

Name; Dr. K. Karthik Kumar

Designation : Assistant Professor

Department : Chemistry

Date of Joining : 25th November 2013

Email : karthikkumar.chem.ac@gmail.com



Educational Qualification:

Degree	Subject	College / University & Place	Year Completed
B. Sc	Chemistry	Madura College, Madurai	2001
M. Sc	Chemistry	The American College, Madurai	2004
Ph.D	Organic Chemistry	University of Madras, Guindy campus, Chennai	2012

Specialisation in Teaching:

- Organic Chemistry
- Physical Chemistry

Specialisation in Research:

- Synthetic Organic Chemistry
- Material Chemistry
- Nano Chemistry

Research Interests:

- Developing novel one-pot methodologies for existing drugs.
- Introducing pro-drugs of decreased toxicity and improved therapeutic index
- Creating chemically modified nucleic acid aptamer with sufficient binding affinity and rapid excretion.
- Designing anti-viral drugs for specific intra-viral interactions.

ORCID: 0000-0002-2444-7734

PH.D SCHOLARS GUIDED:

Awarded:

S. Karthikeyan (F9966) full time scholar - registered in Madurai Kamaraj University.

Ongoing:

P. Pandi Sudha (F10136)- full time scholar - registered in Madurai Kamaraj University

R. Sobana (F10271))- full time scholar - registered in Madurai Kamaraj University.

RESEARCH & QUANTITATIVE SKILLS:

Research Skills in Chemistry:

- Experienced in handling micro gram reactions.
- Skilled in using highly reactive reagents and catalysts.
- Trained in handling low temperature reactions.
- Proficient in handling flash chromatography.
- Proven efficiency in sampling techniques.
- Enhanced communication and writing skills of reports.
- Documentation of lab reports – synthetic and analytical data
- Sharing knowledge, & working together as a team.
- Proven ability in collaborating with interdisciplinary teams and communicating complex analytical concepts to diverse audiences.

Research skills in biology:

- Performed basic molecule biology techniques – gene amplification technique.
- Exposed to DNA extraction protocol.
- Executed polymerase chain reaction – PCR for gene amplification
- Handled PCR product visualization technique

Instrumentation skills in Mass spectrometry:

- Proficient in the operation and maintenance of mass spectrometry instrumentation with a focus of GC-MS, MALDI and QTRAP techniques.
- Strong command of sample preparation, data acquisition and analysis using mass spectrometry techniques.
- Demonstrated expertise in troubleshooting and optimizing mass spectrometer performance to ensure accurate and reliable results.

- Experience extends across various mass spectrometry applications, including proteomics, metabolomics and environmental skills.
- Strong analytical and problem solving skills coupled with a keen attention to detail, precise and reproducible measurements.

HANDS-ON EXPERIENCE:

- NMR – 300MHz spectrometer
- UV-Vis spectrometer, Fluorescence spectrometer, and IR-spectrometer
- ESI, QTRAP & MALDI-TOF mass spectrometers

FUNDED PROJECTS:

Implemented two major projects from the Department of science and technology (DST), India under the Science and Engineering Research Board (SERB) scheme.

Accomplished the aim and scope of the projects

- YSS/2014/000358 /2015-18/ DST-SERB – 25 lakh INR
- EEQ/2017/000072 /2018-21/ DST-SERB – 27 lakh INR

Any Other Work Experience:

Designation	Institution / Company	Year - From (month/year) To (month/year)
Trainee Scientist, L1	Jubilant Biosys, Bangalore	Feb 2005- Feb 2006
Post Doc	Indian Institute of Technology Madras	Feb 2012 – Oct 2013

Research Experience : 14 Years

Designation	Institution / Company	Year
ASSISTANT PROFESSOR	THE AMERICAN COLLEGE, MADURAI	2013 - 2026
POST DOCTORAL FELLOW	INDIAN INSTITUTE OF TECHNOLOGY, MADRAS	2012-2013
UGC - SENIOR RESEARCH FELLOW	DEPARTMENT OF ORGANIC CHEMISTRY, UNIVERSITY OF MADRAS, GUINDY CAMPUS, CHENNAI	2011-2012
UGC – MERITORIOUS FELLOW		2010-2011
UGC - JUNIOR RESEARCH FELLOW		2005 - 2008

