

CURRICULUM VITAE



Arulraj Ramalingam

PROFESSIONAL SUMMARY

A versatile research professional holds on extensive experience in R&D synthesis and analysis. This broad set of synthetic and analytical skills would benefit any organization's proven history of collaboration with cross-functional teams to archive continuous improvement and reach objectives.

Extensive experience in many areas of research that utilize an organic synthesis, spectral characterizations, XRD single crystal measurements, analytical method development in HPLC, GC, GC-MS, LC-MS, computational studies and in-vitro skills. Proven ability to manage challenging research schedules while working in complex and high-demanding environments to perform well both individually and in a team context.

PROFESSIONAL SKILLS

- Professional in the synthesis, purification, and characterization of novel heterocyclic compounds and their derivatives in organic chemistry.
- Well-versed in structural analysis techniques such as single-crystal XRD, DFT, Molecular Docking, and ADMET computational investigations.
- Proven experience with HPLC-MS, GC-MS, FT-IR, FT-Raman, UV-Vis, ICP-MS, and NMR equipment.
- Experienced in analytical method validation, process & cleaning validations and tech transfer.
- Excellent knowledge in cGMP, HSA, US-FDA and ISO regulations and PIC/S, EHSS guidelines.
- Well, knowledge has in equipment qualification like IQ, OQ, PQ, PM, and calibrations.
- Outstanding organizational, multitasking, and problem-solving abilities.
- Excellent communication skills with a focus on team building.

EDUCATIONAL PROFILE

Doctor of Philosophy

Title of qualification awarded : **Ph.D. in Chemistry (Specialization in Organic Chemistry)**
Year of degree awarded : **2018 (January 2014 - June 2018)**
Title of the Ph.D. Thesis : **Synthesis, spectral, crystal, theoretical and biological studies of Some 3-chloro-3-methyl-r(2),c(6)-diarylpiperidin-4-ones and their picrates.**
Name of organization : **Bharathiar University, Coimbatore, Tamil Nadu, INDIA.**
Supervisor : **Dr. S. Sivakumar, Associate Professor.**

Master of Philosophy

Title of qualification awarded : **M.Phil. in Chemistry (Specialization in Organic Chemistry)**
Year of degree awarded : **2008 (June 2007 - August 2008)**
Title of the Dissertation : **Synthesis and characterization of bioactive arenes.**
Name of organization : **Madurai Kamaraj University, Madurai, Tamil Nadu, INDIA.**
Supervisor : **Dr. R. Joel Karunakaran, Professor and Head**

Post-Graduate

Title of qualification awarded : **Master of Science, M.Sc., (Chemistry)**
Year of degree awarded : **2004 (June 2002 - April 2004)**
Principle subjects : **Organic chemistry, Inorganic chemistry, Physical chemistry, Analytical chemistry.**
Name of organization : **Madurai Kamaraj University, Madurai, Tamil Nadu, INDIA.**

Under-Graduate

Title of qualification awarded : **Bachelor of Science, B.Sc., (Chemistry)**
Year of degree awarded : **2000 (June 1997 - October 2000)**
Principle subjects : **Organic chemistry, Inorganic chemistry, Physical chemistry, Analytical chemistry.**
Name of organization : **University of Madras, Chennai, Tamil Nadu, INDIA.**

PROFESSIONAL EXPERIENCE

Research Fellow

April 2019 – September 2021

National University of Singapore, SINGAPORE

Responsible for managing projects to ensure the project was completed on time to our industrial and government collaborators without any delay.

- Saved 15% cost of the overall project accounts by processing cost control strategy.
- Performed for increasing scientific data collection by 50% during the year 2019-2020.
- Promptly respond to collaborator's inquiries to avoid project delay.

Assistant Quality Manager**January 2011 - December 2016****Teva Pharmaceuticals, SINGAPORE**

Effective implementation of quality management system policies into the quality and microbiological departments succeeded in cGMP, USFDA, and HSA audits.

