

Dr Rayees Ahmad Bhat

Current Appointment: CSIR-Research Associate, Department of Chemistry, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow.

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Current Research Activities

Synthesizing and growing single crystals of transition metal complexes of Dithiocarbazate Schiff Bases, Spectroscopic Characterizations, Biological activity investigations and their Computational (DFT) studies.

Academic Qualification

- Ph.D. in Bio Inorganic-Computational Chemistry from the Jiwaji University Gwalior, India.
- Master of Science in Chemistry from the Barkatullah University Bhopal, India, 2012 (1st Rank, 85.33%).
- Bachelor of Science from the University of Kashmir, India, 2010 (58%).
- Master of Arts in Education from the Jammu University Jammu, India, 2014 (58%).
- Bachelor of Education from the University of Kashmir, India, 2014 (1st Rank, 83%).

Research Interests

- Synthesis and characterization of Schiff Bases of dithiocarbazate Metal complexes, Pharmacological investigations and computational studies by DFT Methods using **Gaussian 03W and Gaussian 09W** packages.
- Ph.D. Thesis entitled “Synthesis, Characterization and theoretical studies of some transition metal complexes of dithiocarbazate Schiff Bases and their potential biological activity investigations”.

Awards and Achievements

- Awarded **CSIR-RA Fellowship-2019**. (322214/2K19/1).
- Awarded MANF (**JRF-SRF**) Fellow by UGC New Delhi India 2016 (MANF-2015-17JAM-49814).
- Awarded as 106th **ISCA Young scientist 2019**. (National level Award)
- Awarded as 56th **Indian Chemical Society Young scientist 2019**. (National level Award)
- Awarded as 38th **Indian Council of Chemists Young scientist 2019** w/citation. (National level Award)
- Awarded as 33th **MPCST Young Scientist 2018**. (State level Award)
- Awarded as **Young Achiever award by InSc AWARDS 2019** (National level award)
- **1st Rank holder in Master of Science in Chemistry** (85.33%), From Barkatullah University Bhopal, 2012.

- Awarded as **best oral presentation award** in Global conference on the control of Green House gases at the source by physical and chemical technology **GCGHGSPCT-2K19** at Babasaheb Bhimrao Ambedkar Central University, Lucknow on 22-24 May 2019.
- Life Member of The Indian Science Congress Association (L/35962).
- Life Member of The Indian Council of Chemists (F/8502).
- Life Member of The Indian Chemical Society (F/8214).
- Professional Life member of Institute of Scholars (InSc).
- Awarded **Ist position in Chemo mania** Technokriti on 21st May 2011 held at Extol institute of management, Barkatullah university Bhopal.
- **Awarded 2nd position in Inter P.G college quiz Competition** organized by Organization for Human Issues And alternatives on 07 April 2012, at Extol institute of management, Barkatullah university Bhopal.
- Awarded as **Most Sincere Student award** in the Extol P.G College, Barkatullah University Bhopal M.P. on 21st April, 2011.

Research Publications (Prof. D. Kumar: Ph.D Promoter) & (Prof. Kaman Singh: PDF Promotor)

(Total Impact Factor = 14.23 Citations: 28)

Published Articles

1. **Rayees A. Bhat, D. Kumar** “Synthesis and spectral characterization of Zn(II) complex of S-benzyl β -N-[3-(4-hydroxy-3-methoxy-phenylallylidene)]dithiocarbazate: An approach to antibacterial, thermal studies and DFT calculations” Journal of Molecular Structure, 1199 (2020) 126877. (**Elsevier**)
2. **Rayees A. Bhat, D. Kumar** “Experimental and Theoretical Study of S-benzyl β -N-(2-methyl-3phenylallylidene)dithiocarbazate as anti-bacterial agent”, Research on chemical intermediates (Springer) (2019) 45:2565–2586. (**Springer**)
3. **Rayees A. Bhat, D. Kumar** “Experimental, DFT studies and biological evaluation of S-methyl- β -N(3-(2-nitrophenyl)allylidene)dithiocarbazate”, ChemistrySelect 2018, 3, 7363– 7369. (**Wiley**)
4. **Rayees A. Bhat, D. Kumar** “Synthesis, characterization, Thermal and DFT studies of S-methyl β -N(3-(2-nitrophenyl)allylidene)dithiocarbazate as anti-bacterial agent” Journal of Molecular Structure, 1173 (2018) 72-80. (**Elsevier**)
5. **Rayees A. Bhat, D. Kumar** “Synthesis, Characterization, Computational Studies and Biological evaluation of S-benzyl-b-N-[3-(4-hydroxy-3methoxyphenylallylidene)]dithiocarbazate” Journal of Molecular Structure, 1156 (2018) 280289. (**Elsevier**)
6. **Rayees A. Bhat, D. Kumar** “(E)-2,4-Dibromo-6-(hydrazinylidenemethyl)phenol”, IUCrData (2017); 1-3, ISSN 2414-3146. (**Crystallography**)
7. Muzzaffar Ahmad Mir, **Rayees Ahmad Bhat**, Fabrication of Polyaniline/Zeolite composites and their response towards nitrogen dioxide, Microporous and Mesoporous Materials; Materials 233 (2016) 53-61. (**Elsevier**)

