
Dr. Balakumar Chandrasekaran

B. Pharm., M. Pharm., PhD & Post

Doc (South Africa-NRF Fellow)

Current Position: Professor

Faculty of Pharmacy,

Philadelphia University

Amman, 19392, Jordan



E-mail ID: balakumar.c@thodeti.com

Google Scholar: <https://scholar.google.com/citations?hl=en&user=2f7FaFEAAAAJ> (h-index = **29**; i10-index = **60**; citations: **2792**)

LOOP ID: <https://loop.frontiersin.org/people/1008807/overview>

ORCID: <https://orcid.org/0000-0003-4198-8679>

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=36614134400>

(Recognized as Top 2% scientists in the Elsevier & Stanford University Survey-2024)

Career Summary

- Pharmacy education: **Bachelor of Pharmacy, Master of Pharmacy in Pharmaceutical Chemistry, PhD in Pharmaceutical Sciences, and Post-Doctoral** (Pharmaceutical Medicinal Chemistry and Drug Design).
- Total experience (teaching + research): **19 years** after Master's Degree (India and Abroad).
- Good research accomplishments: **77** paper publications, **09** patents, **20** book chapters, editorial books (**04**), and editorial journals (**02**), and supervision of **13** Master's Graduates.
- **Design** of novel biologically active organic molecules by *in silico* **CADD** technology.
- Expertise in the **medicinal synthesis** of new chemical entity (**NCE**) and instrumental methods of analysis of active pharmaceutical ingredients (**APIs**) and drug intermediates.
- Industrial Projects: **Pharmaceutical Analysis-Karpagam Pharma LLP**, Coimbatore, India
- Hospital Pharmacist: Dispensing of the prescribed medicines.
- **Administrative skills:** Dean, HOD of Pharmaceutical Chemistry, HOD of Organic Chemistry, Administrative committees, Documentation for accreditation of course programs, and students' engagements.

- Recipient of International Research Funding and completed many research projects and assignments, individually.
- **Editor** and **Reviewer of Journals of** Bentham, Elsevier, Wiley, MDPI, and Frontiers Publishers.

Teaching Areas/Courses handled

- ✓ Drug Design
- ✓ Pharmaceutical Medicinal Chemistry-I
- ✓ Pharmaceutical Organic Chemistry
- ✓ Modern Methods of Pharmaceutical Analysis
- ✓ Organic Chemistry-II
- ✓ Biochemistry-I
- ✓ Modern Pharmaceutical Analytical Techniques (Master's Program)
- ✓ Computer-aided Drug Development (Master's Program)
- ✓ Phytotherapy
- ✓ Pharmacognosy and Phytochemistry
- ✓ Bioinformatics
- ✓ Pharmacy informatics and Automation
- ✓ Pharmacy Practice
- ✓ Pharmaceutical Communication Skills

Areas of Research

- ❖ Computer-aided drug design (CADD) of pharmacologically active small molecules. : Molecular Docking, Molecular Dynamics Simulations, Homology Modeling, Pharmacophore Modeling, and QSAR.
- ❖ Design and development of novel medicinal compounds as anticancer, antimicrobial, anti-TB, anti-inflammatory, wound-healing agents, and anti-asthmatics.
- ❖ Synthesis of medicinal compounds by green chemistry techniques, analysis, characterization, and evaluation.
- ❖ Executing synthetic schemes with multistep organic synthesis including green chemistry (one-pot solvent-free / microwave-assisted) using CEM Discover - Microwave Organic Synthesizer.

- ❖ Methods for purification of organic compounds using conventional column and flash column chromatography (Combi Flash® NextGen 300+) and conventional column techniques.
- ❖ Impurity profiling for medicinal/pharmaceutical substances, analytical method development, and validation for bulk drugs and formulations.
- ❖ Spectral Characterization Techniques:
 - FT-IR*: Bruker Alpha FT-IR spectrometer
 - NMR*: Bruker AVANCE III 400 MHz (Topspin software)
 - LC-MS*: Bruker ESI-QTOF mass spectrometer
- ❖ Green biosynthesis of metal nanoparticles from natural extracts and natural phytoconstituents and their characterization with pharmacological evaluation.
- ❖ Early Prediction of Alzheimer's Disease (AD) using Artificial Intelligence focused Machine Learning (ML) Techniques.

Administrative Experiences

Dean-School of Pharmacy

- Conducted Board of Studies Meetings regularly and updated the course syllabi according to the current requirements of industries.
- Organized expert talks/seminars at the faculty level and the University level.
- Chairman-Scientific track for Conference (TIMS) at university level.
- Conducting faculty meetings and implementing course requirements from time to time as per the direction of the University Vice-Chancellor/President of the University.
- Directing faculty members for drafting various documentation for course accreditation at the national level.
- Scrutinizing different academic committees for the smooth functioning of the faculty.
- Participated in the recruitment process as a member of the selection committee at the University level.
- Drafting the requirements for the faculty and scrutinizing to obtain approval from higher authorities.
- Maintaining International relationships for active collaboration in teaching and research activities through MoUs.

Head of Department-Pharmaceutical Chemistry and Organic Chemistry

- Conducting department faculty meetings and implementing curriculum development
- Lab manual drafting and including modern methods of green synthesis in organic chemistry Lab experiments.
- Key role in American Accreditation (Accreditation Council for Pharmacy Education) and Canadian Accreditation file drafting and documentation
- Organized exit exam for graduating pharmacy students at Philadelphia University.
- Membership in Exam committee, public relationship committee, Lab safety committee.
- Documentation of Quality Assurance files at the faculty level, faculty council, and strategic planning activities.
- Participating in social activities and community services with students and faculty members.
- Key role in Research Committee, Master's Program Committee, Lab Committee, And Seminar's Committee.

Total Experience: 19 Years

Position	Name & Address of the Organization	Years of Experience [Duration]
Professor (Full Prof)	Faculty of Pharmacy, Philadelphia University, Amman, 19392, Jordan.	2.8 years 13-10-2022 to till date
Professor and Dean	School of Pharmacy, ITM University, Turari, Gwalior, 475001, Madhya Pradesh, India.	1 year and 1 month [16.07.2021 to 25.08.2022]
Professor and HOD	Shree Venkateshwara College of Paramedical Sciences, Erode, 638455, Tamil Nadu, India.	10 months [21-09-2020 to 09-07-2021]
Asst Professor	Faculty of Pharmacy, Philadelphia University, Amman, 19392, Jordan.	2 years and 7 months [05.02.2018 to 31.08.2020]
DST-NRF Innovation PostDoc Research Fellow	Discipline of Pharmaceutical Sciences, College of Health Sciences, University of KwaZulu-Natal (UKZN), Westville, Durban, 4001, South Africa.	1 year and 5 months [01.07.2016 to 14.11.2017]
PostDoc Research Fellow	Discipline of Pharmaceutical Sciences, College of Health Sciences, University of KwaZulu-Natal (UKZN), Westville, Durban, 4001, South Africa.	1 year and 3 months [09.04.2015 to 30.06.2016]

Associate Professor and HOD	Karpagam College of Pharmacy, Coimbatore, 641032, Tamil Nadu, India.	2 years and 2 months [11.01.2013 to 10.03.2015]
Assistant Professor	Karpagam College of Pharmacy, Coimbatore, 641032, Tamil Nadu, India.	1 year and 9 months [18.04.2011 to 10.01.2013]
UGC Research Fellow	Centre with Potential for Excellence in Biomedical Sciences (CPEBS), Panjab University, Chandigarh, 160014, India.	3 years and 5 months [24.10.2007 to 30.03.2011]
Lecturer	Smt. R. B. Patel Mahila Pharmacy College, Atkot, Rajkot, 360040, India.	10 months [06.12.2006 to 20.10.2007]
Lecturer	Shree H. N. Shukla Institute of Pharmaceutical Education and Research, Rajkot, 360003, India.	1 year and 1 month [20.10.2005 to 30.11.2006]
Hospital Pharmacist	Grace Hospital, Kollencode, 629160, India.	11 months [15.11.2002 to 19.10.2003]

Educational Qualification: B. Pharm, M. Pharm, PhD

Degree	Division (%Marks)	Duration (Years)	Institute	University
Bachelor of Pharmacy	First Division (72%)	01/10/1998 to 20/10/2002 (04 years)	RVS College of Pharmaceutical Sciences, Sullur-Coimbatore, Tamil Nadu, India.	The TN Dr. MGR Medical University, Chennai, Tamil Nadu, India.
Master of Pharmacy in Pharmaceutical Chemistry	First Division with Distinction (71.29%)	01/10/2003 to 20/09/2005 (02 years)	LM College of Pharmacy, Ahmedabad-Gujarat, India.	Gujarat University, Ahmedabad, Gujarat, India.
Ph.D. in Pharmaceutical Sciences (Pharmaceutical Chemistry)	Thesis submitted (May-2012), Viva voce exam (Nov-2012), Ph.D. Awarded on 01-01-2013	24/10/2007 to 30/03/2011 (3.5 years)	Department of Pharmaceutical Chemistry, University Institute of Pharmaceutical Sciences (UIPS), Chandigarh, 160014, India.	Panjab University, Chandigarh, India.