- Saved 30% of the budget cost in the quality department by implementing the cost control method.
- Managed Regulatory Compliance Programs for the pre-market and post-market approval.
- Developed and validated the data integrity system in LIMS, SAP software as per the current regulatory guidance.
- Trained efficiently 12 new employees and verified their performance level to achieve their personal goal and the departmental goal.
- Conducted quality audits for imported finished goods as per the commercial quality standards.
- Efficiently achieved the technology transfer and method transfer for 140 pharmaceutical medicinal products from Teva Singapore site to Teva Jakarta site.

Quality Control Chemist**March 2010 - January 2011****Finest Gold & Silver Refinery Private Limited, SINGAPORE**

New analytical methods developed and validated on the Atomic Absorption Spectrometer for essential elemental content analysis to save the analysis time and cost.

- Well maintained the analytical instruments to save the yearly service cost 30%.
- Ensured the audit documents and records for ISO audit and customer audits to get the new project.
- Efficiently arranged the lab analyst for the quality control work according to the production schedule.

Quality Control Executive**June 2009 - November 2009****Baxter India Private Limited, INDIA**

New analytical methods developed in GC/HPLC to analyze the pharmaceutical raw materials and finished products to regular quality control analysis for 20% yearly cost saving.

- Conducted the new periodical in-process quality checks to increase the product standards.
- Conducted the regular internal audit to ensure the quality documents for ISO, cGMP, and customer audits passed without any nonconformance.
- Effectively analyzed and maintained stability samples and their records for new product registration.

Quality Control Officer**May 2004 - June 2009****Amrutanjan Health Care Private Limited, INDIA**

Worked as a quality department representative to get ISO 9001 certification without any major observation and non-conformances.

- Analysis of the various pharmaceutical raw materials, in-process samples, and finished products.
- Prepared and revised the SOP, STP and EHS policies for the quality control department.
- Well reported the internal audit and inter-departmental audit checks to certification bodies to get ISO and cGMP audit certifications.

AWARDS

- **International Best Researcher Award - Chemistry:** 2022 – 4th June, IISN International Research Awards 2022, Tiruchirappalli, India.
- **Best Oral Presentation Award:** 2018 – February 23 & 24, NCRAM-2018, National Conference on Recent Advanced Materials, Thiruvalluvar University college of Arts & Science, Thennangur, Vandavasi-604408, Tamil Nadu, India.
- **Best Poster Presentation Award:** 2016 - December 8 – 9, ICNMR-2016, International Conference on Nanomaterial's and Molecular Research, St. Joseph's College of Arts & Science (Autonomous), Cuddalore, Tamil Nadu, India.
- **Baxi Award:** Recognized award received for implemented the 6S policy in the laboratory, October 2009, Baxter (India) Pvt. Ltd., Alathur, India.

PATENT FILED

Patent Application No.: 10202003160V

Inventors: **Arulraj Ramalingam**, Nurulhuda Mustafa, Wee Joo Chng

Title: Compounds, salts and their use in therapy thereof

[Highly functionalized 3-chloro-3-methyl-2,6-diarylpiperidin-4-ones and picrates for the anti-cancer treatment against blood malignancies.]

