Curriculum Vita

Name: **Dr. Maheshkumar Dhondiram Kharat**

Designation: **Academic Coordinator (Assistant Professor)**

Mobile: **+91 8007481777**

E-mail**:** **kharatmd119@gmail.com**

Education:

Doctor of Philosophy	University: **Savitribai Phule Pune University, Pune** Discipline: …**Biotechnology**…… Year of Passing…**2018**……. Research Topic: **Effect of *Aerva sanguinolenta* (Linn.) Blume and Oseltamivir on Leishmania Parasites and Macrophages.**
Master of Philosophy	University: **Savitribai Phule Pune University, Pune** Discipline: …**Zoology**…… Year of Passing…**2012**……. Research Topic: **Evaluation of Drug Targets in *Leishmania* parasites for Anti-Leishmanial Therapy**
Master of Science	University: **Savitribai Phule Pune University, Pune** Discipline: ….**Zoology**…… Year of Passing…**2009**……. Research / Dissertation Topic:
Bachelor of Science	University: **Savitribai Phule Pune University, Pune** Year of Passing…**2006**…….
Diploma 1	**Diploma in Medical Laboratory Technology (DMLT)** Institution: **PHMT, AIPS, Delhi** Year of Passing…**2005**…….
Diploma 2	**Diploma in Livestock Management & Service (LSMS)** University: **Shivaji University, Kolhapur** Year of Passing…**2005**…….
Diploma 3	**Diploma in Mass Communication & Journalism (MCJ)** University: **YCMOU, Nashik** Year of Passing…**2020**…….

PROFESSIONAL SUMMARY

An innovative and cross-functional research biologist with over 9 years of research experience leading and contributing to interdisciplinary research projects in drug discovery, immunomodulation, anti-parasitic therapeutics, and nanotechnology. Expertise spans infectious diseases, preclinical studies, immunoparasitology, nanotechnology, molecular/cell biology, and the combination of medicinal plant molecules, synthetic compounds, and multi-omics analysis (proteomics, metabolomics, lipidomics). A highly motivated scientist with a proven track record of securing grants, publishing findings, mentoring junior researchers, and managing complex laboratory operations, committed to innovative solutions for infectious diseases and oncology, with a parallel focus on developing new technologies for deep space research.

CORE COMPETENCIES

- **Research Area:** Drug Discovery & Development, Ayurvedic & traditional medicine, organic & synthetic molecules, drug repurposing, preclinical safety/toxicology.
- **Omics Technologies**: Proteomics, metabolomics, lipidomics, genomics, interactomics, bioinformatics, nanotechnology,
- **Technical Expertise**: Animal/Human/Insect/Parasites Cell lines and culture (ATC), Flow cytometry, biochemical assays, protein crystallization, NMR/FTIR, Microscopy, LC-GCMS, Endocrinological, epidemiological, translational, assay development, Mol-Cell bio techniques, pre-clinical/Clinical studies.
- **Disease Focus**: Infectious diseases, immuno-parasitology, immunomodulation, oncology, Alzheimer's, Parkinson's disease, autoimmune disorders, cardiac and paralytic disorders, rare diseases, and chronic infections.
- **Laboratory Management:** SOP Development, Quality Assurance, grant writing, cross-functional collaboration, negotiation, Equipment Management, Budgeting & Procurement, Team Leadership & Training
- **Software**: Bioinformatics tools & 0ther software related to work
- **Technology**: Medical and biotech devices, robotics, space tech.

PROFESSIONAL EXPERIENCE

Freelance Researcher | Self-Employed, India
June 2019 – Present

- Provided specialized consulting services in drug discovery & formulations, omics technologies, and preclinical research for pharmaceutical and biotechnology companies and researchers.
- Led independent research projects focusing on nanotechnology applications in infectious disease, Alzheimer, Parkinson, Paralysis, Cardiac treatment and treatment and cancer therapeutics.

- Collaborated with national and international research teams for drug development initiatives.
- Developed and validated novel bioassays for the clients targeting infectious diseases, oncology, and their specific applications.
- Formulated and validated novel nutritional supplements and Ayurvedic formulations by integrating traditional knowledge with modern scientific validation, including metabolomic profiling for standardization and preclinical safety assessments of related nutraceutical products.
- Discuss and delivered specialized information on advanced laboratory techniques and tools, and applications.
- Provided regulatory affairs consulting for preclinical safety/toxicity assessments and clinical trial designs.
- Leveraging expertise in biotechnology and nanotechnology to conceptualize and develop novel technologies and devices for deep space research and development.