Master's Thesis

Title: Design, synthesis, and evaluation of pyrimidines as potential antifungal agents.

PhD Thesis

Title: Design, synthesis and evaluation of new fluorinated heterofused pyrimidines as adenosine receptor antagonists.

Other Competitive Exams Qualified

1. Graduate Aptitude Test in Engineering (**GATE**) **2003** with **95.32** percentile for admission to M. Pharmacy (**postgraduate**), conducted by IIT-Chennai on 9th Feb-2003.
2. Distance learning course on ‘Intellectual Property Rights’ organized by “World Intellectual Property Organization (**WIPO**)” Geneva, Switzerland (Nov-2005) by online mode.

Achievements/Awards

- ❖ Research Citation Award by Philadelphia University on 27th Nov-2024.
- ❖ Awarded **Innovation Postdoctoral Research Fellowship** from National Research Foundation (**NRF**), Department of Science and Technology (**DST**), **South Africa** (from **2016** to **2017**) for Anticancer Drug Research.
- ❖ Awarded **Postdoctoral Research Fellowship** from the College of Health Sciences, UKZN, **South Africa** for Anticancer Drug Research (**2015-2016**).
- ❖ Awarded **Research Fellowship** in Science for Meritorious Students (**RFSMS**) by the University Grants Commission (**UGC**), New Delhi, India (**2007-2011**).
- ❖ Awarded **AICTE-GATE** Fellowship by All India Council for Technical Education (**AICTE**) for **M. Pharm** Course (**2003-2005**).
- ❖ Achieved **Distinction** in M. Pharmacy - Pharmaceutical Chemistry Division, LM College of Pharmacy, Gujarat University, India (Oct-**2005**).

Journal Editor

- **Associate Editor:** Frontiers in Molecular Biosciences: Molecular Diagnostics and Therapeutics (**Frontiers Publisher**, Impact Factor: 3.9)
- **Section Editor:** Pharmaceutical Sciences-Toxicology for the Journal ‘Current Indian Science’ (**Bentham Science Publisher**)

Research Publications: 77

1. **B. Chandrasekaran***, M.F. Bayan, A. Hmedat, B.A. Al-Jaidi, D.M. Al-Tawalbeh, D. Abuarqoub, A.J. Rasras, D.M.M. Jaradat, A.N. Dakkah, W. Hourani, R. Karpoornath, Synthesis, anticancer screening, and in silico evaluations of thieno[2,3-*c*] pyridine derivatives as Hsp90 inhibitors. *Pharmaceuticals* **2025**, *18*, 153 [DOI: 10.3390/ph18020153; e-ISSN: 1424-8247; Impact Factor: **4.3**].
2. N.K. Jain, **B. Chandrasekaran***, N. Khazaleh, H.K. Jain, M. Lal, G. Joshi, V. Jha, Computational network pharmacology, molecular docking, and molecular dynamics to decipher natural compounds of *Alchornea laxiflora* for liver cancer chemotherapy. *Pharmaceuticals* **2025**, *18*, 508 [DOI: 10.3390/ph18040508; e-ISSN: 1424-8247; Impact Factor: **4.3**].
3. A. Rani, R. Kaur, A. Aldahish, R. Vasudevan, P. Balaji, C.P. Dora, **B. Chandrasekaran**, T.G. Singh, R. Sharma, Nanostructured lipid carriers (NLC)-based topical formulation of hesperidin for effective treatment of psoriasis. *Pharmaceutics* **2025**, *17*, 478 [DOI:10.3390/pharmaceutics17040478; e-ISSN: 1999-4923; Impact Factor: **4.9**].
4. D. Choudhary, B. Kumar, **B. Chandrasekaran**, T.G. Singh, R. Kaur, A. Aldahish, R. Vasudevan, P. Balaji, Microwave-assisted synthesis of morpholine-based chalcones as reversible MAO-A inhibitors in the management of mental depression. *Pharmaceuticals* **2025**, *18*, 309 [DOI: 10.3390/ph18030309; e-ISSN: 1424-8247; Impact Factor: **4.3**].
5. B. Kushwaha, N.D. Kushwaha, B.B. Shaik, **B. Chandrasekaran**, V.A. Obakachi, S. Mokoena, S.B. Mohite, R. Karpoornath, Pyridazinone: A privileged scaffold for synthetic and biomedical applications, *Journal of Molecular Structure* **2025**, *1326*, 140948 [DOI: 10.1016/j.molstruc.2024.140948; e-ISSN: 1872-8014; Impact Factor: **4.0**].
6. D. Choudhary, R. Kaur, N. Rani, B. Kumar, T.G. Singh, **B. Chandrasekaran**, R. Rawat, V. Eyupoglu, Insights into in silico analysis to explore the multitarget antidepressant role of *Camellia sinensis*. *Journal of Biomolecular Structure and Dynamics* **2025**, [DOI: 10.1080/07391102.2025.2498625; e-ISSN: 1538-0254; Impact Factor: **2.7**].
7. A.J. Rasras, D.M.M. Jaradat, **B. Chandrasekaran**, L. Hamadneh, E.A. Younes, M.A. Nuwar, N. Khazaleh, A. Mahli, M.S. Al-Zubi, Evaluation of anticancer activity of some new hybrids of 1,3,4-oxadiazole tethered cinnamamides, *Journal of Molecular Structure* **2025**, *1322*, 140438 [DOI: 10.1016/j.molstruc.2024.140438; e-ISSN: 1872-8014; Impact Factor: **4.0**].
8. **B. Chandrasekaran***, P. Boomi, M.F. Bayan, S. Muthumanickam, M.H. Alyami, Computational design of a novel inhibitor against COVID, *Letters in Drug Design and Discovery* **2024**, *21*, 3934-3945 [DOI: 10.2174/0115701808322637240722052915; e-ISSN: 1875-628X; Impact Factor: **1.2**].
9. J.K. Singh, S. Kaur, **B. Chandrasekaran***, G. Kaur, B. Saini, R. Kaur, P. Silakari, N. Kaur, P.

- Bassi, A QbD-navigated approach to the development and evaluation of etodolac–phospholipid complex containing polymeric films for improved anti-inflammatory effect, *Polymers* **2024**, *16*, 2517 [DOI: 10.3390/polym16172517; e-ISSN: 2073-4360; Impact Factor: **4.7**].
10. S. Ashique, N. Kumar, N. Mishra, S. Muthu, R.L. Rajendran, **B. Chandrasekaran**, B.F. Obeng, C.M. Hong, A. Krishnan, B-C. Ahn, P. Gangadaran, Unveiling the role of exosomes as cellular messengers in neurodegenerative diseases and their potential therapeutic implications, *Pathology - Research and Practice* **2024**, *260*, 155451 [DOI: 10.1016/j.prp.2024.155451; e-ISSN: 1618-0631; Impact Factor: **2.9**].
11. M. Albratty, N. Thangavel, **B. Chandrasekaran**, A.M. Meraya, H.A. Alhazmi, S. Muthumanickam, P. Boomi, N.B. Bhagavan, S.F. Saleh, Benchmarking docking, density functional theory and molecular dynamics studies to assess the aldose reductase inhibitory potential of *Trigonella foenum-graecum* compounds for managing diabetes-associated complications. *Pharmacia* **2024**, *71*, 1–10 [DOI: 10.3897/pharmacia.71.e118949; e-ISSN: 1618-0631; Impact Factor: **1.1**].
12. N.K. Jain, M. Tailang, N. Thangavel, H.A. Makeen, M. Albratty, A. Najmi, H.A. Alhazmi, K. Zoghebi, M. Alagusundaram, H.K. Jain, **B. Chandrasekaran**, A comprehensive overview of selective and novel fibroblast growth factor receptor inhibitors as a potential anticancer modality, *Acta Pharmaceutica* **2024**, *74*, 1-36 [DOI: 10.2478/acph-2024-0005; e-ISSN: 1846-9558; Impact Factor: **2.4**].
13. N.K. Jain, M. Tailang, **B. Chandrasekaran**, N. Khaszaleh, N. Thangavel, H.A. Makeen, M. Albratty, A. Najmi, H.A. Alhazmi, K. Zoghebi, M. Alagusundaram, H.K. Jain, Integrating network pharmacology with molecular docking to rationalize the ethnomedicinal use of *Alchornea laxiflora* (Benth.) Pax & Hoffm. for efficient treatment of depression, *Frontiers in Pharmacology* **2024**, *15*, 1290398 [DOI: 10.3389/fphar.2024.1290398; e-ISSN: 1663-9812; Impact Factor: **4.4**].
14. R. Kaur, D. Choudhary, S. Bali, S.S. Bandral, V. Singh, Md A. Ahmad, N. Rani, T.G. Singh, **B. Chandrasekaran**, Pesticides: An alarming detrimental to health and environment, *Science of The Total Environment* **2024**, *915*, 17011 [DOI: 10.1016/j.scitotenv.2024.170113; e-ISSN: 1879-1026; Impact Factor: **8.2**].
15. M.F. Bayan, **B. Chandrasekaran**, M.H. Alyami, Development and characterization of econazole topical gel, *GELS* **2023**, *9*, 929 [DOI: 10.3390/gels9120929; e-ISSN: 1879-1026; Impact Factor: **5.0**].
16. M. Abu Nuwar, D.M.M Jaradat, **B. Chandrasekaran***, I. Natsheh, A.J. Rasras, M.S.H. Alzubi, R. Karpoornath, F. Khalili, L. Hamadneh, A.A. Dahadha, T. Arafat, Design, synthesis, anticancer screening and molecular modelling studies of novel thiazoles, *Chemistry Select* **2023**, *8*, e202302319 [DOI: 10.1002/slct.202302319; e-ISSN: 2365-6549; Impact Factor: **1.9**].