RESEARCH PUBLICATIONS

1. **R. Arulraj***, K. Murugavel, S. Sivakumar, M. Mouna, E.O. Oluwatoba, S. Amirthaganesan, I. Nouredine, D.O. Nathanael, "Synthesis, spectroscopic, topological, Hirshfeld surface analysis, and anti-COVID-19 molecular docking investigation of Isopropyl 1-benzoyl-4-(benzoyloxy)-2,6-diphenyl-1,2,5,6-tetrahydropyridine-3-carboxylate", *Heliyon*, 8(10), e10831, October 2022. (doi: <https://doi.org/10.1016/j.heliyon.2022.e10831>).
2. **Arulraj Ramalingam***, Nurulhuda Mustafa, Wee Joo Chng, Mouna Medimagh, Sivakumar Sambandam, Nouredine Issaoui, "3-Chloro-3-Methyl-2,6-Diarylpiperidin-4-Ones as Anti-cancer Agents: Synthesis, Biological Evaluation, Molecular Docking, and In Silico ADMET Prediction" *Biomolecules*, 12(8), 1093, August 2022. (<https://doi.org/10.3390/biom12081093>)
3. **Arulraj Ramalingam***, Ahlam Roufieda Guerroudj, Sivakumar Sambandam, Anitha Kumar, Rajkumar Krishnamoorthy, Nourdine Boukabcha, Abdelkader Chouaih, Elayaperumal Manikandan, Synthesis, vibrational spectra, Hirshfeld surface analysis, DFT calculations, and in silico ADMET study of 3-(2-chloroethyl)-2,6-bis(4-fluorophenyl)piperidin-4-one: A potent anti-Alzheimer agent, *J. Molecular Structure*, 1269, 133845, August 2022. (<https://doi.org/10.1016/j.molstruc.2022.133845>)

4. **Arulraj Ramalingam***, Sivakumar Sambandam, Mouna Medimagh, Omar Al-Dossary, Nouredine Issaoui, Marek. J. Wojcik, "Study of a new piperidone as an anti-Alzheimer agent: Molecular docking, electronic and intermolecular interaction investigations by DFT method", *Journal of King Saud University – Science*, 33(8), 101632, December 2021. (<https://doi.org/10.1016/j.jksus.2021.101632>)
5. **R. Arulraj***, Hirshfeld surface analysis, Interaction energy calculation and spectroscopical study of 3-chloro-3-methyl-r(2),c(6)-bis(p-tolyl)piperidin-4-one using DFT approaches" *J. Molecular Structure*, 1248, 131483, January 2022. (<https://doi.org/10.1016/j.molstruc.2021.131483>)
6. **Arulraj Ramalingam***, Synthesis and crystallization procedure of piperidin-4-one and its derivatives: An update", *Chem Rev Lett*, 4, 192-199, June 2021. (doi: 10.22034/CRL.2021.278234.1105)
7. **Arulraj Ramalingam***, Sevgi Kansız, Necmi Dege, Sivakumar Sambandam, Synthesis, Crystal Structure, DFT Calculations and Hirshfeld Surface Analysis of 3-Chloro-2,6-Bis(4-Chlorophenyl)-3-Methylpiperidin-4-One, *J Chem Crystallogr*, 51(2), 273-287, August 2020. (<https://doi.org/10.1007/s10870-020-00852-3>)
8. **R. Arulraj***, S. Sivakumar, S. Suresh, K. Anitha, Synthesis, Vibrational spectra, DFT calculations, Hirshfeld surface analysis and Molecular docking study of 3-chloro-3-methyl-2,6-diphenylpiperidin-4-one, *Spectrochim. Acta A.*, 232, 118166, May 2020. (<https://doi.org/10.1016/j.saa.2020.118166>)
9. **R. Arulraj**, S. Sivakumar*, K. Rajkumar, Jerry P. Jasinski,* Manpreet Kaur, and A. Thiruvalluvar, Synthesis, Crystal Structure, DFT Calculations and Hirshfeld Surface Analysis of 3-chloro-3-methyl-r(2),c(6)-bis(p-methoxyphenyl)piperidin-4-one, *J Chem Crystallogr*, 50, 41–51, March 2020. (<https://doi.org/10.1007/s10870-018-0759-6>)
10. **R. Arulraj**, S. Sivakumar*, Manpreet Kaur, A. Thiruvalluvar and Jerry P. Jasinski, Crystal structures of three 3-chloro-3-methyl-2,6-diarylpiperidin-4-ones, *Acta. Cryst. E. (Res. communications)*, E73, 107–111, February 2017. (<https://doi.org/10.1107/S2056989016020661>)
11. **R. Arulraj**, S. Sivakumar*, A. Thiruvalluvar and A. Manimekalai, Crystal Structure of "t-3-Benzyl-r-2,c-6-diphenylpiperidin-4-one oxime", *IUCrData*, 1, x161982, December 2016. (<https://doi.org/10.1107/S2414314616019829>)
12. **R. Arulraj**, S. Sivakumar*, A. Thiruvalluvar and A. Manimekalai, X-Ray Crystal Structure, Molecular Structure, Spectral And Antimicrobial Activity of t-(3)-Benzyl-r-(2),c-(6)-diphenylpiperidin-4-one, *Chem. Sci. Rev. Lett.*, 5(18), 99-105, June 2016. (http://chesci.com/wp-content/uploads/2017/01/V5i18_12_CSN302047041.pdf)