Founder & CEO | Astronovaex AI-Tech Pvt. Ltd. India
January 2025 – Present

- **Space Systems & Frontier Technologies:** Visionary leader specializing in the development of deep-space observatories and the engineering of reusable rockets, satellites, and orbital infrastructure. I spearhead groundbreaking initiatives in space medicine, robotics, and asteroid mining to support long-term colonization and extraterrestrial resource extraction. My expertise encompasses high-level research in quantum computing, nanotechnology, and dark space phenomena to drive next-generation interstellar travel. A champion of ethical governance, I oversee complex projects in biotechnology and AI to bridge the gap between terrestrial and space-based healthcare. I am dedicated to fostering international collaboration and inspiring public interest in the sustainable expansion of human presence across the universe.

Founder & President | Dsrak Association of Research & Development Organisation (DARADO NGO), India
April 2024 – Present

- **Socio-Technical Development & Strategic Leadership:** Visionary leader driving holistic social upliftment by integrating grassroots humanitarian aid with cutting-edge frontier technologies like AI, space science, and biotechnology. I specialize in the economic empowerment of women and underprivileged communities through large-scale initiatives in entrepreneurship, vocational training, and legal rights awareness. My expertise includes establishing world-class educational and medical institutions, managing disaster relief, and implementing sustainable infrastructure for rural and urban development. I lead high-impact programs in environmental conservation and advanced research, partnering with government bodies to bridge the gap between traditional welfare and modern innovation. I am dedicated to fostering a scientific temper and ensuring social justice, human rights, and sustainable prosperity across diverse global landscapes.

Senior Research Fellow | S.P. Pune University, Pune, India
April 2015 – March 2017

- Spearheaded ICMR-Adhoc project evaluating Gallic acid and Shikimic acid for anti-leishmanial properties.
- Analyzed drug mechanisms and effects on *Leishmania* enzymes using BRM (Biological Response Modifiers) approaches.

Laboratory Manager | S.P. Pune University, Pune, India
January 2010 – May 2017

- Oversaw lab operations, equipment maintenance, and vendor negotiations for consumables ($250K grant secured).
- Mentored 20+ professionals; taught immunology, cell biology, and parasitology.
- Implemented GMP-compliant quality control and troubleshooting protocols.

Assistant to Production Manager | Govind Milk & Milk Products Pvt. Ltd., India
May 2008 – May 2009

- Enhanced raw milk quality, sanitation, and GMP compliance in processing/packaging.
- Implemented QC improvements adopted across facilities.

SELECTED PUBLICATIONS

1. Asad Syed, Marzouq H. Al Saedi, Ali H. Bahkali, Abdallah M. Elgorgan, **Mahesh Kharat**, Kalpana Pai, John Pichtel & Absar Ahmad **(2022)** αAu2S nanoparticles: Fungal-mediated synthesis, structural characterization and bioassay, Green Chemistry Letters and Reviews, 15:1, 59-68, https://doi.org/10.1080/17518253.2021.1999509.
2. Ejaz Ahmad Siddiqui; Rashmi Sharma; Asad Syed; Shadab Ali Khan; Ravindra Taware; **Maheshkumar Kharat**; Kalpana Pai; Narendra Kadoo; Vidya Gupta and Absar Ahmad **(2022)**. Biosynthesis of fluorescent cadmium sulfide nanoparticles using neem endophytic fungus along with studies on their antiproliferative and antimicrobial activities. Kavaka, 58(2):57-65, DOI:10.36460/Kavaka/58/2/2022/57-65
3. Syed, A., Al Saedi, M. H., Bahkali, A. H., Elgorban, A. M., **Kharat, M.**, Pai, K., … Ahmad, A. **(2021)**. Biological synthesis of α-Ag2S composite nanoparticles using the fungus Humicola sp. and its biomedical applications. Journal of Drug Delivery Science and Technology, 66, 102770. https://doi.org/10.1016/j.jddst.2021.102770.
4. **M. Kharat**, K. Kharat, S. Sundar, K. Pai, **(2018)**. Metabolomic approach to study the Aerva sanguinolenta plant extract mechanism of action in Leishmania parasite. International Journal of Infectious Diseases 73S : 3–398. https://doi.org/10.1016/j.ijid.2018.04.3740.
5. Ejaz Ahmad Siddiqui, Absar Ahmad*, Anju Julius, Asad Syed, Shadab Khan, **Mahesh Kharat**, Kalpana Pai, Narendra Kadoo and Vidya Gupta **(2016)**. Biosynthesis of anti-proliferative gold nanoparticles using endophytic Fusarium oxysporum strain isolated from Neem (A. indica)