17. D. Choudhary, A. Kaur, P. Singh, G. Chaudhary, R. Kaur, M.F. Bayan, **B. Chandrasekaran***, S.M. Marji, R. Ayman, Target protein degradation by PROTACs: A budding cancer treatment strategy, *Pharmacology and Therapeutics* **2023**, 250, 108525 [DOI: 10.1016/j.pharmthera.2023.108525; e-ISSN: 1879-016X; Impact Factor: **12.0**].
18. M. Alagusundaram, N.K. Jain, M.Y. Begum, S.A. Parameswari, V.K. Nelson, M.F. Bayan, **B. Chandrasekaran**, Development and characterization of gel-based buccoadhesive bilayer formulation of Nifedipine, *GELS* **2023**, 9, 688 [DOI: 10.3390/gels9090688; e-ISSN: 1879-1026; Impact Factor: **5.0**].
19. K.C. Panda, B.V.V Ravi Kumar, B.M. Sahoo, **B. Chandrasekaran**, P. Swain, Molecular docking, multicomponent one-pot synthesis of pyrimidine derivatives as anti-mycobacterial agents, *Anti-Infective Agents* **2023**, 21, 6-12 [e-ISSN: 2211-3533; DOI: 10.2174/2211352521666230330094431].
20. R. Kaur, K. Kaur, M.H. Alyami, D. K. Lang, B. Saini, M.F. Bayan, **B. Chandrasekaran**, Combating microbial infections using metal-based nanoparticles as potential therapeutic alternatives, *Antibiotics* **2023**, 12, 909 [DOI: 10.3390/antibiotics12050909; e-ISSN: 2079-6382; Impact Factor: **4.3**].
21. B. Kushwaha, N.D. Kushwaha, M. Priya, **B. Chandrasekaran**, V.A. Obakachi, R. Chauhan, S. Kidwai, R. Singh, A.M. Ganai, R. Karpoornath, Novel fluorophenyl tethered thiazole and chalcone analogues as potential antitubercular agents: Design, synthesis, biological and in silico evaluations, *Journal of Molecular Structure* **2023**, 1276, 134791 [DOI: 10.1016/j.molstruc.2022.134791; e-ISSN: 1872-8014; Impact Factor: **4.0**].
22. R. Raju, K. Chidambaram, **B. Chandrasekaran**, M.F. Bayan, T.K. Maity, A.M. Alkahtani, H.C. Chandramoorthy, Synthesis, pharmacological evaluation and molecular modeling studies of novel isatin hybrids as potential anticancer agents, *Journal of Saudi Chemical Society* **2023**, 27, 101598 [DOI: 10.1016/j.jscs.2023.101598; e-ISSN: 2212-4640; Impact Factor: **5.9**].
23. B.J. Chelladurai, R. Anburose, M.H. Alyami, M. Sellappan, M.F. Bayan, **B. Chandrasekaran**, K. Chidambaram, M. Rahamathulla, Development of a polyherbal topical gel for the treatment of acne, *GELS* **2023**, 9, 163 [DOI: 10.3390/gels9020163; e-ISSN: 1879-1026; Impact Factor: **5.0**].
24. **B. Chandrasekaran***, M. Saravanan, Pharmacological and biochemical perspectives of kinase inhibitors in cancer and COVID-19 therapeutics, *Frontiers in Pharmacology* **2023**, 14, 1229673 [DOI: 10.3389/fphar.2023.1229673; e-ISSN: 1663-9812; Impact Factor: **4.4**].
25. N.K. Jain, M. Tailang, H.K. Jain, **B. Chandrasekaran**, * B.M. Sahoo, A. Subramanian, N. Thangavel, A. Aldahish, K. Chidambaram, M. Alagusundaram, S. Kumar, P. Selvam, Therapeutic implications of current Janus kinase inhibitors as anti-COVID agents: A review, *Frontiers in Pharmacology* **2023**, 14, 1135145 [DOI: 10.3389/fphar.2023.1135145; e-ISSN: 1663-9812; Impact Factor: **4.4**].

26. N.K. Jain, M. Tailang, S. Kumar, **B. Chandrasekaran**, * Y. Alghazwani, H.C. Chandramoorthy, A. Kumar, H. Deshpande, P. Wal, M. Balamurugan, K. Chidambaram, Appraising the therapeutical potentials of *Alchornea laxiflora* (Benth.) Pax & K. Hoffm., an underexplored medicinal herb: A systematic review, *Frontiers in Pharmacology* **2022**, *13*, 958453 [DOI: 10.3389/fphar.2022.958453; e-ISSN: 1663-9812; Impact Factor: **4.4**]
27. M.F. Bayan, S.M. Marji, M.S. Salem, Y.M. Begum, K. Chidambaram, **B. Chandrasekaran**, Development of polymeric-based formulation as potential smart colonic delivery system, *Polymers* **2022**, *14*, 3697 [DOI: 10.3390/polym14173697; e-ISSN: 2073-4360; Impact Factor: **4.7**]
28. **B. Chandrasekaran***, M. Saravanan, Pharmacological and biochemical perspectives of kinase inhibitors in cancer and COVID-19 therapeutics, *Frontiers in Pharmacology* **2022**, *13*, 916324 [DOI: 10.3389/fphar.2022.916324; e-ISSN: 1663-9812; Impact Factor: **4.4**].
29. M.K. Ramar, K. Chidambaram, **B. Chandrasekaran**, R. Kandasamy, Standardization, in-silico and in-vivo safety assessment of methanol extract of *Ziziphus mauritiana Lam* leaves, *Regulatory Toxicology and Pharmacology* **2022**, *131*, 105144 [DOI: 10.1016/j.yrtph.2022.105144; e-ISSN: 1096-0295; Impact Factor: **3.0**]
30. K. Anand, M. Ramesh, T. Singh, **C. Balakumar**, V. Chithravel, P. Prasher, N.K. Katari, G. Gupta, S.K. Singh, D.K. Chellappan, K. Dua, V. Chavda, A. Laishevtcev, Mohd Shahbaaz, M.H. Abdellattif, M. Saravanan, A.A. Chaturgoon, One-step synthesis of picolinohydrazides from fusaric acid: DFT structural characterization and molecular inhibitory studies on metastatic tumor-derived exosomal and non-exosomal proteins, *Journal of Molecular Structure* **2022**, *1255*, 132442 [DOI: 10.1016/j.molstruc.2022.132442; e-ISSN: 1872-8014; Impact Factor: **4.0**].
31. K.B. Ilango, S. Gowthaman, K.I. Seramaan, K. Chidambaram, M.F. Bayan, M. Rahamathulla, **C. Balakumar**, Mucilage of *Coccinia grandis* as an efficient natural polymer-based pharmaceutical excipient, *Polymers* **2022**, *14*, 215 [DOI: 10.3390/polym14010215; e-ISSN: 2073-4360; Impact Factor: **4.7**].
32. S. Karunanidhi, **B. Chandrasekaran**, R. Karpoornath, H. Patel, F. Kayamba, S.R. Merugu, V. Kumar, S. Dhawan, B. Kushwaha, M.C. Mahlalela, Novel thiomorpholine tethered isatin hydrazones as potential inhibitors of resistant *Mycobacterium tuberculosis*, *Bioorganic Chemistry* **2021**, *115*, 105133 [DOI: 10.1016/j.bioorg.2021.105133; e-ISSN: 1090-2120; Impact Factor: **4.5**].
33. M. Sankar, B. Ramachandran, B. Pandi, N. Mutharasappan, V. Ramasamy, P.G. Prabu, G. Shanmugaraj, Y. Wang, B. Muniyandi, S. Rathinasamy, **B. Chandrasekaran***, M.F. Bayan, J. Jeyaraman, G.P. Halliah, S.K. Ebenezer, In silico screening of natural phytoconstituents towards identification of potential lead compounds to treat COVID-19, *Frontiers in Molecular Biosciences* **2021**, *8*, 637122 [DOI: 10.3389/fmolb.2021.637122; e-ISSN: 2296-889X; Impact Factor: **3.9**].