8. Muzzaffar Ahmad Mir, **Rayees Ahmad Bhat**, “Utilization of Zeolite/polymer composites for gas sensing: A review” *Sensors and activators B: Chemical* 242 (2017) 1007-1020. (**Elsevier**)
9. Muzzaffar Ahmad Mir, **Rayees Ahmad Bhat** “Studies on the synthesis and characterization of polyaniline-zeolite nanostructures and their role in carbon monoxide sensing” Accepted Manuscript, DOI: <https://doi.org/10.1016/j.jece.2018.01.027>, *Journal of environmental chemical engineering*. (**Elsevier**)
10. Muzzaffar Ahmad Bhat, **Rayees Ahmad Bhat** “H/BETA Zeolite mediated synthesis of tbutyl carbazate based Schiff Base. A Versatile Catalyst for the Synthesis of highly functionalized imines” *Journal of Porous Materials* <https://doi.org/10.1007/s10934-018-0661-9>. (**Elsevier**)
11. Bhuvanendra Singh, **Rayees Ahmad Bhat** “CRYSTAL STRUCTURE AND COMPUTATIONAL STUDY OF A FLUORINE-CONTAINING THIOSEMICARBAZONE” *Rev. Roum. Chim.*, 2019, 64(8), 651-662 DOI: 10.3224/rrech.2019.64.8.02. (**Academia Romana**)
12. Rawoof A. Naikoo, **Rayees A. Bhat** “Biological Activities and Synthetic Approaches of Dihydropyrimidinones and Thiones - An Updated Review” *Current Bioactive Compounds* 2016, 12, 236-250 DOI: 10.2174/15734072126661605171500 45. (**Bentham Science**)
13. Muzzaffar Ahmad Mir, **Rayees Ahmad Bhat**, “Effect of Different Variables on the Electrical Conductivity Sensitivity of Synthesized Zeolite/Polymer Composites for Various Gases: A Review” *American Chemical Science Journal* 13(2): 1-18, 2016, Article no. ACSJ.23558 ISSN: 2249-0205. (**Science Domain**)
14. Sami Ullah Bhat, **Rayees Ahmad Bhat** “Synthesis of N-Formylation of Amines using Various Ion Exchanged Forms of Zeolite-A as Catalysts” *Pharmacy & Pharmacology International Journal* Volume 5 Issue 4-2017. (**MedCrave**)
15. Sami Ullah Bhat, **Rayees Ahmad Bhat** “Zeolite H -ZSM-5: an efficient and reusable catalyst for one-pot synthesis of amidoalkyl naphthols under solvent-free condition” *Journal of Progressive Research in Chemistry [JPRC]* ISSN 2454-3136 Volume 5, Issue 1, August 4, 2017. (**SCITECH RESEARCH ORGANISATION**)
16. Sami Ullah Bhat, **Rayees Ahmad Bhat**, “H-mordenite zeolite as an efficient, rapid and recyclable catalyst for chemoselective synthesis of 1,1-diacetates under solvent-free conditions” *Asian Journal of Green Chemistry* 1 (2017) 46-55. (**NICENNA**)
17. Sami Ullah Bhat, **Rayees Ahmad Bhat**, “Synthesis of 14-Aryl-14H-dibenzo[a,j]xanthene Derivatives Using H-Zeolite A as an Efficient and Reusable Catalyst under Solvent-Free Condition” *Hindawi Publishing Corporation, Journal of Materials*, 2016, 7908584. (**Hindawi**)

