SHWETA HOYANI

Research Consultant

CONTACT

House no 881, 10th cross, 3rd Main
Mathikere, 560054
phone - 9113839923, 9964660646
shweta_hoyani@rediffmail.com

BACKGROUND

Dedicated researcher proficient in synthetic and analytical chemistry. Well-versed in patent analysis, claim drafting, prior art search. Patent holder for contributing novel research in space industry. Top-notch abilities in understanding complex reaction mechanisms. Motivated to learn, grow and excel in Research

WORK EXPERIENCE

1. AUGUST 2013- SEPTEMBER 2017
   INDIAN INSTITUTE OF SCIENCE, BANGALORE, KARNATAKA

   RESEARCH CONSULTANT

- Developed and synthesized energetic materials for space propulsion
- Developed novel synthetic route for energetic materials (HAN) and filed an **Indian Patent** (**granted in MAY 2019**) and **a PCT application**
- Optimization and scale up of the synthetic routes
- Impurity profiling and compatibility tests of the propellants
- Determined and interpreted physical and chemical characteristics of the propellant formulations using TGA-DTA, DSC, GC-MS, FTIR, Raman spectroscopy, bomb calorimeter
- Worked and proposed reaction mechanisms for propellant combustion using evolved gas analysis (TGA-FTIR-GCMS Hyphenated System)
- Developed the most versatile propellant formulations for space craft propulsion
- Designed and explored the use of homogenous and heterogenous catalyst for combustion of greener space propellants.
- Determined and interpreted physical and chemical characteristics of the metal loaded catalytic support using SEM, TEM, XRD and EDAX techniques
- Coached interns on best practices for conducting research work

- Developed methodologies to identify contaminants, including metal residues in propellants.
- Studied the impact of possible contaminants on the thermal stability of the propellant formulations.
- Recorded experiment parameters and results by writing papers for professional journals and presenting information at industry conferences
- Assisted with collecting, identifying and packaging hazardous and non-hazardous waste products
- Identified and solved process problems, resulting in more efficient and cost effective process
- Contributed to team discussions, new project initiatives and executions to advance progress of Aerospace department
- Improved quality processes for increased efficiency and effectiveness
- Developed standard operating procedures and document workflows for current and future process steps
- Organized research from start to finish by designing effective questionnaires.
- Leveraged highly effective communication and active listening skills to work effectively with scientists of diverse backgrounds and accomplish common research goals
- Took active role in departmental meetings, engaging with all parties and transcribing detailed notes of plans, decisions and options discussed

2. MAY 2012- DECEMBER 2012
APOTEX PHARMA CHEM PVT LTD, BANGALORE, KARNATAKA

RESEARCH ASSOCIATE

- Accomplished preparation of API under GMP conditions that met on time quality and quantity requirements
- Performed Scale up reactions, Stability reactions, Variation reactions
- Optimized process, conducted spiking experiments, Impurity profiling of process
- Interpreted HPLC, GCMS, NMR, LCMS, IR and Raman Spectroscopic data
- Worked on Retrosynthetic schemes

3. MARCH 2003- MARCH 2007
TROPHY COACHING CENTRE, BHILAI, CHATTISGARH

CHEMISTRY INSTRUCTOR

- Worked at own educational centre (Instructed +2 level chemistry and biology)
- Instructed BSc level Chemistry and Zoology

PUBLICATIONS

- Patent- 1st Inventor- Process for synthesis of solid Hydroxylammonium Nitrate. **PCT/IB20/054509, 2015**.
- Patent- 1st Inventor - Process for Synthesis of solid Hydroxylammonium nitrate - Indian patent application no 4469-CHE-2015, **GRANTED**.
- Research Paper- 1st Author- Thermal decomposition of Hydroxylammonium nitrate- Role of preparatory routes - Journal of thermal Analysis and Calorimetry, Springer 2017.
- Conference- 1st Author- Effect of nitric acid on thermal decomposition of hydroxylammonium nitrate - HEMCE 2016.
- Conference - 1st Author- Thermal decomposition of hydroxylammonium nitrate - IASPEP 2015.
- Research Paper- 1st Author- Influence of excess nitric acid and excess hydroxylamine on the product profile of HAN decomposition - An investigation based on TGA-Kinetics and Evolved Gas Analysis employing TGA-FTIR and GCMS. (Manuscript under submission).
- Research Paper- 1st Author- Influence of metal and non metal ions on the thermal decomposition of Hydroxylammonium nitrate (Manuscript under submission).

PROJECTS

- Development and Synthesis of Hydroxylammonium Nitrate (HAN) based monopropellants for Space propulsion . (Completed For Liquid propulsion Research Cell, ISRO at IISc Facility)
- Development of Heterogeneous and Homogenous Catalyst for HAN based monopropellants for space propulsion. (Completed For Liquid propulsion Research Cell, ISRO at IISc Facility)
- Synthesis and Development of API (Olmesartan medoxomil, Febuxostat, Fingolimod, Tolvaptan) - at Apotex Pharma Chem. Pvt Ltd
- Selective N-Monomethylation of primary aliphatic amines to secondary amines (Internship at Actavis Pharmaceuticals, Bangalore)

EDUCATION

Master Of Science :Organic Chemistry (2010-2012)
Christ University, Bangalore, Karnataka

Bachelor Of Science :Chemistry, Botany, Zoology (2007-2010)
Govt Girls College, Bhilai, Chhattisgarh

SKILLS

- Clear communicator of complex ideas
- In-depth subject Knowledge
- Equipment setup
- Document Review
- Strategic Planning
- Concept Development
- Conversant Researcher
- Hazard Analysis and Risk Control
- Social Media Knowledge

HOBBIES

- Making Fashion Illustrations (Founder and Creative Designer of Clothing Brand - GOWNGEOUS)
- Cooking Different Cuisines

LANGUAGE : English, Hindi

REFERENCES

1. Prof. Charlie Oommen
   Phone - +919480610833
   Email coommen@iisc.ac.in
   Department of Aerospace Engineering
   Indian Institute of Science , Bangalore

2. Dr. Radhika B
   Phone- +918147803776
   Email : radhikab@lpscb.gov.in
   Liquid Propulsion Systems Centre
   ISRO, Bangalore

3. Dr. Ruchika Agnihotri
   Phone:+918762901850
   Email : ruchikaagni@gmail.com
   Indian Institute of Science, Bangalore