leaves. Current Topics in Medicinal Chemistry Vol. 16, Issue:18, page: 2036-2042. DOI: 10.2174/1568026616666160215160644.

6. Taware R, Abnave P, Patil D, Rajamohananan PR, Raja R, Soundararajan G, Kundu GC, **Kharat MD**, Pai K and Ahmad A. **(2015)**. Trichothecin from Endophytic Fungus Trichothecium sp. and its Anticancer Effect on Murine Melanoma and Breast Cancer Cell Lines. Current Biochemical Engineering, Vol. 2, Issue:1, page: 73-80. https://doi.org/10.2174/2212711901666140804220845.
7. **Kharat M**; Kaur J. and Pai K. **(2015)**. Effect of Aerva sanguinolenta (L.) Blume on Leishmania donovani parasites: causative organism of Visceral leishmaniasis. Book of Natural Products Recent Advances; write and Print Publication; Page:235-253. ISBN:9788192970530.

Note: 20+ articles under review/in preparation.

HONORS & AWARDS

- **Erasmus Mundus Fellowship** | University of Göttingen, Germany (2015-16)
- **ICMR-Adhoc Senior Research Fellow** | Indian Council of Medical Research (2015–2017)
- **UGC-Maulana Azad National Fellowship** | University Grants Commission (2010–2014)

TRAINING & CERTIFICATION

- **Spawn Production Technology** | Mahatma Phule Krish Vidyapeeth, College of Agriculture, Pune, India | 2003
- **Entrepreneurship Development** | Bombay Veterinary College & Maharashtra Centre For Entrepreneurship Development, Bombay | 1998
- **Milk Collection & Quality Control** | Konkan Krishi Vidyapeeth, Dapoli & Bombay Veterinary College, Bombay | 1998
- **Fiber Glass Molding** | Omkar Plastic Institute, Kolhapur, India | 1995

PRESENTATIONS & CONFERENCES

- **Oral Presentation:** "In vitro antileishmanial activity of the medicinal plant extract of Aerva sanguinolenta (Linn.) Blume" | 3rd International Congress of Society for Ethnopharmacology | Pandit Ravishankar Shukla University, Raipur, Chhattisgarh, India | Feb 19-21, 2016
- **Oral Presentation:** "Effect of A. sanguinolenta (L.) Blume on L. donovani parasites causative organism of Visceral leishmaniasis" | 7th International Symposium of the International Society for the Development of Natural Products, 6th National Symposium of the National Society of Ethnopharmacology, India & 1st International Symposium of Phytochemical Society of Asia | Amity University U.P Noida, India | Nov 15-17, 2012

- **Participant:** "The BioCity Student Symposium on Life in Science" and "The 25th Annual BioCity Symposium on Control and Communication- Molecular law and order in biological Systems" | Pharmacity and Mauno Conference Center, BioCity, Turku, Finland | Aug 26-28, 2015
- **Poster Presentation:** "Effect of Aerva sanguinolenta on Leishmania parasites" | International Conference on Current Trends in Medicinal Plants Research | Department of Botany, University of Pune, Pune, India | Jan 10-12, 2012
- **Poster Presentation:** "Evaluation of Drug Targets for Anti-Leishmanial Therapy" | Symposium on Vectors & Vector Borne Diseases | Regional Medical Research Center For Tribal, (ICMR), Jabalpur, M.P. | Oct 15-17, 2011

