an International Conference held in St. Aloysius College, Mangalore, India, February, **2017**;
  21. Manasa Kongot, Amit Kumar, Adaptable Vanadium, Copper and Nickel complexes of a superlative Schiff base ligand backbone: Exploration of their anticancer activities and interaction with serum protein; Presented a paper in 'New Trends in Applied Chemistry (NTAC)', an International Conference held in Sacred Heart College, Thevara, Kochi, India, February, **2017**
  22. Manasa Kongot, N. Dohare, R. Patel, Amit Kumar, Vanadium, Copper and Nickel complexes of a bio-relevant ligand backbone as antimicrobial agents and their interaction study with bovine serum albumin; Presented a paper in the '53<sup>rd</sup> Annual Convention of Chemists-2016' organized by the Indian Chemical Society in Gitam University, Vizag, India, December, **2016**;
  23. Rajeev Hegde, Pandurang Kulkarni, Manasa Kongot, Amit Kumar, Rajan Patel, Interaction between Pyrrolidinium Based Ionic Liquid and Bovine Serum Albumin (BSA), Presented a poster in 'RAMSA-2016' a National Conference held in SET, Jain University, Bangalore, India, September, **2016**
  24. Manasa Kongot, B. M. Nagaraja, Amit Kumar, Facile protocol for the synthesis of Vanadium oxide nanomaterial and brief investigation of its photocatalytic activity, Presented a poster in 'Interdisciplinary approaches in Chemical Sciences (IACS), a National Conference held in Jamia Millia Islamia, New Delhi, India, December, **2015**
  25. S. Kuntikana, C. Bhat, Manasa Kongot, Amit Kumar, Solvent assisted mechanochemical synthesis of various derivatives of 3-arylideneaminoquinazolin-4(1*H*)-one and their antioxidant properties; Presented a poster in 'Nascent Developments in Chemical sciences (NDCS)', an International Conference held in BITS Pilani, Rajasthan, India, October, **2015**

### **Reviewer of Manuscripts:**

Thermochimica Acta, Luminescence: The Journal of Biological and Chemical Luminescence, Photochemical & Photobiological Sciences, Journal of Molecular Liquids, Journal of Photochemistry and Photobiology B: Biology, Colloids and Surfaces B: Biointerfaces, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, Dalton Trans, EJMC

### **Teaching activity**

#### **M.Sc. Chemistry program**

- Actively engaged in teaching for M.Sc. chemistry program: Inorganic Chemistry–I, Spectroscopy–I, Spectroscopy–II, Inorganic Chemistry–III, Chemistry of Biomolecules

#### **Ph. D program**

Actively engaged in teaching for pre-PhD course

#### **Course design**

- Designing of M.Sc. Chemistry courses
- Designing of pre-PhD courses for Chemistry
- **Designing of pre-PhD courses for Forensic Science**

Specialization I: Instrumental Analysis  
Specialization II: Elemental Analysis and  
EvidenceCore Paper in Forensic Science: Forensic Science  
Conducted pre-PhD course work for Forensic Science

## Research Collaborators

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- Dr. M. R. Maurya, Professor & Dean, Faculty Affairs & Former Head, Department of Chemistry, IIT Roorkee
- Dr. Joao C Pessoa, Professor & Head, Centro Química Estrutural, Instituto Superior Técnico Lisboa, Portugal
- Dr. M. Fernanda N. N. Carvalho, Professor, CQE, Instituto Superior Técnico, U Lisboa, Portugal
- Dr. Debbie C. Crans, Professor of Chemistry and Cell and Molecular Biology, Dept. of Chemistry, Colorado State University USA
- Dr. Winfried Plass, Professor, Lehrstuhl für Anorganische Chemie II, Friedrich-Schiller- Universität Jena, Germany
- Dr Rajan Patel, Assistant Professor, Centre for Interdisciplinary Research in Basic Science, JamiaMillia Islamia Delhi
- Dr. Vipin K Saini, Assistant Professor, School of Environment and Natural Resources, Doon University Dehradun, Uttrakhand
- Dr. Nitin K Singhal, Scientist C, National Agri-Food Biotechnology Institute, Mohali-160071, Punjab, India
- Dr. Prashant S Kulkarni, Assistant Professor, Department of Applied Chemistry, Defence Institute of Advanced Technology (DIAT-DRDO) (Deemed University), Ministry of Defence, Girinagar, Pune, India
- Dr. Fernando AVECILLA, Professor, Universidade da Coruña, Spain
- Dr. Rupam Dinda , Professor, Dept. of Chemistry, NIT

Rourkela India Date: March 28, 2022