34. S. Mahmud, G.K. Paul, S. Biswas, S. Afrose, M.A. Mita, M.R. Hasan, M.S.S. Shimu, A. Hossain, M.M. Promi, F.K. Ema, K. Chidambaram, **B. Chandrasekaran**, A.M. Alqahtani, T.B. Emran, M.A. Saleh, Prospective role of peptide-based antiviral therapy against the main protease of SARS-CoV-2, *Frontiers in Molecular Biosciences* **2021**, *8*, 628585 [DOI: 10.3389/fmolb.2021.628585; e-ISSN: 2296-889X; Impact Factor: **3.9**].
35. R. Bezbaruah, P. Borah, B.B. Kakoti, N. Al-Shar'I, **B. Chandrasekaran***, D.M.M. Jaradat, M.A. Al-Zeer, S. Abu-Romman, Developmental landscape of potential vaccine candidates based on viral vector for prophylaxis of COVID-19, *Frontiers in Molecular Biosciences* **2021**, *8*, 635337 [DOI: 10.3389/fmolb.2021.635337; e-ISSN: 2296-889X; Impact Factor: **3.9**].
36. P. Borah, P.K. Deb, N. Al-Shar'I, L.A. Dahabiyeh, K.N. Venugopala, V. Singh, P. Shinu, S. Hussain, S. Deka, **B. Chandrasekaran**, D.M.M. Jaradat, Perspectives on RNA vaccine candidates for COVID-19, *Frontiers in Molecular Biosciences* **2021**, *8*, 635245 [DOI: 10.3389/fmolb.2021.635245; e-ISSN: 2296-889X; Impact Factor: **3.9**].
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[* Corresponding author]

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 11. **B. Chandrasekaran***, P.K. Deb, M.F. Bayan, Y. Al-Bataineh, Q.A.Al-Khames Aga, D.M.M. Jaradat, A.K. Balaraman, Nanocarriers in novel drug delivery system, in the book titled, “Handbook on Nano-Biomaterials for Therapeutics and Diagnostic Applications”, Editors: K. Anand, M. Saravanan, **B. Chandrasekaran**, S. Kanchi, S.J. Panchu, Q.-S. Chen, Elsevier Publisher, **2021**, 421-

- 437 [ISBN: 9780128210130; DOI: 10.1016/B978-0-12-821013-0.00006-4].
12. M. Sharma, U. Abiha, P. Chugh, **B. Chandrasekaran**, N. Agrawal, Bioinformatics in cancer detection, in the book titled, “Computation in Bio-Informatics and its Multidisciplinary Applications”, Editors: S. Balamurugan, A. Krishnan, D. Goyal, **B. Chandrasekaran**, B. Pandi, Wiley-Scrivener Publishing LLC, **2021**, 229-243 [ISBN: 9781119654711; DOI: 10.1002/9781119654803.ch11].
 13. S. Muthumanickam, P. Boomi, R. Subashkumar, S. Palanisamy, A. Sudha, K. Anand, **C. Balakumar**, M. Saravanan, G. Poorani, Y. Wang, K. Vijayakumar, M.S. Ali, An insight of protein structure predictions using homology modelling, in the book titled, “Computation in Bio-Informatics: Multidisciplinary Applications”, Editors: S. Balamurugan, A. Krishnan, D. Goyal, **B. Chandrasekaran**, B. Pandi, Wiley-Scrivener Publishing LLC, **2021**, 265-277 [ISBN: 9781119654711; DOI: 10.1002/9781119654803.ch13].
 14. K. Anand, **B. Chandrasekaran**, G. Gupta, H. Dureja, S.K. Singh, M. Gulati, D.K. Chellappan, B. Balasubramanian, I. Femeela, V.A. Arumugam, K. Dua, Biosynthetic exosome nanoparticles isolation, characterization, and their diagnostic and therapeutic applications, in the book titled, “Advanced Drug Delivery Systems in the Management of Cancer”, Editors: K. Dua, M. Mehta, T.A. Pinto, L.G. Pont, K.A. William, M.J. Rathbone, Elsevier Publisher, **2021**, 373-385 [ISBN: 978-0-323-85503-7; DOI: 10.1016/B978-0-32385503-7.00037-7].
 15. V. Bhattacharya, N. Mishra, R. Sharma, S.K. Dubey, **B. Chandrasekaran**, M.F. Bayan, “Recent targeted discovery of phytomedicines to manage endocrine disorder develops due to adapting sedentary lifestyle”, in the book ‘Recent Frontiers of Phytochemicals: Applications in Food, Pharmacy, Cosmetics, and Biotechnology’, Editors: S. Pati, T. Sarkar, D. Lahiri, Elsevier Ltd. USA, **2023**, 143-161 [ISBN: 978-0-443-19143-5; DOI: 10.1016/B978-0-443-19143-5.00021-9].
 16. M.F. Bayan, **B. Chandrasekaran**, N. Mansour, Y. Alrefaie, K. Ashour, H.K. Pathan, “Computational Pharmaceutics” in the book entitled “Novel formulations and Future trends: Vol. 3: Recent and Future Trends in Pharmaceutics”, Editors: Amit Kumar Nayak and Kalyan Kumar Sen, Elsevier Ltd. USA **2024**, 393-414 [ISBN: 978-0-323-91816-9; DOI: 10.1016/B978-0-323-91816-9.00010-2].
 17. D.K. Lang, V. Singh, Md A. Ahmad, B. Saini, **B. Chandrasekaran**, R. Kaur, Recent advances in sustainability science for environmental conservation in the book entitled, “Role of Green Chemistry in Ecosystem Restoration to Achieve Environmental Sustainability”, Editors: A.L. Srivastav, A.S. Grewal, Markandeya, T.D. Pham, Elsevier Publisher, **2024**, 83-90 [ISBN: 978-0-443-15291-7; DOI: 10.1016/B978-0-443-15291-7.00018-3].

18. R. Kaur, S. Bali, S.S. Bandral, A. Kaur, D. Choudhary, B. Saini, **B. Chandrasekaran**, Mechanism of antibacterial drug resistance in the book entitled, “Contemporary Approaches to Mitigating Antibacterial Drug Resistance” Editors: A.S. Grewal, A.K. Dhingra, K. Nepali, G. Deswal, A.L. Srivastav, IGI Global Publisher, **2024**, 26-50 [ISBN: 9798369315408; DOI: 10.4018/979-8-3693-1540-8.ch002].
19. **B. Chandrasekaran**, * M.F. Bayan, N. Mansour, R. Oweis, R. Al-Halabi, K. Chidambaram, R. Kaur, Computer-Aided Biopharmaceutical Model Development in the book entitled “Physico-chemical aspects of dosage forms and Biopharmaceutics-Recent and Future Trends in Pharmaceutics”, Vol. 2, Elsevier Ltd. USA, **2024**, 339-351 [ISBN: 978-0-323-91818-3].
20. A. Gulati, R. Kaur, D. K. Lang, N. Rani, **B. Chandrasekaran**, Emergent Natural Antioxidant Therapeutics to Cope with Oxidative Stress in Alzheimer’s Disease in the book entitled, “Neuro-Nutraceuticals and Drug Discovery and Delivery in Alzheimer’s Disease Volume 2: Strategies to Unlock the Brain’s Fortress”. Editors: V. Singh, A. Kumar, and P. Sood, CRC Press, Taylor & Francis Group, Apple Academic Press, **2025**, 3-33 (expected-Sep-2025) [ISBN: 9781774919446].
21. R. Kaur, R. Kaur, S. Ahuja, U. Kaushik, **B. Chandrasekaran**, T.G. Singh, S. Mehta, Impact of Diet on Gut Microbiome and Metabolic Disorders in the book entitled, “Precision Nutrition and Endocrine Health: From Pregnancy to Chronic Diseases “. Editors: T.G. Singh and S. Mehta, Apple Academic Press, **2025**, in production (expected-Sep-2025) [ISBN: 9781998511860].

Editor- Journals and Books: 06

1. A Journal issue titled, “**Pharmacological and biochemical perspectives of kinase inhibitors in cancer and COVID-19 therapeutics-Volume I**” for the Journal **Frontiers in Pharmacology** [Impact Factor: **5.6**]. Editors: **Balakumar Chandrasekaran**, Muthupandian Saravanan (**2022**).
2. A Journal issue titled, “**Pharmacological and biochemical perspectives of kinase inhibitors in cancer and COVID-19 therapeutics-Volume II**” for the Journal **Frontiers in Pharmacology** [Impact Factor: **5.6**]. Editors: **Balakumar Chandrasekaran**, Muthupandian Saravanan (**2023**).
3. A book titled, “**Handbook on Nano-biomaterials for therapeutic and diagnostic applications**” for the prestigious **Publisher-Elsevier**. Editors: K. Anand, M. Saravanan, **Balakumar Chandrasekaran**, S. Kanchi, J. Panchu, Quan-Sheng Chen. **2021**, (DOI: <https://doi.org/10.1016/C2019-0-02593-9>; ISBN: 978-0-12-821013-0).
4. A book titled, “**Computation in bioinformatics and its multidisciplinary applications**” for the prestigious **Wiley-Scrivener Publishing House**. Editors: S. Balamurugan, K. Anand, D. Goyal, **Balakumar Chandrasekaran**, P. Boomi. **2021** (ISBN: 9781119654711).