TRAINING & WORKSHOPS

- **Workshop on अनुवाद कार्यशाळा** |YCMOU, Nashik and National Book Trust, New Delhi, India | Dec 25-28, 2025
- **Workshop on NEP Orientation and Sensitization Program**| MMTTC, National Institute of Educational Planning and Administration, New Delhi.| Dec 22-31, 2025.
- **Workshop on How to Write Research Proposal to get Research from ICSSR** | Prof. Ram Takawale Research & Development Center, YCMOU, Nashik | Dec 1, 2025.
- **Workshop on Research Visibility, Ethical Publishing & Use of AI Tools in Research** | Prof. Ram Takawale Research & Development Center**,** YCMOU, Nashik **|**Nov 19-20, 2024.
- **Workshop on Cancer Proteogenomics (CPG-2018)** | IIT Bombay, Maharashtra, India | Dec 6-11, 2018
- **Workshop on Interactomics-High-throughput Technologies to Study DNA & Protein Interactions** | Global Initiative for Academic Network (GAIN) at IIT Bombay, Maharashtra, India | Feb 24-28, 2018
- **Workshop on Algorithms in Bioinformatics** | Department of Bioinformatics, Savitribai Phule Pune University, Pune, India | Jan 9-12, 2017
- **Workshop on Open Software, Data & Standard in Geoinformatics: Three Pillars for Building Innovative ICT Solutions** | Global Initiative for Academic Network (GAIN) at Savitribai Phule Pune University, Pune, India | Nov 23-29, 2016
- **Workshop on Epigenetic Gene Regulation in Biology & Medicine** | Maharashtra State Biodiversity Board (MSBB) at Department of Botany, Savitribai Phule Pune University, Pune, India | Mar 30, 2016
- **Workshop on Sensitization About Biological Diversity Act, 2002 & The Role of Academicians** | Global Initiative for Academic Network (GAIN) at Savitribai Phule Pune University, Pune, India | Nov 23-29, 2016
- **Workshop on Guideline on Use of Animals in teaching & Research as per CPCSEA, Govt. of India & UGC** | Quality Improvement Programme (QIP) of UoP at Department of Zoology, University of Pune, Pune, India | Feb 25, 2016

- **Workshop on RNA-Seq Data Analysis with Chipster** | CSC-IT Center for Science Ltd. Turku, Finland | May 25, 2015
- **Workshop on Label-free Proteomics** | 6th Annual Meeting of the Proteomics Society, India at IIT Bombay, Maharashtra, India | Dec 10-11, 2014
- **Workshop on Taxonomy and Ecology of Freshwater Zooplankton: Theory and Practice with Emphasis on Scientific Manuscript Preparation** | UPE-UoP program at Department of Zoology and Botany, University of Pune, Pune, India | Nov 25-28, 2013
- **Springer Summit on Materials & Protocols** | Springer at Pune, India | Jun 28, 2013
- **National Workshop on Techniques for Endocrine Research** | Department of Zoology, University of Delhi, organized by Indian Society for Comparative Endocrinology and Delhi University | Dec 20-29, 2012
- **DBT Hands-on Training Workshop on Methods in Molecular Analysis Complex Diseases** | Center for Genomics, Jiwaji University, Gwalior, Madya Pradesh | Feb 20 – March 10, 2012
- **Workshop on Phytochemical Analysis of Therapeutically Active Constituents of Pharmaceutically Important Medicinal Plants** | Department of Botany, University of Pune, Pune, India | Jan 13, 2012
- **Workshop on Nano Science and Its Applications** | Central Facility for Biotechnology Teaching and Research, Madurai, TN, India | Jun 4-12, 2011
- **Workshop on Immunoinformatics** | Department of Bioinformatics, University of Pune, India | Apr 5-10, 2011

PROFESSIONAL AFFILIATIONS

• **Company Leadership**: Founder & Director of Astronovaex AI-Tech Pvt. Ltd. • **NGO Leadership:** Founder President of Dsrak Association of Research & Development Organisation (DARADO), India • **NGO Leadership:** Founder Executive-President of Natural Charitable Trust, Phaltan, India • **NGO Leadership:** Founder President of Khalipa Pratishthan, Phaltan, India • **Life Member:** Cheeky Scientist Association (CSA), USA • **Life Member:** International Society of Infectious Diseases (ISID), Massachusetts, USA • **Life Member:** Federation of European Toxicologist & European Societies of Toxicology (EUROTOX), Zurich, Switzerland • **Life Member:** Association of Zoologist India, Pune, India • **Life Member:** National Academy of Vector and Vector-Borne Diseases (NAVBD), Orissa, India • **Member:** Asia Pacific Association of Medical Journal Editors (APAME), Philippines • **Member:** American Society of Parasitologists, USA • **Member:** Royal Society of Tropical Medicine and Hygiene, London • **Member:** Metabolomics Society, Melbourne, Australia • **Member:** American Committee on Clinical Tropical Medicine and Travelers Health (ACCTMTH), USA.

