Dr Shahnawaz Ahmad Bhat

Department of Chemistry Jamia Millia Islamia New Delhi – 110025, INDIA.
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OBJECTIVE

To work in a scientific environment, where I can learn and explore inorganic chemistry and nanomaterials

Education

Jamia Millia Islamia (Central University), New Delhi, India
Ph.D., Chemistry **(July 2020)**
Supervisor: Professor Nahid Nishat,
Dissertation: Synthesis, characterization and potential applications of metal/metal oxide nanoparticles and their polyvinyl alcohol/melamine-formaldehyde nanocomposites".

Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS), UP, India.
M.Phil. Chemistry **(August 2014)**
Supervisor: Professor Amit Chattree,
Dissertation: Computational study of flavonoids as anticancer agents

Barkatullah University MP, India.
M.Sc. Chemistry **(May 2012)**

Supervisor: Dr. Poonum,
Dissertation: extraction of soybean oil by different solvents

University of Kashmir, Srinagar, India.
BSc. *Chemical Science,* **(February 2008)**

Fellowships/Awards

1. NON NET Fellowship awarded by University Grants Commission for qualitative research 2015-2019.
2. Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS), UP, India awarded Gold medal for outstanding performances in M.Phil.

Field of specialization

Inorganic Chemistry and Material Chemistry

Research Expertise/Technical skills.

Chemistry of advanced materials, Nanocatalysis, Photo/electrocatalysis, water splitting, polymer blends, polymer nanocomposites, mechanical properties, dye degradation, biodegradation, anti-microbial activity, antioxidant activity, and electrical conductivity.

Synthetic Chemistry

- Development of Metal/metal oxide nanoparticles and nanocomposites by in-situ/Ex-situ methods.
- Green chemistry: Development of biogenic nanoparticles and their potential applications.
- Development of biodegradable polymer nanocomposites of polyvinyl alcohol- Melamine-formaldehyde composites and polyvinyl alcohol-Melamine-formaldehyde/Metal/metal oxide polymer nanocomposites.
- Waste water treatment by using nanoparticles and polymer nanocomposites.
- Photocatalytic degradation of carcinogenic dyes from aqueous solution by nanoparticles.
- Chemical stability, biodegradation, electrical conductivity and dye adsorption by polymer blends and polymer nanocomposites.
- Antibacterial activity by Broth and MIC method
- I have also collaboratively worked on Schiff base ligands and Coordination Polymer complexes.

Spectroscopy

- UV-Vis. Spectrophotometry
- FT-IR Spectrophotometry

Surface Morphology

- Scanning electron microscopy (SEM-EDX)
- Transmission electron microscopy (TEM)
- X-ray diffraction (XRD)
- Brunauer–Emmett–Teller (BET)

Titration

- Volumetric
- pH metric
- Conductometric

- Complexometric

Thermal analysis Techniques

- Thermogravimetric analysis (TGA)
- Differential scanning calorimetry (DSC)

IT and Chemoinformatics skills

Operating systems: Windows 98, 2010, MS Office tools, Origin software, Chem Draw, Chem sketch, ImageJ software, Hex Docking server, Molinspiration, Open Bable, PUBCHEM, PDB and Autodock.

Working Skills

Planning and execution of research work in laboratory.

Computation and interpretation of experimental data.

Preparation and editing of research material/manuscripts for publication in journals of international repute.

Help postgraduate students in their project works.

Teaching courses:

Inorganic Chemistry, Organic Chemistry and Material chemistry at undergraduate level.

List of publications

[1] **Shahnawaz.Ahmad. Bhat**, F. Zafar, A.H. Mondal, A.U. Mirza, Q.M. Rizwanul Haq, N. Nishat, Efficient removal of Congo red dye from aqueous solution by adsorbent films of polyvinyl alcohol/melamine-formaldehyde composite and bactericidal effects, ***J. Clean. Prod.*** (2020). **(IF 9.21)** doi:10.1016/j.jclepro.2020.120062.

