



Miranda House

UNIVERSITY OF DELHI

Name: Dr. NUTAN RANI

Department: Chemistry

Current Designation: Associate Professor

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Academic Qualifications: M.Sc Chemistry, B.Sc (H) Chemistry

Research Degree(s): Ph.D. Chemistry

Field of Specialization under the Subject/Discipline: Organic Chemistry

Total Teaching Experience: 16 Years

Teaching at Miranda House since: July 2008

List of Publications :

- Rani, N.; Rawat, K.; Saini, M.; Yadav, S.; Syeda, S.; Saini, K.; Shrivastava, A.; Comparative In Vitro Anticancer Study of Cisplatin Drug with Green Synthesized ZnO Nanoparticles on Cervical Squamous Carcinoma (SiHa) Cell Lines. ACS Omega 2023. <https://doi.org/10.1021/acsomega.2c08302>.
- Rani, N.; Rani, S.; Patel, H.; Bhavna, Yadav, S.; Saini, M.; Rawat, S.; Saini, K.; Characterization and investigation of antioxidant and antimicrobial activity of zinc oxide nanoparticles prepared using leaves extract of Nyctanthes arbor-tristis. Inorg. Chem. Commun. 2023, 150, 110516. <https://doi.org/10.1016/j.inoche.2023.110516>
- Rani, N.; Goswami, N.; Yadav, S.; Maity, D.; Patil, S.; Saini, K.; Biosynthesis of hydrophilic zinc oxide nanoparticles using *Plumeria obtusa* and *Tabernaemontana divaricata* flower extract for antidiabetic treatment. Chem. Pap. 2022. <https://doi.org/10.1007/s11696-022-02239-4>.
- Rani, N.; Rawat, K.; Saini, M.; Yadav, S.; Shrivastava, A.; Saini, K.; Maity, D.; Azadirachta indica leaf extract mediated biosynthesized rod-shaped zinc oxide nanoparticles for in vitro lung cancer treatment. Mater. Sci. Eng. B 2022, 284, 115851. <https://doi.org/10.1016/j.mseb.2022.115851>.



Miranda House

UNIVERSITY OF DELHI

- Saini, M.; Yadav, S.; Rani, N.; Mushtaq, A.; Rawat, S.; Saini, K.; Maity, D.; Biosynthesized zinc oxide nanoparticles using seed and bark extract of *Azadirachta indica* for antibacterial, photocatalytic and supercapacitor applications. Mater. Sci. Eng. B 2022, 282, 115789. <https://doi.org/10.1016/j.mseb.2022.115789>.
- Rani, N.; Rawat, K.; Shrivastava, A.; Ekta, Yadav, S.; Gupta, K.; Saini, K.; In Vitro study of green synthesized ZnO nanoparticles on human lung cancer cell lines. Mater. Today: Proc. 2022, 49, 1436-1442. <https://doi.org/10.1016/j.matpr.2021.07.203>.
- Yadav, S.; Rani, N.; Saini, K.; Green synthesis of ZnO and CuO NPs using *Ficus benghalensis* leaf extract and their comparative study for electrode materials for high performance supercapacitor application. Mater. Today: Proc. 2022, 49, 2124-2130. <https://doi.org/10.1016/j.matpr.2021.08.323>.
- Yadav, S.; Rani, N.; Saini, K.; Coupling ZnO with CuO for efficient organic pollutant removal. Environ. Sci. Pollut. Res. 2022. <https://doi.org/10.1007/s11356-022-24139-6>.
- Yadav, S.; Shakya, K.; Gupta, A.; Singh, D.; Chandran, A. R.; Aanappalli, A. V.; Goyal, K.; Rani, N.; Saini, K.; A review on degradation of organic dyes by using metal oxide semiconductors. Environ. Sci. Pollut. Res. 2022. <https://doi.org/10.1007/s11356-022-20818-6>.
- Yadav, S.; Rani, N.; Saini, K.; Synthesis and characterization of NiO/Cr₂O₃ nanocomposite with effective sunlight driven photocatalytic degradation of organic dyes. Environ. Sci. Pollut. Res. 2022. <https://doi.org/10.1007/s11356-022-22746-x>.
- Yadav, S.; Rani, N.; Saini, K.; A review on transition metal oxides based nanocomposites, their synthesis techniques, different morphologies and potential applications. IOP Conf. Ser.: Mater. Sci. Eng. 2022, 1225, 012004. doi:10.1088/1757-899X/1225/1/012004.

Research Guidance (reverse chronological order):

- Facilitator/Mentor at the summer workshop “Flavor of Research” for undergraduate science students organized by DS Kothari Centre for Research and Innovation in science education, Miranda House, University of Delhi, Delhi-110007.



Miranda House

UNIVERSITY OF DELHI

Research Projects:

- DU Innovation Project MH-
- Co-PI of the Project “Air Quality of Surrounded area affected by presence of pollutants in Nala Passing through Kingsway Camp behind Sri Guru Tegh Bahadur Khalsa College, University of Delhi”

Membership of Professional Bodies:

- Life Member of Indian Society of Analytical Scientists(regd.) LMT-5/2014

Administrative Responsibilities (reverse chronological order):

Invited talks/Session chair/Resource person (reverse chronological order):

Conferences Organised (reverse chronological order):

1. Advisory committee member of International Conference on Smart Consumption and Sustainable Living in association with Ministry of Environment, Forest and Climate Change on 24-25 August 2023.
2. Member of the Organizing Committee for the International Conference on “Recent Trends in Chemical Science-2023” held on 14-15 February 2023, organized by Department of Chemistry, Miranda House, University of Delhi.
3. Member of the Organizing Committee for the workshop “Computational Chemistry for Chemistry Educators” on 23-24 Nov 2011, organized by DSKC, Miranda House, and DBT Star College Project.
4. Member of the Organizing Committee for the Symposium “International Symposium: Green Chemistry and Sustainable Development” on 30-31 March 2012, organized by DSKC, Miranda House and Vigyan Prasar.
5. Member of Organizing Committee Nature at work: Studying Biomolecules” on 25 September 2013, organized by DSKC, Miranda House.



Miranda House

UNIVERSITY OF DELHI

Seminars/Workshops/Conferences attended (reverse chronological order):

1. Participated in National conference on Recent Trends in Chemistry and Nano-Biotechnology (RTCN-2022) organized by University of Delhi.
2. International Conference on Integrative Chemistry, Biology & Translational Medicine (ICBTM 2022) held on 6-8 December 2022.
3. Participated in the National Workshop on “Renewable Energy and Environment” held at Conference Centre, University of Delhi on 28-29 January 2011.
4. Participated in the Seminar on Microscopic Techniques held at India Habitat Centre, New Delhi on 26 June 2014.
5. Participated in the Ist International Conference on Emerging trends of Nanotechnology in Drug Discovery on 26-27 May 2014 at Sri Venkateswara College, University of Delhi.