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## NIDHI SINGH

M.Sc., Indian Institute of Technology-BHU

DOB: 14/03/1999 | Gender: Female

### Objective

Motivated to work and to learn, keen to explore new things. I strive to be the part of a system where I can implement my chemical knowledge that I have acquired so far with responsibility, diligence, thereby aiding in the success of the organization. Also, I want to enhance my working capacity and professional skills for the purpose of serving the organization in a pragmatic way.

### Academic Details

**M.Sc. | 2022 | Indian Institute Of Technology, BHU(Varanasi) | CPI: 9.58/10**

• Major: Chemistry

**B.Sc. | 2019 | University of Delhi, New Delhi | CGPA: 6.77/10**

• Major: Chemistry, Zoology and Botany

### Scholastic Achievements

➤ Secured **All India Rank-393** (among 16,687 candidates) in **IIT-Joint Admission Test (JAM)** in Chemistry['20]

### Courses & Certificates

**Online Skill Development & Training Program | CSIR-CERI, Karaikudi**

**[Jul'21]**

*Energy Materials: Fundamental to device Fabrication (ECPE)*

Gained insight of synthesis of different material, characterization techniques, modelling & simulation of materials and completed two hands on training project ( **Photocatalytic dye degradation and Hydrogen production**)

### Area of Interest

• **Bioinorganic, Electrochemistry, material chemistry**

### Research Experiences (Projects and Internship)

**MASTERS PROJECT:**

**[Jul'21-May'22]**

- **Supervisor:** Prof. P.C. Pandey, **Indian Institute of Technology BHU (Varanasi)**, Uttar Pradesh
- **Title:** Synthesis and characterization of functional Photo-Fenton catalyst by various methods and use them to treat dyestuff using inexpensive photodegradation approach

**Abstract:** Functional Prussian blue nanoparticles were synthesized and characterized using UV/Vis spectroscopy, XRD, TEM, and FTIR Techniques. Functional PBN/H<sub>2</sub>O<sub>2</sub> combination presented a very promising approach for complete RhB (Rhodamine B- an organic dye toxic for both flora and fauna) degradation in the acidic condition via N-de-ethylation under solar light irradiation. The as made PBN is explored as a catalyst for RhB degradation under Room Temperature/UV/solar light irradiation. Since, PBN itself is structurally interesting and typically absorbs red light of spectrum (635–590 nm) and underwent intervalence charge transfer transition, (+II) Fe-C→ N-Fe (+III), that defines the band gap of their iron cyanide framework. Consequently, it was found that solar light irradiation is the fastest and more

effective for complete removal (100% degradation) of dye using PBN. The kinetics of the degradation process is being assessed.

## INTERNSHIP PROJECT:

[June-October'21]

- **Supervisor:** Prof. Natesan Thirupathi, **University of Delhi**, New Delhi.
- **Title:** Organic Synthesis
- **Abstract:** Carried out summer research internship in Organometallic laboratory, Department of Chemistry, University of Delhi, during the period from June 2021 to October 2021 for 4 months. During the period of internship program, I was exposed to synthetic chemistry, various purification methods and characterisation techniques such as IR, NMR spectroscopies. I synthesised some known compounds which includes Thiourea (using green synthesis method), Carbodimide, symmetrical and unsymmetrical guanidine ligands and a few unknown compounds, isolated them using column chromatography, handled air sensitive reagents and also used Schlenk line which demonstrated my good synthetic skills.

## Technical Experiences

### LABORATORY SKILLS

- Nuclear magnetic resonance (NMR) spectroscopy, UV-Visible Spectroscopy, IR Spectroscopy, CHNSO, Transmission electron microscopy (TEM), Solvent extraction, Autoclave, Sonication
- Chromatography (Column Chromatography, TLC, GC)

### SOFTWARE SKILLS

- **Operating systems:** Windows
- **Softwares:** Chemdraw | Origin | Top Spin | Delta | PyMOL | MS-OFFICE

## Publications

### Review Article

- Title: "**Recent Advances on Rh(III)-based Anticancer Complexes**" (manuscript under preparation)  
Author: **Nidhi Singh**, Souvik Saha, Rajesh Khuswaha, Ashish Kumar, Ashish Yadav, Samya Banerjee.

## Virtual Workshop/ Training/Seminars

### International Online Summer Training Program

[Jul'21]

*Participated in International Online Summer Training Program conducted by the Graduate School of Science, Osaka University, Japan.*

- This 7- day program included the lectures of the professors of Osaka University.
- It covered topics such as Bioinorganic, LFT, Cell biology, etc and provided hands on training on the instrumentation of NMR spectroscopy and X-ray crystallography (Powder XRD, Single Crystal XRD).

## Positions of Responsibilities

### Content & Creative Head of Prayog Chemistry Club of IIT-BHU

[Nov'21-Present]

- Prayog- Chemistry club of IIT BHU, driven by young minds of the institute, collaboratively working not only for the benefit of chemistry students but for all those who are interested to evaluate different aspect of research.

## Extracurricular Activities

<b>Initiative</b>	<ul style="list-style-type: none"><li>• Started <b>Chemistry club of IIT BHU</b> in team work with other students of batch to guide the <b>['21]</b> Students who are interested in exploring different aspects of research by conducting events</li></ul>
<b>Volunteering</b>	<ul style="list-style-type: none"><li>• Volunteered in " 15th Run Against Drug Abuse &amp; Thematic Events" organised by a joint collaboration with " <b>Ministry of Social justice &amp; Child Development, Govt of India</b>", " National Institute of Social Defence (NISD)" , " <b>Narcotics control Burea (NCB)</b>" &amp; " Directorate of Prohibition, deptt. Of Women &amp; Child Development, Govt. of NCT of Delhi"</li><li>• Participated in <b>problem solving assessment</b> conducted by "<b>Central Board of secondary ['14] Education (CBSE)</b>"</li></ul>

	<ul style="list-style-type: none"> <li>Participated in a programme on Health related issue <b>“Meri Baat”</b> Telecasted on <b>Doordarshan</b> and conducted <b>by HRIDAY-SHAN</b> <b>[13]</b></li> </ul>
<b>Hobbies</b>	<ul style="list-style-type: none"> <li>Playing Badminton   Travelling   Cooking   Reading</li> </ul>

**Declaration-** I, NIDHI SINGH, hereby declare that the information contained herein is true and correct to the best of my knowledge and belief.