5. A book titled, “**Small molecules and peptide-based candidates as therapeutics and vaccines for COVID-19 Pandemic**” **Frontiers Media, SA**, Editors: Dasan Jaradat, Munir Ali Mohammad, **Balakumar Chandrasekaran**, Saeid Abu-Romman, **2021** (ISBN: 9782889716470).
6. A book titled, “**Polymers in Functional Foods and Drugs: Chemistry and Essential Applications**” for the prestigious **Wiley-Scrivener Publishing House**. Editors: **Balakumar Chandrasekaran** and Mohammad F. Bayan, **2025** (in production stage).

Guidance of Master’s Projects: 13

1. Mr. Rakesh Gupta, Analytical method development and validation for related substance of pemetrexed disodium injection by RP-HPLC. Karpagam University (2012) India.
2. Ms. Divya Siriparapu, Development and validation of bioanalytical method for estimation norgestrel in human k₂- EDTA –plasma using LC-MS/MS method. Karpagam University (2012) India.
3. Mr. T. Lingaraj, Analytical method development and validation for the quantitative estimation of dorzolamide hydrochloride in ophthalmic solution form by RP-HPLC. Karpagam University (2012) India.
4. Mr. M. Chandrasekar, Analytical method development and validation for the quantitative estimation of tolterodine tartrate in capsule formulation by RP-HPLC. Karpagam University (2012) India.
5. Mr. M. Arun Kumar, Liquid chromatography-mass spectrometric (LC-MS) studies on combination of atorvastatin and metoprolol and its stress degradation products. Karpagam University (2012) India.
6. Mrs. Sam Pretty Khathi, Design, synthesis and evaluation of novel thiadiazoline-thiazolone hybrids as kinase inhibitors. University of KwaZulu-Natal (2017), South Africa.
7. Mr. Mohammed J. Abunuwar, Synthesis of novel biologically active heterocyclic compounds. Al-Balqa Applied University (2020), Jordan.
8. Km. Hema Singh, Formulation and evaluation of dosage form for management of kidney stones. ITM University-Gwalior (2022) India.
9. Mr. Prashant Sharma, Entrapment of enzyme in gelatin gel (pepsin). ITM University-Gwalior (2022) India.
10. Mr. Rajveer Singh Rajput, Formulation and in vitro evaluation of Divalproex sodium bilayered tablets. ITM University-Gwalior (2022) India.
11. Mr. Ranjit Singh Rajput, Formulation and evaluation or optimization of oxcarbazepine liquisolid compacts. ITM University-Gwalior (2022) India.
12. Mr. Rishiraj Saxena, Formulation development and evaluation of Midazolam injection BP (1

mg/ml). ITM University-Gwalior (2022) India.

13. Mr. Hammad Mahmood, Formulation and evaluation of Telmisartan fast dissolving tablets. ITM University-Gwalior (2022) India.

Research Grants and Projects: 08

1. Computer-aided Design, synthesis, anticancer evaluation, and formulations of new thiophene-fused heterocycles, funding from Philadelphia University, Jordan (2024-ongoing) [Amount of Grant: 6,300 USD].
2. Synthesis and evaluation of novel cyclin-dependent kinase (CDK) inhibitors as potential anticancer agents. Research project funding from Philadelphia University-Jordan for 2 years (from April 2018 to March 2020) [Amount of Grant: 14,000 USD].
3. Synthesis of novel biologically active heterocyclic compounds (Partial funding from Al-Balqa Applied University-Jordan) for 2 years (from April-2019 to March 2021) [Amount of Grant:6000 USD].
4. Design, synthesis, and evaluation of novel thiadiazoline-thiazolone hybrids as kinase inhibitors (funding from College of Health Sciences, UKZN, South Africa) for 2 years (from April-2015 to December 2016) [Amount of Grant: 2500 USD].
5. Design, synthesis, and evaluation of fluorinated pyrimidines as kinesin spindle protein inhibitors (Post-Doctoral Research – completed with research funding from National Research Foundation, Department of Science and Technology, South Africa and College of Health Sciences, University of KwaZulu-Natal, Durban, South Africa) for 3 years (from April-2015 to March 2017) [Amount of Grant: 54,000 USD].
6. Design, synthesis and evaluation of new fluorinated hetero-fused pyrimidine derivatives as adenosine receptor antagonists (PhD project-completed with Senior Research Fellowship funding from University Grants Commission (UGC), New Delhi, India (SRF-UGC) (2007-2011).
7. Design, synthesis, and evaluation of pyrimidines as potential antifungal agents (M. Pharm Project-completed with research funding from All India Council for Technical Education (AICTE-Fellowship), New Delhi, India (2004-2005).
8. Development of transdermal drug delivery systems (B. Pharm Project- completed with funded internally by RVS College for The TN Dr. MGR Medical University-Chennai, India (2001-2002).

International Collaborative Projects/Grants

1. International Collaborative Research Grant as one of the investigators in the project entitled “Mechanistic insight into the immunomodulatory and antiviral potential of Bodinoside: plant-

derived immunostimulant from an endangered medicinal herb of Asir region, Saudi Arabia”. Project Number: RGP.2/52/43 and the period from April 2022 to March 2023 funded by KKV-KSA.

2. Going Global Partnerships Exploratory Grant from British Council-UK for ITM University-India and **De Montfort University-UK**. The project period is from 11th December 2021 to 01st August 2022.

Invited lectures/talks delivered

1. Delivered a lecture titled, “Computer-aided Drug Design (CADD) Approaches for New Era of Medication” in the **International Conference Webinar “Biomaterials on Healthcare Application”** organized by Karunya Institute of Technology and Sciences (Deemed to be University) Coimbatore, India on 30th May-2020.
2. Delivered a lecture titled, “Computational tools in medicinal chemistry: Concepts and applications” in the **International Virtual Learning Series** organized by Arulmigu Kalasalingam College of Pharmacy, Tamilnadu, India on 11th August 2020.
3. Delivered a lecture titled, ‘Computer-aided drug design (CADD) Approaches for New Era of Medication’ for **AICTE Sponsored Online Faculty Development Program (FDP)**, Roland Institute of Pharmaceutical Sciences, Berhampur, Odisha, India on 18th Feb-2021.
4. Delivered a lecture titled, ‘Artificial intelligence in Drug Development: Recent trends and Future Perspective’ for **AICTE ATAL Academy sponsored Online Faculty Development Program (FDP)**, Roland Institute of Pharmaceutical Sciences, Berhampur, Odisha, India on 5th July-2021.
5. Delivered a lecture titled, ‘Artificial intelligence in Drug Design and Discovery’ for **DBT sponsored Online Popular Lecture Series**, V.V. Vanniaperumal College for Women, Tamilnadu, India on 5th March 2022.
6. Delivered a lecture titled, “Artificial Intelligence in Drug Design and Synthesis” in the 1st **International Conference of the Faculty of Sciences & Faculty of Pharmacy & The 17th Jordanian Chemistry Conference (JCC17) “Prospects for Chemical and Pharmaceutical Industries” (ICPCPI)** during 15 – 16 Nov-2022 at Isra University, Amman, Jordan.
7. Delivered a lecture on “Artificial Intelligence in Design and Synthesis of Drugs” on one day seminar conducted by **Shree Venkateshwara College of Paramedical Sciences-College of Pharmacy**, India on 9th August 2023.
8. Delivered oral presentation titled, “Bridging academia and industry: Effective networking techniques” organized by the University of Cyberjaya, Malaysia on 4th September 2024.
9. Delivered oral presentation titled, “Computational design of a novel inhibitor against COVID” in the **Second AAU International Conference on Pharmacy and Biomedical Sciences** organized by the Al-Ain University, Abu Dhabi, UAE on 22-23rd January 2025.