[2] **Shahnawaz. Ahmad. Bhat**, F. Zafar, A. Ullah Mirza, A. Hossain Mondal, A. Kareem, Q. Mohd. Rizwanul Haq, N. Nishat, NiO nanoparticle doped-PVA-MF polymer nanocomposites: Preparation, Congo red dye adsorption and antibacterial activity, ***Arab. J. Chem.*** (2020).**(IF 5.16)** doi:10.1016/j.arabjc.2020.04.011.

[3] **Shahnawaz.Ahmad. Bhat**, A. Kareem, A. Mohammad, F. Zafar, N. Nishat, Development and electrical conductivity of PVA/MF-based nanocomposite doped with NiO nanoparticles, ***Ionics***. 25 (2019) 2183–2193.**(IF 2.82)** doi:10.1007/s11581-018-2661-9.

[4] **Shahnawaz.Ahmad. Bhat**, F. Zafar, A.H. Mondal, A. Kareem, A.U. Mirza, S. Khan, A. Mohammad, Q.M.R. Haq, N. Nishat, Photocatalytic degradation of carcinogenic Congo red dye in aqueous solution, antioxidant activity and bactericidal effect of NiO nanoparticles, ***J. Iran. Chem. Soc***. (2019). **(IF 2.02**) doi:10.1007/s13738-019-01767-3.

[5] A.U. Mirza, A. Kareem, S.A.A. Nami, M.S. Khan, S. Rehman, **Shahnawaz.Ahmad. Bhat,** A. Mohammad, N. Nishat, Biogenic synthesis of iron oxide nanoparticles using Agrewia optiva and

Prunus persica phyto species: Characterization, antibacterial and antioxidant activity, ***J. Photochem. Photobiol. B Biol***. (2018).**(IF 6.25)** doi:10.1016/j.jphotobiol.2018.06.009.

[6] A. Kareem, S.A.A. Nami, M.S. Khan, **Shahnawaz.Ahamd. Bhat**, A.U. Mirza, Laxmi, N. Nishat, Self-assembled transition metal dithiocarbamates of pyridine-3-carboxamide: synthesis, spectral characterization, thermal and biological studies, ***New J. Chem***. (2019). **(IF 3.59)** doi:10.1039/C8NJ03660H.

[7] A.U. Mirza, A. Kareem, S.A.A. Nami, **Shahnawaz.Ahmad. Bhat,** A. Mohammad, N. Nishat, Malus pumila and Juglen regia plant species mediated zinc oxide nanoparticles: Synthesis, spectral characterization, antioxidant and antibacterial studies, ***Microb. Pathog.*** (2019). **(IF 3.738**) doi:10.1016/j.micpath.2019.02.020.

[8] A.U. Mirza, M.S. Khan, S.A.A. Nami, A. Kareem, S. Rehman, **Shahnawaz.Ahmad. Bhat,** N. Nishat, Copper Oxide Nanomaterials Derived from Zanthoxylum armatum DC. and Berberis lycium Royle Plant Species: Characterization, Assessment of Free Radical Scavenging and Antibacterial Activity , ***Chem. Biodivers.*** (2019). **(IF 2)** doi:10.1002/cbdv.201900145.

[9] S.A. Khan, **Shahnawaz.Ahmad. Bhat**, S.A.A. Nami, A. Kareem, N. Nishat, Design and development of several polymeric metal–organic frameworks, spectral characterization, and their antimicrobial activity, ***Comptes Rendus Chim***. 21 (2018) 872–879.**(IF 2.82)** doi:10.1016/j.crci.2018.07.003.

[10] S.A. Khan, S.A.A. Nami, **Shahnawaz.Ahmad. Bhat**, A. Kareem, N. Nishat, Synthesis, characterization and antimicrobial study of polymeric transition metal complexes of Mn(II), Co(II), Ni(II), Cu(II) and Zn(II), ***Microb. Pathog.*** 110 (2017) 414–425.**(IF 3.738)** doi:10.1016/j.micpath.2017.07.008.

[11] A. Kareem, M.S. Khan, S.A.A. Nami, **Shahnawaz.Ahmad. Bhat**, A.U. Mirza, N. Nishat, Curcumin derived Schiff base ligand and their transition metal complexes: Synthesis, spectral characterization, catalytic potential and biological activity, ***J. Mol. Struct***. (2018).**(IF 3.19)** doi:10.1016/j.molstruc.2018.05.001.