13. **R. Arulraj**, S. Sivakumar, A. Thiruvalluvar, Manpreet Kaur and Jerry P. Jasinski*, “3-chloro-r-2,c-6-bis(4-fluorophenyl)-3-methylpiperidin-4-one”, *IUCrData*, 1, x161580, October 2016. (<https://doi.org/10.1107/S2414314616015807>)
14. **R. Arulraj**, S. Sivakumar*, A. Thiruvalluvar and A. Manimekalai, “t-3-Benzyl-r-2,c-6-diphenylpiperidin-4-one”, *IUCrData*, 1, x160188, February 2016. (<https://doi.org/10.1107/S2414314616001887>)
15. **R. Arulraj**, S. Sivakumar*, K. Rajkumar, A. Manimekalai and A. Thiruvalluvar, X-ray crystal structure, molecular structure, spectral and antimicrobial activity of t-(3)-benzyl-r-(2),c-(6)-diphenylpiperidin-4-one-oxime, *St. Joseph's Journal of Humanities and Science*, 4(1), 76-81, January 2017.
16. Ramkumar Subramaniyan, Rajalakshmi Ramarajan, **Arulraj Ramalingam***, Sivakumar Sambandam, Amalraj Petersamy, Ahlam Roufieda Guerroudj, Nourdine Boukabcha, Abdelkader Chouaih, “Microwave assisted synthesis, vibrational spectra, Hirshfeld surface and interaction energy, topology, and in silico ADMET studies of 1,2-bis(4-methoxybenzylidene)hydrazine: A potent anti-tumour agent”, *J. Molecular Structure* (Under revision).
17. K. Anitha, S. Sivakumar*, **R. Arulraj***, K. Rajkumar, and Oluwatoba Emmanuel Oyenyin, “Synthesis, molecular docking of 3-(2-chloroethyl)-2,6-diphenylpiperidin-4-one: : Hirshfeld surface, spectroscopic and DFT based analyses”, *J. Molecular Structure*, 1262, 132993, August 2022. (<https://doi.org/10.1016/j.molstruc.2022.132993>)
18. A. Dhandapani, S. Veeramanikandan, R.S. Kumar, A.I. Almansour, N. Arumugam, S. Subashchandrabose, J. Suresh, **R. Arulraj**, D. Gajalakshmi, “Synthesis, in vitro and in silico antitumor evaluation of 3-(2,6-dichlorophenyl)-1,5-diphenylpentane-1,5-dione: Structure, spectroscopic, RDG, Hirshfeld and DFT based analyses”, *J. Molecular Structure*, 1251, 132002, March 2022. (<https://doi.org/10.1016/j.molstruc.2021.132002>)
19. M. Ashfaq, K.S. Munawar, G. Bogdanov, A. Ali, M.N. Tahir, G. Ahmed, **R. Arulraj**, M.M. Alam, M. Imran, S. Sivakumar, B. Munir, “Single crystal inspection, Hirshfeld surface investigation and DFT study of a novel derivative of 4-fluoroaniline: 4-((4-fluorophenyl)amino)-4-oxobutanoic acid (BFAOB)”, *J Iran Chem Soc*, 19(5), 1953–1961, October 2021. (<https://doi.org/10.1007/s13738-021-02432-4>)
20. K. Anitha, S. Sivakumar*, **R. Arulraj**, K. Rajkumar, Manpreet Kaur and Jerry Jasinski, Synthesis, Crystal Structure, DFT Calculations and Hirshfeld Surface Analysis of 3-butyl-2,6-bis(4-

fluorophenyl)piperidin-4-one, *Acta Cryst E.*, E76(5), 651-655, April 2020. (<https://doi.org/10.1107/S2056989020004636>)