Orientation / Refresher / Other Courses attended

1. Name of the course	Academic Staff College University	Duration in Days	From – To (mention date here)
ORIENTATION PROGRAMME	UGC-HUMAN RESOURCE DEVELOPMENT CENTRE, MADURAI KAMARAJ UNIVERSITY	28	03/03/2015 to 30/03/2015
REFRESHER COURSE IN CHEMISTRY	UGC-HUMAN RESOURCE DEVELOPMENT CENTRE, MADURAI KAMARAJ UNIVERSITY	21	11/11/2016 to 22/11/2016
REFRESHER COURSE IN CHEMISTRY	TEACHING LEARNING CENTRE, RAMANUJAN COLLEGE. UNIVERSITY OF DELHI.	14	09/11/2022 to 13/12/2022
INTERDISCIPLINARY REFRESHER COURSE IN CHEMISTRY	TEACHING LEARNING CENTRE, RAMANUJAN COLLEGE. UNIVERSITY OF DELHI.	14	01/01/2023 to 06/02/2023
REFRESHER COURSE ON ADVANCED FUNCTIONAL MATERIALS FOR ENERGY AND HEALTH CARE APPLICATIONS	MALAVIYA MISSION TEACHER PROGRAMME- UGC, COIMBATORE INSTITUTE OF TECHNOLOGY (CIT), COIMBATORE	12	02/02/2026 to 14/02/2026

Administrative Responsibilities:

- Selection committee member in earn while learn programme (2017-2023)
- Selection committee member of the Lunch Assistance Program (2017-2025)
- Member of the department of applied Science-Special Centre (2023-2025)
- Project Coordinator in Library & Information Services Program (LISP) (2023-2025)
- UGC committee member

SELECTED PUBLICATIONS:

- “Novel saccharide-pyridine based gelators: selective gelation and diversity in superstructures” **K. Karthik Kumar**, M. Elango, V. Subramanian, T. Mohan Das, *New J. Chem.*, **2009**, 33, 1570-1577.
- “Expedient synthesis of coumarin coupled triazoles via click chemistry” leading to the formation of coumarin-triazole-sugar hybrids” **K. Karthik Kumar**, R. Mahesh Kumar, V. Subramanian, T. Mohan Das, *Carbohydr. Res.*, **2010**, 345, 2297-2304.
- “Synthesis of quinoline-based glycoconjugates: a facile one-pot three component reaction” **K. Karthik Kumar**, T. Mohan Das, *Carbohydr. Res.*, **2011**, 346, 728-732.
- “Influence of steric and electronic effects in designing N-glycosylation reactions” **K. Karthik Kumar**, M. Elango, V. Subramanian, T. Mohan Das, *Trends in Carbohydr. Res.*, **2011**, 3, 21-26.
- “Synthesis of quinoline coupled [1,2,3]-triazoles as a promising class of anti- tuberculosis agents” **K. Karthik Kumar**, S. Prabu Seenivasan, Vanaja Kumar, T. Mohan Das, *Carbohydr. Res.*, **2011**, 346, 2084-2090. (Ranking 14 & 8 among the hottest 25 articles, for the period Jul to Sep 2011 Oct to Dec 2011 respectively)
- “Spectroscopic investigation of hydrogen bonding interaction in di-O-isopropylidene derivatives of monosaccharides” R. Rajaganesh, **K. Karthik Kumar**, T. Mohan Das, Chebrolu P. Rao, *Trends in Carbohydr. Res.*, **2011**, 3, 57-63
- “A novel and facile methodology for synthesis of Coumarin coupled Benzimidazole-2- thione compounds” K.R. Subimol, S. A. Antony, **K. Karthik Kumar**, *Phosphorous, Sulfur and Silicon and the related Elements* **2015**, 190, 494.
- “Graphene oxide & reduced graphene oxide polysulfone nanocomposite pellets: An alternative adsorbent of antibiotic pollutant-ciprofloxacin” S. Indherjith, S. Karthikeyan, J. Helen Ratna Monica, **Karthik Kumar K** *Separation Science and technology*, **2019**, 54, 667- 674. doi.org/10.1080/01496395.2018.1518986
- “Azidophosphonium salt-directed chemoselective synthesis of (E)/(Z)-cinnamyl-1Htriazoles and regiospecific access to bromomethylcoumarins from Morita–Baylis–Hillman adducts” *Beilstein J. Org. Chem.* **2020**, 16, 1579–1587.