[12] N. Nishat, **Shahnawaz.Ahmad. Bhat,** A. Kareem, S. Dhyani, A. Mohammad, A.U. Mirza, Synthesis, characterization and biological analysis of transition metal complexes with macro cyclic ligands derived from adipic acid, ethylenediamine with diethyloxalate and diethylmalonate, ***J. Incl. Phenom. Macrocycl. Chem.*** (2018). **(IF 1.63)** doi:10.1007/s10847-018-0849-2.

[13] Abdulrahman Mohammad, **Shahnawaz.Ahmad. Bhat,** A. Kareem, A.U. Mirza, Shahab A. A. Nami, Sumbul Rehman, N. Nishat, Enhanced performance of terpolymer resin derived from resorcinol/formaldehyde/salicylic acid for antibacterial application, ***Int J Ind Chem***. (2020) **(IF 4.24)**. https://doi.org/10.1007/s40090-020-00219-9

[14] NN Azar Ullah Mirza, Mohd Shoeb Khan, Abdul Kareem, Shahab A. A. Nami, **Shahnawaz A. Bhat**. Biomediated synthesis, characterization, and biological applications of nickel oxide nanoparticles derived from Toona ciliata, Ficus carica and Pinus roxburghii Bioprocess and Biosystems Engineering (2021) (**IF 3.21**).

[15] P Singh, AU Mirza, Shahnawaz Ahmad Bhat, A Kareem, N Nisha. Synthesis, Characterization and Evaluation of Thermal, Adsorption and Antioxidant Studies of Amino Functionalized Poly (methyl methacrylate)/Titanium dioxide Nanocomposites - Inorganic Chemistry Communications, 2021 (**IF 2.45)**

[16] **Shahnawaz. Ahmad**, A. Chattree, S. Dar, In Silico, Study of Flavonoids and their potential application as Anti-Cancer Agents, n.d. ***www.ijsr.n*.(IF 4.9)**

Articles /chapters published in peer reviewed books

1. **Shahnawaz Ahmad Bhat,** Fahmina Zafar, Azar Ullah Mirza, Abdulrahman Mohammad, Paramjit Singh and Nahid Nishat, Fabrication and Biomedical Applications of Polyvinyl-Alcohol Based Nanocomposites With Special Emphasis on the Anti-Bacterial Applications of Metal/Metal Oxide Polymer Nanocomposites, *Book Title editor & publisher Advanced Functional Textiles and Polymers: Fabrication, Processing and Applications"* **John Wiley-Scrivener USA Publications-2019.**

2. Azar Ullah Mirza, Abdul Kareem, **Shahnawaz Ahmad Bhat**, Fahmina Zafar, Nahid Nishat, **"**Fabrication and Biomedical Applications of Polyvinyl-Alcohol Based Nanocomposites with Special Emphasis on the Anti-Bacterial Applications of Metal/Metal Oxide Polymer Nanocomposites. *Book Title editor & publisher, Photo-catalysis: Perspective, Mechanism and Applications"* **by Nova Science, USA-2018, Chapter 9.**

Papers presented in international conferences, seminars, workshops, symposia:

1. Presented a poster entitled "Development and electrical conductivity of moisture resistant polymer blends doped with metal oxide nanoparticles" at International Conference on Advanced Materials Centre for Nanoscience and Nanotechnology March 6-7, ICAM – 2019, Jamia Millia Islamia, New Delhi

2. Presented a poster entitled "Development of polymer nanocomposites with first row transition metal oxides". "International conference on science and engineering of materials 7 January 2018, Sharda university International conference on science and engineering of materials (Poster presentation) January 2018, Engineering and technology Sharda university.

3. Presented a poster entitled "Development of polymer nanocomposites and their biological applications" in "ACS on Campus", February 5, 2018, organized by University of Delhi, New Delhi.

Students Mentored

January-June	2018	Jigyasa Pathak	MSc project

Review Activities (Journal).

Journal of Hazards materials, Journal of Applied Polymer, Science and Environmental Chemistry Letters

References

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