21. K. Rajkumar, S. Sivakumar*, **R. Arulraj**, Manpreet Kaur, Jerry P. Jasinski,* A. Manimekalai and A. Thiruvalluvar, Crystal structures of two new 3-(2-chloroethyl)-r(2),c(6)-diaryl piperidin-4-ones, *Acta Cryst. E.*, E74, 483–486. April 2018. (<https://doi.org/10.1107/S2056989018003766>)
22. S. Sivakumar*, **R. Arulraj**, J. John Francis Xavier, Hema Ramesh, K. Mageswari and Rajappa, Spectral and Antimicrobial Studies of Some r(2),c(6)-diaryl piperidin-4- one cyanoacetic acid hydrazones, *IJCPS*, 2(6), 911-918, June 2014. (<http://www.pharmaresearchlibrary.com/wp-content/uploads/2014/06/IJCPS2094.pdf>)
23. S. Sivakumar*, A. Manimekalai, **R. Arulraj**, Hemaramesh and S. Savithri, Spectral and Theoretical studies of some N-nitroso-t(3)- isopropyl-r(2),c(6)-bis(p-halophenyl)piperidin-4-ones, *IJCPS*, 2(4), 765-773, April 2014. (<http://www.pharmaresearchlibrary.com/wp-content/uploads/2014/04/IJCPS2023.pdf>)

COMPUTER PROFICIENCY

- Proficiency in Chromatographic Software like Empower3, OpenLAB EZChrom-Version A.01.03, ChemStation, LC Solution, Chemitochrome, Class-VP, and Camag-CATS.
- Excellent knowledge in computational studies using Gaussian-09 package and software like UCSF Chimera, Discovery Studio, Mercury, enCIFer, and Olex2.
- Good working experience achieved software like LIMS, QCMS, SAP ERP Application system.
- IT skills achieved in Windows, MS Office, and Statistical software.

TRAINING CERTIFICATE

- 2021, June 24 - **Responsible Conduct of Research – Advanced**, CITI.
- 2021, June 14 - **Good Clinical Practice Course**, CITI.
- 2021, May 06 - **Lean Six Sigma White Belt: Process Improvements and Quality Methods**, The Council for Six Sigma Certification (CSSC), United States of America.
- 2021, August 20 - **Biomedical Research - Basic/Refresher**, CITI.
- 2014, July 22 to 24 - **Fire & Rescue Course for Company Emergency Response Team** Singapore Civil Defense Force, Singapore.
- 2012, August 02 & 03 - **Agilent GC Maintenance & Troubleshooting** Agilent Technologies Singapore (sales) Pte. Ltd., Singapore.
- 2012, May 07 to 09 - **Agilent GC OpenLab CDS EZChrom operation** Agilent Technologies Singapore (sales) Pte. Ltd., Singapore.
- 2011, July 14 & 15 - **Agilent LC Maintenance & Troubleshooting** Agilent Technologies Singapore (sales) Pte. Ltd., Singapore.

- 2008, June 16 to 18 - **High Performance Thin Layer Chromatography (HPTLC)**
Anchrom Enterprises (I) P. Ltd., Mumbai – 400 081, India.