Scientific Presentations at conferences/seminars

1. Chaired a special scientific session for the '4th International Conference on Computing and Communication Networks (ICCCNet-2024)' organized by The Manchester Metropolitan University, Manchester, United Kingdom (UK) through hybrid mode on 18th October 2024.
2. Delivered oral presentation titled, "Polymeric-Based Formulation as Smart Drug Delivery System" in the e-conference named '**Polymers e-con2022**' organized by Research Catalyst on 23rd Nov-2023.
3. Poster presentation on 'In Vitro Evaluation of Smart Pellets as Intelligent Drug Delivery Systems." Proceedings of the 1st International Conference of the Faculty of Sciences & Faculty of Pharmacy & The 17th Jordanian Chemistry Conference (JCC17) "Prospects for Chemical and Pharmaceutical Industries" (ICPCPI) during 15 – 16 Nov-2022 at **Isra University**, Amman, Jordan.
4. Delivered oral presentation on the research work entitled, 'Ligand- and structure-based in silico approaches to identify novel kinesin spindle protein (KSP) inhibitors as potential anticancer agents' in 'The First International Conference of the Faculty of Pharmacy, **Mutah University**, Jordan held on April 18th-19th **2018**, The Dead Sea, Jordan.
5. Delivered oral presentation on the research 'Ligand- and structure-based in silico approaches to identify novel kinesin spindle protein (KSP) inhibitors as potential anticancer agents' for College of Health Sciences (CHS-UKZN) Research Symposium during 5-6th Oct-**2017**, Durban, South Africa.
6. Poster Presentation on 'Ligand- and structure-based in silico approaches to identify novel kinesin spindle protein (KSP) inhibitors as potential anticancer agents' in the CHPC National Meeting-**2016** (Mon 5th Dec - Fri 9th Dec **2016**), East London, South Africa.
7. Delivered oral presentation on the group research work titled, "Novel rhodanine hybrids as promising antimicrobial agents: Design, synthesis, biological evaluation and docking studies" for CHS-UKZN Research Symposium during 8-9th Sep-**2016**, Durban, South Africa.
8. Poster Presentation on 'Design, synthesis and evaluation of new fused pyrimidines as Dihydrofolatereductase (DHFR) inhibitors' 35th Annual Conference of Environmental Mutagen Society of India (EMSI) and International Symposium on "Mutagens Genetic Diversity for Health and Agriculture" held at **Panjab University**, Chandigarh, India during 12th to 14th March, **2010**
9. Poster Presentation on "Design, synthesis and evaluation of some novel hetero-fused pyrimidines as possible A₃ adenosine receptor antagonists". Scientific Sessions, Pharmaceutical Chemistry Division, Indian Society of Chemists and Biologists (ISCB) - 14th ISCB International Conference held at **Central Drug Research Institute (CDRI)**, Lucknow, India during 15-18th January, **2010**.
10. Poster Presentation on "*In silico* (docking) evaluation of some novel fused-pyrimidine derivatives on different models of A₃ adenosine receptor: A comparative study". Presented in Scientific Sessions, Pharmaceutical Chemistry Division, Association of Pharmaceutical Teachers of India (APTI) - **14th**

Annual National Convention held at **Jodhpur**, Rajasthan, India (Abstract No. PC-14) during 3-4 October, **2009**.

11. Poster Presentation on ‘Molecular fingerprint: a novel approach in drug design to synthesize drug-like molecules for chemotherapy of cancer’ Presented in Scientific Sessions of Chandigarh Science Congress (**CHASCON**), 14-15 March **2008**, **Panjab University**, Chandigarh, India.

Workshops / Seminars Participated

1. Participated in ‘**The Eleventh Conference on Scientific Research in Jordan**’ conducted by Faculty of Pharmacy, Al-Ahliya Amman University, Jordan on 11th Nov 2023.
2. Participated in the joint scientific day of the faculty of Allied Medical Sciences and Faculty of Pharmacy-Philadelphia University "Food and Drug Security: Challenges and Opportunities" on 16th May 2023 at Philadelphia University, Jordan.
3. Organized an awareness day in Utopia International School and Kindergarten, Al-Salt, Jordan on 19th Nov 2023.
4. Participated in the ‘Scientific Day-2023’ at Philadelphia University on 4th May-2023.
5. Participated in the Webinar on ‘**NEP Implementation with special reference to Multiple Entry and Exit**’ organized by UGC-Human Resource Development Centre, Devi Ahilya Vishwavidyalaya-Indore, India on 24th June 2022.
6. Participated in the **Intellectual Property Awareness/Training Program** under National Intellectual Property Awareness Mission organized by Intellectual Property Office and MoE’s Innovation Cell, India on 26th April-2022.
7. Participated in the **Intellectual Property Awareness/Training Program** under National Intellectual Property Awareness Mission organized by Intellectual Property Office, India on 5th April-2022.
8. Participated in the **International Conference Webinar** “Post COVID-19: Science and Technology” organized by SRM university, India on 29th May-2020.
9. Participated One Day Workshop ‘**Training on Processing of NMR raw data using Topspin**’ organized by **Jordanian Chemical Society**, Amman, on 29th Feb-2020.
10. Participated in ‘**Jordanian Chemistry Conference-2019**’ organized by Department of Chemistry, Faculty of Science, **The University of Jordan**, Amman on 10th October, **2019**.
11. Participated Centre for High performance Computing (CHPC) and University of KwaZulu-Natal (UKZN) organized **AMBER workshop** during January 25-28, **2016** held at UKZN, Westville campus, Durban, South Africa.
12. Participated in ‘**National Level Workshop on ‘Interpretation of spectral data and identification of phytoconstituents**’ organized by Dept of Chemistry, Karpagam University, Coimbatore, Tamilnadu,

India during 24-25th October, **2013**.

13. Participated in ‘**National Level Conference on ‘Emerging Trends in Herbal Research and Cancer Therapy’**’ organized by KMCH College of Pharmacy, Coimbatore on 26th June **2012**.
14. Participated in Staff Development Program on ‘**Validation of Analytical Methods and Procedures**’ organized by KMCH College of Pharmacy, Coimbatore during 5th-18th June **2012**.
15. Participated in ‘**National Seminar on Advances in Traditional Drug Discovery and Clinical Drug Evaluation**’ organized by RVS College of Pharmaceutical Sciences, Coimbatore during 11th-12th July **2011**.
16. Participated in ‘**National Seminar on Intellectual Property Rights**’ organized by Panjab University, Chandigarh on 30th March **2010**.
17. Participated in “**National Seminar on Translational Research in Molecular Oncology**”, Panjab University, Chandigarh on 8th December **2008**.
18. Participated in the 78th annual sessions of ‘**The National Academy of Sciences, India**’ at Panjab University, Chandigarh, 21-23 November **2008**.
19. Participated in ‘**SERC Summer School in Modeling and Informatics in Drug Design**’ in National Institute of Pharmaceutical Education and Research (NIPER), SAS Nagar, Mohali from **30 June to 18 July 2008**.
20. Participated in two days workshop on ‘**Pharma Healthcare Quality Concepts**’ in Chandigarh, 3-4 June **2008**.
21. Participated in ‘**Seminar for Lectures and Senior Lecturers**’ organized by Panjab University, Chandigarh on 29th March **2008**.

Personal Details

Date of Birth : 01-06-1981
Gender : Male
Nationality : Indian
Passport Number : X9435785 (India); validity upto 2033
Linguistic abilities : Tamil, English, Gujarati (speak), and Hindi (speak)
Marital Status : Married; (children-01)
Address in India : 5/169, Vidhya Gardens, Kullakkapalayam Pirivu, Pollachi,
Coimbatore (Dt), 642002, Tamilnadu, India.

References

<p>Dr. Mohammed F Bayan M. Pharm., PhD., Associate Professor and Head of Department (HOD) Faculty of Pharmacy Philadelphia University PO Box 1, Amman 19392, Jordan. Email: mbayan@philadelphia.edu.jo Phone: +96264799000 Ext. 2227 Contact: +962799181020</p>	<p>Dr. K. B. Ilango M. Pharm., PhD., Professor and Principal Shree Venkateshwara College of Paramedical Sciences, College of Pharmacy, Othkuthirai, Gobi-638455, Erode, Tamil Nadu, India Email: pharmprincisvcps@gmail.com Contact: +91-7904675065</p>
<p>Dr. Prasanalakshmi Balaji PhD Associate Professor College of Computer Science-King Khalid University, Abha 62529, Saudi Arabia. Email: prengaraj@kku.edu.sa Contact: +91-9502831467</p>	<p>Dr. Yazan Bataineh M. Pharm., PhD., Former Dean of the Faculty of Pharmacy, Philadelphia University PO Box 1, Amman 19392, Jordan. Email: ybatineh@philadelphia.edu.jo Contact: +962776655036</p>

Declaration

I hereby declare that the information given above is true to the best of my knowledge.

Place: Amman-Jordan

Roll No . 2428

Panjab University




Doctor of Philosophy

(In the faculty of Pharmaceutical Sciences)

Certified that Balakumar Chandrasekaran, Regd. No. 2007-ez-95,
son of Shri N. Chandrasekaran, and of
Tamil Nadu, has obtained the degree of Doctor of Philosophy
of this University on the result of the examination held in 2013.

