

KUMARI SONI

DOB: 5th December 1988

Sex: Female Nationality: Indian

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EDUCATION:

- ❖ 2013-till date, M.Sc. (Water Science), from University of Duisburg Essen, Germany.
- ❖ 2010-12, M.Sc. (Microbiology), Barkatullah University, Bhopal, M.P., India
- ❖ 2007-2010, B.Sc. (Biotechnology), Jiwaji University, Gwalior, MP, India.

RELEVANT SKILLS

- ❖ **Instrumentation:** Proficiency in use of equipment like LC-IRMS, EA-IRMS, UV-VIS Spectrophotometer, Innolas laser machine, analytical disk centrifuge, Zetasizer, Electrophoretic Unit.
- ❖ **Molecular biology Techniques :** Vector DNA isolation, Restriction, Genomic DNA Isolation, Agarose gel electrophoresis, Ligation, Preparation of Chemical Competent *E. Coli* Cells, Transformation, Verification of Positive Clones (Analysis of Plasmid DNA).
- ❖ **Environmental Microbiology Lab course:** Enrichment and Isolation of *Propionibacterium Sp.*, *Sulphate Reducing bacteria*, *Sulphur free phototropic bacteria*, *Clostridium Sp.* and *Bacillus subtilis*. Bacterial leaching ore, determination of ammonia, nitrite and nitrate, stipple test. Granulose staining, spore staining and flagellum staining.
- ❖ **Stable Isotope Lab course:** Stable Isotope analysis for Food Authenticity and Control of Sugars from different origin.
- ❖ **Technical engineering water Lab course:** Adsorption, coagulation and flocculation, deep bed filtration, carbon particle characterization.

RESEARCH EXPERIENCE:

- ❖ **Master thesis: Department of Civil and environmental engineering, University of Washington Seattle: Nitrogen Removal from Landfill Leachate by Anammox and NDAMO Archaea.**
Supervisor: Dr. Mari Karolina Winkler; Project Duration: March 2016 – till date
Feasibility of NDAMO/Anammox system will be determined at desired concentrated leachate [$>300\text{mg/L}$] and dilute LFG [$<45\%$] concentrations. The data will be used to develop the Anammox-NDAMO Membrane batch bioreactor. Process and performance of reactor will be analysed using various parameters.
- ❖ **Research practical course: Laser ablation of Nd-foil targets for nanoparticle generation in different solvents including basic characterization.**
Supervisor: Dr. Christoph Rehbock; Project Duration: 12TH January 2015 – 28th May 2015.
Generation of Neodymium nanoparticle (NdNP) using pulse Laser ablation in liquid and its basic characterisation using UV-VIS spectrophotometer, analytical disk centrifuge, Zeta potential, DLS, SEM, and TEM. Furthermore, attempt has been made to form alloy using neodymium and gold colloidal solution using post irradiation method by making SMS.
- ❖ **University of Duisburg Essen, Applied analytical chemistry practical course: Method Development for the analysis of the Transformation products during Glyphosate degradation;**
Supervisor: Wolbert, Jens-Benjamin; Project Duration: November 2014 – December 2014.
An investigation was made for the analysis of transformation product during glyphosate degradation using different parameters like pH range and different columns. It was observed that Primesep A column and pH 4.8 can be used to analyse the transformation product of glyphosate i.e. AMPA, glycine and sarcosine. Stability test was

done to determine the stability of sarcosine and glycine in the presence of MnO₂. Analysis of glyphosate and glufosinate herbicide with the same analytical method was done and we got the peak successfully at expected standard retention time.

❖ **Barkatullah University, Bhopal, India**

Isolation, characterization and comparison of methyl isocyanides (MIC) affected micro flora and normal micro-flora from water and soil of Bhopal gas affected area of MP.

Project Adviser: Dr. P.K. Bhattacharya; Project Duration: Jan 03 2012 - July 30, 2012

We isolated 8 different bacteria. Bacteria were identified on the basis of colony morphology, cell morphology and biochemical characteristics. Various microorganisms are present in MIC affected soil and water in affected site in UCIL site and they were found more resistance to antibiotics.

❖ **Department of Chemical Engineering, Indian Institute of Technology, Kanpur, India: Biological treatment of waste water with Horseradish Peroxidase enzyme.**

Project Adviser: Dr. P.K. Bhattacharya; Project Duration: Jan 03 2012 - July 30, 2012

Experimental investigations were made to study the influence using Oxido-reductase Enzyme. Temporal variation of reaction parameters are reported for different concentration of Hydrogen Peroxide, Enzyme and aromatic component. More than 90% of phenol removal achieved.

CONFERENCE, AWARD:

- ❖ Chemference-2012, (9th Dec to 11th Dec 2012): Presented my research work on topic “Biological Treatment of Waste Water containing Phenol and Aniline Components with Horseradish Peroxidase”.
- ❖ Awarded 3rd prize by Madhya Pradesh Council of Science and Technology coordinating IPR cell for poster presentation.

SCHOLARSHIPS

- ❖ Recipient of PROMOS Scholarship 2016 from DAAD.
- ❖ Recipient of Research project travel grant from Department of Chemistry, University of Duisburg-Essen.
- ❖ Recipient of Graduate Grant 2016 awarded by University of Duisburg-Essen.
- ❖ Awarded Fellowship by Department of Chemical Engineering, Indian Institute of Technology Kanpur to join the research group of Prof P. K Bhattacharya.

LEADERSHIP AND RESPONSIBILITIES

- ❖ Member, Event Management Group, Students Association of India, Germany

LANGUAGES:

- ❖ English, Hindi, German (Basic level), Assamese, Maithili (Native)

REFERENCES:

1. Dr. P.K. Bhattacharya, Professor, Chemical Engineering, I.I.T. Kanpur, India
2. Dr. Vinod Singh, Head, Microbiology Dept., Barkatullah University Bhopal, India
3. Dr. Martin Sulkowski, Applied analytical chemistry, University of Duisburg-Essen.