PROFESSIONAL MEMBERSHIPS

- Member, Singapore Society of Mass Spectrometry [SSMS], Singapore.
- Life Member, Society for Materials Chemistry (SMC), BARC, Mumbai, India.
- Fellow, International Society for Research and Development, London, UK.
- Centennial Member, Lions Club of Singapore Nassim, Singapore.
- Member, International Association of Engineers (IAENG), Hong Kong.
- Fellow Member, Indian Academic Researchers Association, Tamil Nadu, India.
- Life Member, Materials Research Society of India (MRSI), IISc Campus, Bangalore, India.

ORAL PRESENTATION

- 2019 – 10th January, ICRTC-2019, International Conference on Recent Trends in Chemistry, Dr. R. K. Shanmugam college of Arts & Science, Indili, Kallakurichi, Tamil Nadu, India.
- 2018 – February 23 & 24, NCRAM-2018, National Conference on Recent Advanced Materials, Thiruvalluvar University college of Arts & Science, Vandavasi-604408, Tamil Nadu, India.
- 2018 – February 2 & 3, ICACCA-2018 – International conference on Advancement and Challenges in Chemical Sciences, Pachaiyappa's College, Chennai, India.
- 2017 - December 14 to 16, ICBB-2017 – International conference on Biosciences & Bioinformatics, Bharathiar University, Coimbatore, India.

POSTER PRESENTATION

- 2016 - December 8 – 9, ICNMR-2016 - International conference on Nanomaterial's and Molecular Research, St. Joseph's College of Arts & Science (Autonomous), Cuddalore, Tamil Nadu, India.
- 2016 - 4th June, NACFAC - 2nd National Conference on Fundamental and Applied Chemistry, Journal of Chemical Science Review and Letters, Salem, Tamil Nadu, India.

CONFERENCE ATTENDED

- 2020 – June 23rd – Virtual LCMS Conference 2020, ThermoFisher Scientific, Singapore.
- 2017 - August 17 to 19, ICAMST-2017 - International conference on Advanced Materials Science and Technology, Bannari Amman Institute of Technology, Tamil Nadu, India.
- 2017 – January 20 & 21, RACE-2017 - Recent Advancement in Chemical and Environmental Research, Department of Chemistry, Annamalai University, Tamil Nadu, India.

SEMINAR AND WORKSHOP ATTENDED

- 2020 – October 9 & 10 - “Second national level two-day virtual workshop on quantum chemical methods (QCM 2020)”, Bannari Amman Institute of Technology, India.

- 2020 – 02 to 05 Nov – A series of advance topics for Transmission Electron Microscopy (TEM), The Arc (LHN-LT), NTU, Singapore.
- 2019 – 11 June – workshop on “Effectively Communicating Your Research” by Nature research academics, Institute of Materials Research and Engineering, Singapore-138634
- 2019 – 6th & 7th, June – “International workshop on Secondary Electron Spectromicroscopy and its Material Science Applications”, E6NanoFeb, NUS, Singapore.
- 2017 – 1st April – “Eco Friendly – Water defluoridation,” Department of Chemistry, IFET College of Engineering, Villupuram, Tamil Nadu, India.

JOURNAL ARTICLES REVIEWED

- Journal of King Saud University – Science (*Elsevier*)
- Journal of Molecular Liquids (*Elsevier*)
- Biomass Conversion and Biorefinery (*Springer Nature*)
- Phosphorus, Sulfur, and Silicon and the Related Elements (*Taylor & Francis*)
- Molecules (*MDPI*)
- Pharmaceuticals (*MDPI*)
- Physical Chemistry Research (*Iranian Chemical Society*)

PERSONAL PROFILE

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 Web of Science ResearcherID : [I-6982-2016](https://orcid.org/I-6982-2016)
 Google Scholar profile : <https://scholar.google.com/citations?user=KRTSrbIAAAAJ&hl=en>
 Scopus Author (hyperlink) : <https://www.scopus.com/authid/detail.uri?authorId=57193197781>
 ResearchGate (hyperlink) : <https://www.researchgate.net/profile/Arulraj-Ramalingam>
 LinkedIn (hyperlink) : <https://www.linkedin.com/in/arulrajr/>