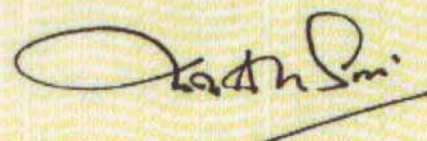
Given under the seal of the University


Controller of Examinations


Registrar




Vice Chancellor


Chancellor

Chandigarh, January, 1, 2013

QFO-HR-PA-105	رمز النموذج:	Employment Contract for Academic staff	اسم النموذج: Academic staff	 جامعة فيلادلفيا
1	رقم الإصدار: (Revision)	الجهة المصدرة: دائرة شؤون أعضاء الهيئة التدريسية		
2018-1-18	تاريخ الإصدار:	الجهة المنققة: عمادة التطوير والجودة		
5	عدد صفحات النموذج:			Philadelphia University

This contract is made and entered into this Day 16 Sunday of October 2022 by and between:

The First Party: Philadelphia University: A Private Jordanian University represented by the President of the University or his deputy duly authorized by the University Council to sign this contract, hereinafter referred to as " the First Party" or" the University".

The Second Party: Dr. Balakumar Chandrasekaran of India Nationality, who takes from Philadelphia University, the Faculty of Pharmacy a place of work and for the purposes of the execution of this contract, and the notification, and execution of all legal acts as long as he is at the head of his work. The provisions of Article 8 of the contract shall be taken into account for the alternative address represented by the chosen domicile if the second party leaves the place of work.

Whereas the First Party is a Private University according to the provisions of Private Universities Act, both parties undertake to entirely comply with and execute the provisions stipulated in the above mentioned Private Universities Act and any amendments effected on it or any other act that might replace it in the future, and with all provisions stipulated in all regulations, instructions and decisions issued in accordance with said Act and any amendments that might be effected on them or might replace them in the future.

Now, therefore, the two parties mentioned above agree to comply with and be fully bound to implement all terms and conditions set forth hereunder.

Article (01)

The preamble of this contract is considered an integral part of it.

Article (02)

- A. The Second Party is appointed by the First Party as Full Professor at the Faculty of Pharmacy for the period of (one year) from September 1, 2022 to August 31, 2023 The Second Party is entitled to have his/her salary as of the date he/she commences his/her work, and the Second Party accepts this appointment as per the terms and conditions stated in this contract.
- B. This contract is considered terminated by the end of the period specified in paragraph (A) of this Article unless the First Party notifies the Second Party of his desire to renew it in writing, in the event that the Second Party does not intend to continue or renew it, he/she should notify the First Party that he has no desire to continue or renew it within a period that should not exceed two weeks as of the date he/she was asked about his/her desire to renew it or not.





C. Balakumar
(Dr. Balakumar Chandrasekaran)



UNIVERSITY
GWALIOR • MP • INDIA

" CELEBRATING DREAMS "

ITMU/PF/Dr. Balakumar Chandrasekaran/2023/9514

February 08,2023

To whomsoever it may concern

Dr. Balakumar Chandrasekaran s/o Chandrasekaran has worked as **Professor** (In 6th pay, Pay band of Rs. 37400-67000 & AGP 10000, last basic pay - 47400) of **School of Pharmacy** in **ITM University Gwalior(MP)** from **July 16, 2021 to August 25, 2022(A/N)**.

He has also completed administrative responsibilities are as under:

- Dean , School of Pharmacy

He has been relieved from his services with the ITM University Gwalior w.e.f **August 25, 2022 (A/N)** at his own request.


(Dr. Omveer Singh)
Director HR

Research Statement

Cancer is the second leading cause of death and is alone responsible for 10 million deaths in the year 2020. Twenty-two million of new cancer cases will be anticipated by the year 2030. The current chemotherapy is less effective in combating cancer due to multiple reasons such as genetic variation, mutation of genes, inability to target specific proteins, and altered lifestyle. However, most of the chemotherapeutic agents are non-specific and destroy the host cells. Drug resistance is adding more problems during the treatment of cancers with chemotherapeutics. Thus, there is an urgent need to develop new, safe, and efficacious anti-cancer therapeutics exhibiting a broad spectrum of activity without host cell toxicity. Hence, my primary aim of research is to conduct target-based drug design by using computer-aided drug design tools like molecular docking and molecular dynamics simulations. In parallel, a ligand-based drug design such as QSAR and pharmacophore modeling is also employed in my research work. I have mainly used target-based drug design methods in my research because many of the target proteins implicated in cancer are available in their 3D structure in the protein data bank (PDB). From PDB, most of the validated drug targets in cancer were utilized in my research. For example, cyclin-dependent kinases, kinesin spindle protein (KSP), CD81, Hsp90, and tyrosine kinase are frequently targeted proteins in my research for the identification of lead molecules to treat cancers. Especially, in my KSP research, I collaborated with the School of Pharmacy, UCL, London, and discovered some novel molecules to inhibit the KSP. It is very crucial to disclose that we have submitted the crystal structure of the Eg5 - K858 complex into the PDB database. Further, we have separated enantiomers of K858 by chiral column chromatography which is more interesting in my research work. On the other side, similar drug resistance problems frequently occur in infectious diseases like tuberculosis. Hence, I worked on key target proteins such as MTB gyrase, inhA protein (Enoyl-acyl Carrier Protein Reductase), and DNA Topoisomerase as validated targets for developing anti-TB lead compounds. I have established strong collaborative research internationally with countries like the USA, UK, France, Germany, and the Czech Republic and subsequently published several research papers in high-impact reputed journals. COVID-19-related protein targets are also attracted to my research and worked on the protease of spike protein domain of COVID-19 and a few published papers and secured patents.

My secondary aim focuses on the synthesis of fused types of heterocyclic compounds as potential medicinal agents. In my research, green synthetic methods such as microwave-assisted organic synthesis and one-pot solvent-free synthetic methods are employed with the

help of parallel synthesizers for multistep organic synthesis. I have employed various sophisticated spectral characterization techniques such as FT-IR, $^1\text{H-NMR}$, $^{13}\text{C-NMR}$, $^{13}\text{C-dept NMR}$, 2D-NMR (HMQC and HMBC), mass spectra (LC-MS), and high-resolution mass spectra (HRMS) in characterizing my compounds.

I have been more concerned with developing my hands-on abilities in handling various software and synthetic procedures, training, and developing an extensive knowledge of experiments rather than intensive test-oriented knowledge. Over the past 18 years, I have commanded most of the basic skills necessary for undertaking dry-lab research such as Drug Design and Artificial Intelligence (AI), and wet-lab research such as synthesis and pharmacological screening. Further, I am involved in supervising research undergraduate, master's, and doctoral students, writing major grants, and publishing high-impact, high-rated indexed research articles. Thus, I am a highly self-motivated and experienced pharmaceutical chemistry person who cherishes high academic ambitions, possesses outstanding knowledge, and is determined to work harder to make even more proud achievements.

To summarize, at this point in my career, my research interests fall into two categories such as dry-lab research and wet-lab research around pharmaceutical chemistry. While I have specific interests in design and synthesis and pharmacological studies, I found another promising key area of research is Artificial Intelligence (AI) in Drug Design and Synthesis. AI has recently started to gear up its application in various sectors of society with the medical healthcare, biotech, and pharmaceutical industries as front-runner beneficiaries. Over the past few years, there has been a drastic increase in data digitalization in the healthcare sector. This motivates the healthcare sector to use AI tremendously because it can handle large volumes of data with enhanced automation. At Philadelphia University, in collaboration with the Faculty of Information, I am involved in research activities in AI applications in the early prediction of various diseases such as Alzheimer's disease (AD) cancer, and diabetes. Further, I had a vision of establishing AI/ML tools correlating to drug design and discovery processes to improve the health conditions of people.

In the immediate future, I would like to go further by integrating dry-lab experiments like AI-driven Drug Design and Discovery with wet-lab experimental verification. In the long term, I see myself working on intensifying my expertise in these areas by a proper blending of computational design and experiential work. For this reason, I hope that my application can be given the most serious consideration and positively incorporating me into your University.

Teaching Statement

My fundamental approach to teaching subjects of pharmaceutical chemistry emphasizes the importance of student-centric learning. The goal of pharmacy education is to support students in their ongoing journey of understanding pharmaceutical chemistry around pharmaceutical sciences. Pharmaceutical chemistry covers a wide range of subjects such as organic chemistry, medicinal chemistry, pharmacognosy-phytochemistry, biochemistry, natural product chemistry, and pharmaceutical analytical chemistry. Thus, it has a broader scope encompassing fine chemicals, pharmaceuticals, and formulated medicines. Through genuine care and attentive listening to my students, I foster a dynamic two-way channel of communication. This facilitates the continuous improvement in the quality of my teaching and learning activities. Having earned my Ph.D. from Panjab University (the number one university in India in 2014; THE-Asia ranking), I have taught various subjects/courses in Bachelor and Master programs of Pharmacy in India and Abroad.

My teaching methodology revolves around introducing fundamental theories and concepts of pharmaceutical chemistry which are extensively studied and applied in pharmacy and pharmaceutical sciences. This enables me to integrate my research findings and reliable literature to enrich the content of my course delivery, efficiently. As a professional educating teacher, I believe it is our responsibility to facilitate and guide students through basic knowledge, and decision-making capabilities, empowering them to develop their critical thinking and communication skills.

