



AKHIL KUMAR M M

ANALYTICAL CHEMIST

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PROFILE SUMMARY

Experienced **Analytical Chemist** with **6 years of proven expertise** in **analytical chemistry** and **4+ years in organic synthesis** and **method development**. Specializing in **chemical analysis**, **sample testing**, and **instrumental techniques** such as **FT-IR**, **NMR**, **UV-Vis**, **LC-MS**, and **GC-MS**. Skilled in **process validation**, **spectral data interpretation**, and **regulatory compliance**. Seeking to apply scientific and technical proficiency in **Chemical and Analytical laboratories**.

PROFESSIONAL EXPERIENCE

National Institute of Technology Karnataka, India

2023 - 2025

Post-Doctoral Fellow

- Conducted **qualitative and quantitative analysis** of organic samples using **UV-visible** and **fluorescence spectrophotometry**.
- Operated high-end instruments including **FT-IR**, **NMR**, **LC-MS**, and **GC-MS** for **chemical identification** and **purity determination**.
- Developed **analytical methods** for complex **natural and environmental samples**; applicable to hydrocarbon testing and petrochemical quality assurance.
- Executed **sample preparation**, **microanalysis**, and **trace detection** in aqueous matrices.
- Ensured adherence to **Good Laboratory Practices (GLP)** and performed **routine calibration** of equipment.
- Prepared technical reports of test results
- Assists with the maintenance of the lab equipment and reports malfunctions
- Enforced **chemical safety protocols** and maintained chemical inventories

Aragen Life Science, Bangalore, India

2022 - 2023

Associate Scientist

- Conducted **organic synthesis** and optimized **reaction pathways** to improve yield and process efficiency.
- Used **analytical instrumentation** for **compound characterization**, including **NMR**, **LC-MS**, and **IR spectroscopy**.
- Prepared **analytical reports** and **regulatory documentation** for client submission.

National Institute of Technology Tiruchirappalli, Tamil Nadu

2015 - 2022

Research Fellow (Ph.D. Researcher)

- Designed, synthesized, and characterized **photoactive heterocyclic compounds**, including **quinoline** and **benzimidazole** derivatives.
- Developed **sensor films** using immobilized indicators on polymer substrates for chemical sensing and monitoring.
- Applied advanced **spectral interpretation** techniques using **UV-Vis**, **fluorescence**, **FT-IR**, and **mass spectrometry**.

M/s Alivera Animal Health Limited, Visakhapatnam, India

2014 - 2015

Officer, Process Development Laboratory

- Conducted **process validation** and analyzed **critical parameters** in **scale-up synthesis** relevant to production environments.
- Engaged in **cost optimization** of chemical processes used in **bulk production**.
- Collaborated with production teams for **troubleshooting** during pilot and manufacturing stages

M/s MSN Organics Pvt.Ltd., Hyderabad, India

2012 - 2014

Executive, R&D Department

- Performed **multi-step organic reactions** for development of **API intermediates**.
- Handled **air-sensitive reagents**, **catalysts**, and **solvent purification systems** in a controlled lab environment.

INSTRUMENTATION EXPERIENCE

- **Spectroscopic Techniques:** FT-IR (Perkin Elmer Frontier), NMR (Bruker 500 MHz, ^1H / ^{13}C), UV-Vis (Jasco UV-670), Fluorimeter (HORIBA Fluoromax-4, Jasco FP-8500)
- **Chromatographic Techniques:** GC-MS, LC-MS (for component separation and quantitative analysis)
- **Elemental Analysis:** Atomic Absorption Spectroscopy (GBC-902 with Graphite Furnace)
- **Other Equipment:** Microwave Synthesis Reactor (Anton Paar Monowave), TCSPC (HORIBA Time-Correlated Single Photon Counting)

EDUCATION

Doctor of Philosophy (Ph.D.) in Chemistry | 2022 | CGPA 8.5 |

National Institute of Technology Tiruchirappalli, India

Thesis: Design and development of chitosan-functionalized 8-hydroxyquinoline-based thin films for fluorescence sensor application

Master of Science (M.Sc.) in Organic Chemistry | 2011 | CGPA 7.8|

Bharathidasan University, Tiruchirappalli, India |

Project: Scalable synthesis of biologically active heterocycles (benzothiazole, oxindole derivatives)

SUPERVISING SKILLS

- Supervised undergraduate (B.Tech) practical sessions in **Analytical Chemistry** (2023–2024)
 - Guided M.Sc. students on **instrumental analysis projects** (2017–2020)
 - Delivered foundation courses for **NEET Chemistry preparation** (2017–2019)
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RECENT PUBLICATION

- Rational design of an acid-sensitive fluorophore from an 8-hydroxy quinoline derivative exhibiting proton-activated charge transfer characteristics (2025), **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 339, 126286 (DOI: 10.1016/j.saa.2025.126286)
 - Rational design of an isatin-based colorimetric and solvatochromic receptor for carbonate ions and its application in molecular-scale logic gates & memory units (2024), **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 326, 125273 (DOI: 10.1016/j.saa.2024.125273)
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PERSONAL DETAILS

- **Date of Birth:** 16 Feb 1989
 - **Nationality:** Indian
 - **Current Address:** Ezdan Village 23, Al Wakra, Qatar
 - **Permanent Address:** Pappinisseripoyil, Panangatour, Kannur, Kerala, India – 670142
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REFERENCES

- Available upon request