- “Facile and innovative catalytic protocol for intramolecular Friedel–Crafts cyclization of Morita–Baylis–Hillman adducts: Synergistic combination of chiral(salen)chromium(III)/BF₃·OEt₂ catalysis” *Beilstein J. Org. Chem.* **2021**, *17*, 2186- 2193.
- “R-BINOL-Chiral Phosphoric Acid Catalyzed Regioselective Synthesis of 7-Oxo-Pyrazolo[1,2-a]Pyrazoles via [3+2] Cycloaddition Reaction of Morita Baylis Hillman Adducts with *N*, *N'*-Cyclic Azomethine Imines” in *ChemistrySelect*, **2024**, *8*, e202401736. <https://doi.org/10.1002/slct.202401736>

CONFERENCE PRESENTATIONS & DOCTORAL MEMBER:

- “10th CRSI National Symposium in Chemistry”, on 1-3 February, 2008, Indian Institute of Chemistry (IISc), Bangalore, India
- “International Indo-US Conference on Self Assembled Fibrillar Gels”, on 5-8th January 2011, Mascot Hotel, Trivandrum, India.
- “National Seminar on Nanostructured Materials and Applications (NSNMA-2011)”, titled “Novel saccharide-pyridine based gelators: selective gelation and diversity in superstructures” on 4-5th March 2011, School of Chemistry, Madurai Kamaraj University, Madurai, India (Obtained best oral presentation award)
- “Recent trends in Materials Chemistry” on March 7 & 8th 2014, Barathidasan Institute of Technology, Anna University, Thiruchirappalli.
- Royal Society of Chemistry sponsored “International conference on emerging trends in catalysis” on Jan 6-8th 2020, Vellore Institute of Technology, Vellore, India.
- Participated at the NAAC sponsored National Conference on “Strategies of quality Initiatives, Enhancement and Sustenance in Higher Education: organized by IQAC, The American College, Madurai.
- Participated and Showcased “Portable and cost effective water purifier” at the Innovation Festival District Science Centre, Tirunelveli from 25th to 27th February 2017.
- Participated at the International Conference on Frontier Areas in Chemistry (ICFAC-2018) held on 17th to 19th July 2018 a PG and research department of Chemistry, The American College, Madurai.
- Served as an evaluator at the UGC sponsored International Conference on Expanding Frontiers in Chemistry (EFC-19) organized by the PG Department of Chemistry, Arul Anandar College

on 13th September 2019.

- Delivered a talk in the American College-Chemistry Webinar Series on title “Searching the key for diagnosing and controlling SARS” on 05/06/2020..
- Served as a judge at the Science Expo-2020 organised by the E.M. Gopalakrishna Kone Yadava Womens College on 20th February 2020.
- Participated in two days “In-Service Teacher Training” Programme in Physical Sciences held at Sri Meenakshi Govt. Arts College for Women, Madurai-625002 on 05th and 06th May 2022.
- Served as a Mentor in the Young Student Scientist Programme (YSSP) catalysed and supported by Tamil Nadu State Council for Science & Technology and conducted at The American College, Madurai during May 20 to June 3, 2022.
- Served as a reviewer for the Minor Research Project under VVVC-MRP 2022 scheme at the V.V.Vanniaperumal College for women, Virudhunagar on 26.05.2022
- Served as Mentor at the “Chromatographic techniques and spectrophotometric analysis” under DBT-STAR College Scheme 2022 held on 11th July 2022 at the Post Graduate Research Department of Chemistry, Vivekananda College, Madurai..
- Delivered an online invited lecture at the Department of Chemistry, Central University of Tamil Nadu, Thiruvavur on 07/04/2022.
- External examiner for Ph.D Pre Viva-Voce of candidate Ms.C. Sharmila(F10228) on 12th August 2022 at the Thiyagarajar College, Madurai.
- Resource person for a two days In-house workshop on Skill development in Analytical Techniques (SDAT-2023) on Friday 2nd and 3rd of 2023 at The American College, Madurai.
- Served as external examiner for the Project Viva-voce on 12th April 2023 at the Fatima College, Madurai.
- Served as jury for the oral presentation in the International Conference on Expanding Frontiers in Chemistry-EFC 23 on 16th February 2023 organized by the Arul Anandar College, Madurai.
- Served as external expert for Ph.D Doctoral committee of candidate Mr. S. Raju on 20th January 2023 at the Pasteur Institute of India, Coonoor, Nilgiris.
- Served as organizing member in the “International Conference on Advances in Chemistry (ICAC-2023)” on 04 & 05 December 2023 organized by PG and research department of chemistry, The American College.
- Served as organizing member in the “International Conference on Advances in Chemistry

(ICAC-2023)” on 04 & 05 December 2023 organized by PG and research department of chemistry, The American College.

- Served as an observer for conducting NEET 2025 at the Lady Doak College on 04.05.2025.
- Delivered a talk at the International conference on Recent Advancements in chemical sciences and Intellectual Property rights at APC Mahalaxmi College, Tuticorin on 14. 08. 2025.