Skill Set: Technical Skills

Biochemical Techniques

- Flowcytometry, Crystallography/XRD, FTIR, NMR, LCMS/GCMS, UV/VIS Spectroscopy, Bia Core/BLI, Microscopy

Animal Tissue Culture (ATC) Techniques

- Human/Animal & Insect Cell Lines, Primary & Secondary Cell Culture
- Field & Reference Isolates Parasite Culture, Bacterial/Fungal Cultures
- Media Preparation, Cell Culture Maintenance, Cryopreservation

Molecular Biology Techniques

- RT-PCR, Gel-Electrophoresis, SDS/2D-PAGE, Blotting (Northern/Southern)
- DNA/RNA Isolation, Recombinant DNA/Protein, Primer Designing

Immunology & Cell Biology Techniques

- ELISA, RIA, Fluorescence Microscopy/Flowcytometry, Antibody Isolation
- Immunofluorescence, Pre-Clinical Studies, Enzyme/Biochemical Assay
- Metabolomics/Proteomics/Lipidomics/Interactomics Analysis, Toxicological Analysis

Microscopy

- Bright Field, Fluorescence, Scanning Electron, Confocal Microscopy

Nanotechnology

- Biological/Chemical Synthesis of Nanoparticles (NP), NP Characterizations
- Capping/Tagging of NP, Biological Applications

Biodiversity & Field Research

- Field Work, Sample Collections (Insects/Water/Soil/Plant/Moss)
- Organism Isolation/Culturing/Taxonomic Analysis, Insect Colony Maintenance (Sand Fly/Mosquito)
- Sample Preparation for Microscopy/Biochemical Analysis, Toxicological Studies

Pharmacology Techniques

- Medicinal Plant Collection, Solvent Extraction, Compound Isolation
- Sample Preparation & Characterization, Traditional Medicines
- Biochemical Analysis, Biological/Toxicological Analysis

Other Laboratory Techniques

- Endocrinological Studies, In-vitro/In-vivo Angiogenesis, Pre-Clinical Studies
- Epidemiological Research, Translational Research, Assay Development, Innovations

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Software & Computational Skills

- **Analytical Tools**: Proteomic/Metabolomic/Lipidomic/Interactomic/Crystallographic Tools
- **Design & Visualization**: Graphical Tools, MS Office Suite
- **Data Management**: Cloud Tools, Statistical Analysis Tools
- **Virtual Collaboration**: Virtual Tools

Professional Strengths & Soft Skills

Leadership & Strategy

- Strategic Planning, Research Management, Business Acumen
- Leadership, Cross-Functional Team Collaboration

Communication & Interpersonal Skills

- Public Speaking, Negotiation, Presentation Skills
- Relationship Building, Emotional Intelligence, Interpersonal Communication

Operational Excellence

- Information/Project/Time Management, Organizational Skills
- Adaptability: Work Efficiently in Dynamic Environments with Changing Priorities
- Problem Solving, Quick Learning

Community & Outreach

- Rural Community Development, Motivational & Counseling Skills
- Event Planning & Management, Public Relations

Certifications

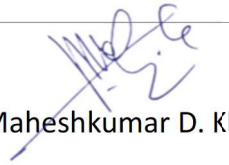
- Industrial Certifications (e.g., safety protocols, specialized instrumentation)

Key Highlights

- **Multidisciplinary Expertise**: Integrates biochemistry, molecular biology, immunology, nanotechnology, and biodiversity research.
- **Innovative Research**: Proficient in assay development, translational research, and pre-clinical studies.
- **Global Collaboration**: Cross-functional work with academic, industrial, and community stakeholders.
- **Adaptability**: Thrives in evolving research environments with strong organizational and time-management skills.
- **Freelance Work:** Proficient in research, clinical development, regulatory affairs, quality assurance and compliance skills.

Other information and References available upon request.

Nashik | February 10, 2026



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