Further, I aspire to cultivate independent intellectual growth and learning among students, extending beyond conventional teaching methods. This is exemplified in my approach to mentoring graduate students. I invest substantial time in assisting them by detailing the course extensively, drafting the oral/poster presentations, and conducting role-playing exercises to enhance their competencies and skills. When working with graduate research students, I encourage them to explore recent research topics that resonate with their subjects of interest. Graduate students must identify gaps in the literature and justify the rationale behind their proposed research projects. Through ongoing support, constructive feedback, and training, I assist them in refining their research hypotheses through meaningful discussions, extensive literature reviews, and articulating their concepts in writing in the form of a thesis, research/review manuscript, and book chapters/books.

Utilizing my academic and professional background, I strive to craft enriching and engaging learning opportunities for both student pharmacists and graduate students. I firmly believe that learning should be a vibrant and captivating endeavor for all involved, fostering an environment where curiosity and exploration flourish. As I continue my journey in pharmacy teaching, the pursuit of competence holds a central position within the pharmacy profession. One of the guiding principles in the ‘Code of Ethics for Pharmacists’ highlights the importance of maintaining professional competence by providing a constant evolution of treatment advancements in healthcare. As a result, it is an essential aspect for students to hold the ethics of lifelong learning, a practice that should be instilled within the classroom environment.

I designed Pharmacy Informatics & Automation, Drug Design, and Phytotherapy courses (Philadelphia University) based on project-based (PBL) and team-based learning approaches. My commitment to teaching and learning aims to enhance educational experiences by providing, engaging, and stimulating learning environments, thereby contributing to the advancement of the pharmacy profession through evidence-based education. Effective educational processes necessitate contributions from both students and educators. Assessment of student attainment of educational objectives is essential, involving both formative and summative evaluation approaches. Collaborating with colleagues at the Faculty of Pharmacy-Philadelphia University, I have implemented assignments, group/individual projects, and e-PBL (electronic problem-based learning) to offer students formative feedback. Formative approaches empower students and faculty members to engage in constructive feedback exchanges, thus fostering continuous improvement in course/program learning outcomes.

My teaching philosophy is rooted in a commitment to ongoing quality enhancement which involves critically assessing both the contents and delivery methods of my courses. I utilize the latest, cutting-edge learning tools and technologies to empower students to effectively engage in the evolving landscape of blended learning through Moodle, Teams, and Whiteboard. These are the basic tools that are employed globally for e-learning/distance education, especially during the time of COVID-19. Since learning is a continuous journey, so too is teaching - an endeavor that is both challenging and rewarding. In the field of pharmacy, where advancements are rapid and boundless, there is much yet to be explored in terms of drug remedies and their critical role within the healthcare system.

To enhance our learning practices effectively, we require adaptable students who can seamlessly integrate new knowledge into their practice. This requires a continuous effort on literature survey and evaluation from the moment students enter the classroom. By fostering an environment of critical thinking and ongoing learning, we can ensure that our students are equipped to navigate the complexities of pharmacy and contribute meaningfully to the field. My mentoring skills enable me to address student needs since I am committed actively to engaging in the scholarly activities of teaching and learning. This involves providing cutting-edge blended learning experiences, mentoring student pharmacists, and assessing students in ways that empower them to learn and demonstrate their skills and competencies. With students, I have conducted community services and social activities from time to time and participated in student engagement in such activities.

I am dedicated to sharing my passion for the field with learners and creating a stimulating environment where they can explore the world of pharmacy and discover their paths. The core objective of my teaching philosophy is to educate the next generation of pharmacists as passionate, lifelong learners capable of applying their knowledge and practicing medication management judiciously within the healthcare system. I strive to demonstrate a positive and caring attitude during my interactions with students, as I believe building rapport is essential. By doing so, I aim to effectively engage and motivate student pharmacists and graduate students as they progress toward becoming pharmacy professionals, scholars, researchers, scientists, and doctoral candidates in pharmacy.

Summary of Best Research Publications

Cancer is the second leading cause of death and about twenty-two million of new cancer cases estimated within five years of time. The current chemotherapy is less effective in combating cancer due to multiple reasons such as genetic variation, mutation of genes, inability to target specific proteins, and altered lifestyle. However, most of the chemotherapeutic agents are non-specific and destroy the host cells. Drug resistance is adding more problems during the treatment of cancers with chemotherapeutics. Thus, there is an urgent need to develop new, safe, and efficacious anti-cancer therapeutics exhibiting a broad spectrum of activity without host cell toxicity. Hence, my primary aim of research is to conduct target-based drug design by using computer-aided drug design tools like molecular docking and molecular dynamics simulations. I have mainly used target-based drug design methods in my research because many of the target proteins implicated in cancer are available in their 3D structure in the protein data bank (PDB).

Kinesin spindle protein (KSP), cyclin-dependent kinases, and Hsp90 are the validated targeted proteins in my research for the identification of lead molecules to treat cancers. Kinesins are the MT-based motor proteins involved in mitotic spindle assembly, MT remodelling, subcellular organelle positioning and chromosome segregation. In this study, ligand-based pharmacophore models were developed and validated. The best pharmacophore model (Hypo1) was employed for database screening to identify novel scaffolds. The hit ligands were subjected to molecular docking and best docked complexes were taken for MD simulation (structure-based approaches). Finally, two ligands (MB-41570 and CB-10358) were identified as novel hits. Synthesis and in vitro experimental validation of hits were conducted through an active collaboration with Prof. Frank from the School of Pharmacy, UCL, London. Thus, we discovered novel molecules to inhibit the KSP at $IC_{50} = 100 \mu M$ and published successfully.

C. Balakumar, M. Ramesh, C.L. Tham, S.P. Khathi, F. Kozielski, C. Srinivasulu, G.A. Hampannavar, N. Sayyad, M. E. Soliman, R. Karpoormath, Ligand- and structure-based *in silico* approaches to identify the potential kinesin spindle protein (KSP) inhibitors as anticancer agents, *Journal of Biomolecular Structure and Dynamics* **2018**, *36*, 3687-3704 [DOI: 10.1080/07391102.2017.1396255; e-ISSN: 1538-0254; Impact Factor: **2.7**].

The *in silico* studies guided us to improve the potency of the compounds to design novel thiadiazole-based hybrid analogues as inhibitors of KSP. A library of thiadiazole-thiazolone hybrids were generated and evaluated for their inhibition towards the basal and MT-stimulated KSP ATPase. An *in silico* molecular docking study using the crystal structure of Eg5 (PDB ID: 2UYM) supported the SAR studies. At present, we have obtained the potency at $IC_{50} = 17.2 \mu\text{M}$ and published the work, successfully.

S.P. Khathi, **B. Chandrasekaran**, S. Karunanidhi, C.L. Tham, F. Kozileski, N. Sayyad, R. Karpoornath, Design and synthesis of novel thiadiazole-thiazolone hybrids as potential inhibitors of the human mitotic kinesin Eg5, *Bioorganic and Medicinal Chemistry Letters* **2018**, 28, 2930-2938 [DOI: 10.1016/j.bmcl.2018.07.007; e-ISSN: 1464-3405; Impact Factor: **2.5**].

However, we are interested to improve the potency further to sub-micromolar level, we have studied the K858 under MT-stimulated Eg5 ATPase activity and reached best IC_{50} of $1.3 \mu\text{M}$. It is very crucial to disclose that we have submitted the crystal structure of the Eg5 - K858 complex into the PDB database. Further, we have separated enantiomers of K858 by chiral column chromatography which is more interesting in my research work. Crystal structure of the Eg5 - K858 complex revealed the active isomer is S-K858. Though the racemic K858 is used for crystallization process, the protein bound with S-isomer only which was confirmed in the crystal structure of the Eg5 - K858 complex. This motivated us to undertake enantiomeric separation of K858 by chiral column Chromatography. Enantioselective HPLC analyses were performed by using stainless- steel Chiralpak IA (250mm×4.6mm i. d. and 250mm×10mm i.d.) and successfully separated both R and S isomers of K858. Biological assays were repeated individually for R and S isomers which confirmed the biologically active isomer is S- isomer only. Based on the structural insights gained from the Eg5-K858 complex, we could use this structure for rationalizing our study. This will serve as a basis for future structure-based drug design of this very important chemical scaffold. Presently, the compounds are under preclinical *in vivo* evaluation. This interesting work has been published successfully.

S.K. Talapatra, C.L. Tham, P. Guglielmi, R. Cirilli, **B. Chandrasekaran**, R. Karpoornath, S. Carradori, F. Kozileski, Crystal structure of the Eg5 - K858 complex and implications for structure-based design of thiadiazole-containing inhibitors, *European Journal of Medicinal Chemistry* **2018**, 156, 641-651 [DOI: 10.1016/j.ejmech.2018.07.006; e-ISSN: 1768-3254; Impact Factor: **6.0**] [X-ray crystal structures were deposited into the Protein Data Bank (PDB IDs: 6G6Y & 6G6Z), Chiral separation is done for the enantiomers].