Book Chapters

1. Irfan Rashid Sofi, **Rayees Ahmad Bhat**, “Occurrence of pesticides and their removal from aquatic medium by adsorption” Hand book of adverse Effects of Pesticide Pollution in Aquatic Ecosystems. 2018, IGI Global, USA, an international publisher of progressive academic research. DOI: 10.4018/978-1-5225-6111-8.ch015.
2. **Rayees Ahmad Bhat**, Irfan Rashid Sofi, “Historical Perspective of Bisphenol A and Phthalates in the Environment and Their Health Effects” Handbook of research on environmental and human health impacts of plastic pollution. DOI: 10.4018/978-1-5225-9452-9.ch013.
3. Irfan Rashid Sofi, **Rayees Ahmad Bhat**, “Plastic Pollution and the Ecological Impact on the Aquatic Ecosystem” Their Health Effects” Handbook of research on environmental and human health impacts of plastic pollution. DOI: 10.4018/978-1-5225-9452-9.ch005.

Conference Articles

1. **Rayees Ahmad Bhat**, Synthesis structural studies and quantum chemical investigation of Cd and Zn complexes of S-benzyl β -N-((E)-2-nitrophenylallyl)dithiocarbazate, Intl. Conf. on Nanotechnology for Better Living, 2016 NBL-2016 Vol. 3, No. 1, p. 318 doi:10.3850/978-98109-7519-7nbl16-rps318.
2. **Rayees Ahmad Bhat**, “Designing some novel advance materials of dithiocarbazate Schiff base having NNSS backbone” Intl. Conf. on Nanotechnology for Better Living, NBL-Vol. 3, No. 1, p. 211 doi:10.3850/978-981-09-7519-7nbl16-rps-211.

CONFERENCES

INTERNATIONAL & NATIONAL CONFERENCES: **43**

Courses Taught

- CHEM201: General Chemistry
- ICA -104: Electro-analytical Methods of Analysis
- EC -103: Spectro-analytical Methods of Analysis
- ICA-304: Advanced Instrumental Methods of Chemical Analysis
- EC-302: Environmental Toxicology & Environmental Impact Assessment
- ICA -105: Practical-I
- EC-106: Practical-II
- CHEME2010: General Chemistry-I
- CHEME441: Analytical Chemistry-II
- CHEME442: Chemical Analysis Instrumental
- CHEM2102: General Chemistry-II

Major Instruments Handled

- For comparative study of Experimental and Theoretical data **Gaussian 03W** and **Gaussian 09W**, **VEDA-4**, **GaussSum** software's.
- FTIR, UV-Vis, Raman and XRD spectroscopic instruments.
- ¹HNMR (400 MHz) on JEOL-JMS-D300 and Mass spectrometer.

- DSC-TGA Instruments.

Research Grants

Received MANF JRF-SRF Research Grant from the UGC, MANF-2015-17-JAM-49814) New Delhi, India 2016.

Student Supervision

- Supervising undergraduate and Postgraduate students during their Practical Work at Centre of Research for Chemical Sciences, Govt Model Science College, Jiwaji University, Gwalior (2015-2017)

Teaching Experience

- Conducted theory classes of both undergraduate and Postgraduate student during session (2015-2016) & (2016-2017) at Centre of Research for Chemical Sciences, Govt Model Science College, Jiwaji University, Gwalior
- May 2014 to October 2014: Lecturer in Chemistry, Govt Higher Secondary school Khag Drung J&k India.

REFERENCES:

1. Professor D. Kumar (Ph.D. Supervisor)

Head: Dept of Chemistry

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2. Professor Kaman Singh

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3. Professor Anurag Srivastava

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4. Professor Ashu Rani

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Declaration

I hereby declare that all the information mentioned above is true to the best of my knowledge. I shall be responsible for any action, if any of the above statements are incorrect at any stage in future.

Date: 03-03-2020

Place: Gwalior, India

(Dr Rayees Ahmad Bhat)