

NAME	Dr. Pooja Vijayaraghavan
DESIGNATION	Professor
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RESEARCH INTERESTS: Antifungal drug discovery and development. Exploring antifungal mode of action of natural products and their derivatives, novel antifungal drug targets and drug resistance in infectious diseases.	<ul style="list-style-type: none"> • Understanding the effect of natural products and small molecules on virulence and Pathogenicity of <i>Aspergillus fumigatus</i> • Identification of molecules from natural sources efficacious against Azole resistance <i>A. fumigatus</i> and their biofilms. • Understanding host pathogen interaction of <i>Magnaporthe</i> causative agent of rice blast disease • Understanding the resistance pattern in the environment towards tricyclazole pesticides and correlating it with medical triazoles • Understanding the impact of bioactive compounds and synthetic analogues on the virulence and pathogenicity of <i>Mucorales</i>

EDUCATIONAL QUALIFICATIONS:
PhD

Name of College / University	Degree	Year
CCS University Meerut	BSc	1997
Jamia Hamdard	MSc Biochemistry	1999
Jamia Hamdard	PhD	2004

Title of Ph.D. thesis:

Expression, Purification and Characterization of Bioactive Gonadotropic Hormone FSH and LH in Baculovirus expression Vector system

EXPERIENCE (in chronological order)

Designation	Type of post held (teaching/ research)	Name of the Institute	Year (From – To)
Scientist	Research	Bharat Biotech International Ltd	Jan 2004-June2005
Lecturer	Teaching	St. Francis Degree College, Affiliated to Osmania University, Hyderabad	April 2006-March 2009
Associate Professor	Teaching and Research	Amity University Uttar Pradesh	July 2014-June 2018
Professor	Teaching and Research	Amity University Uttar Pradesh	2018-Till data

No. of Ph.D. students supervised	Awarded: Two
	Ongoing: Four
No. of PG and UG students supervised	Thirty Five

PUBLICATIONS: Last 5 years

1. Systems Biology Approach Reveals Succinyl-CoA and Hydroxycitrateas potential therapeutics for the treatment of Vulvovaginal Candidiasis Priyanka Narad AbhishekSengupta; Sudeepti Kulshrestha; Ritu Redhu;Ankur Chaurasia; Payal Gupta; Muskan Syed Pooja Vijayaraghavan; Somesh Gupta. Accepted in *Next Research* **2025** <https://doi.org/10.1016/j.nexres.2025.100190>
2. Exploring Host Immunity and Virulence in Mucorales. Aastha Chauhan, Pooja Sen, Aman Singh, Krishna Prajapati, Vanshika Jain and Pooja Vijayaraghavan. *Springer Nature* **2025** https://doi.org/10.1007/978-981-97-8739-5_18
3. *In-vivo* transplantation of intrahepatic cholangiocyte organoids with decellularized liver-derived hydrogel support hepatic cellular proliferation and differentiation in chronic liver injury. Ashwini Vasudevan, Arka Sanyal, AkashKumar Mourya, Aarti Sharma, Archana Rastogi, Sourabh Ghosh, Pooja Vijayaraghavan, ShivKumar Sarin, Savneet Kaur, Dinesh Mani Tripathi. *Journal of Materials Chemistry B*, **2025**. DOI: 10.1039/D4TB01503G
4. Injectable Hydrogels for Liver: Potential for Clinical Translation. Ashwini Vasudevan; Doyel Ghosal; Sita Ram Sahu; Narsing Kumar Jha; Pooja Vijayaraghavan; Sachin Kumar; Savneet Kaur. *Chemistry - An Asian Journal*, **2024**. <https://doi.org/10.1002/asia.202401106>
5. Understanding Molecular Pathogenesis of *Aspergillus fumigatus*. Pooja Sen, Lovely Gupta, Aman Singh, Lokesh Kumar, Rajan Kumar Mishra, Pooja Vijayaraghavan. Published in Book Recent Advances in Human Fungal Diseases.. DOI : 10.1007/978-981-97-4909-6. *Springer Nature Singapore*, **2024**
6. An Update on Human Fungal Diseases: A Holistic Overview, Shweta Singh, Pooja Vijayaraghavan, Sandhya Devi, Saif Hameed. Published in Advances in Antifungal Drug Development: Natural Products with Antifungal Potential. Pg 3-37, *Springer Nature, Singapore*, **2024**
7. Integrating In-silico and In-vitro Approaches to Identify Plant-Derived Bioactive Molecules against Spore Coat Protein CotH3 and High Affinity Iron Permease FTR1 of *Rhizopus oryzae* Lovely Gupta, Pawan Kumar, Pooja Sen, Aniket Sharma, Lokesh Kumar, Abhishek Sengupta, Pooja Vijayaraghavan. *Current Research in Microbial*

<https://doi.org/10.1016/j.crmicr.2024.100270>

8. Biomarker Identification for Preterm Birth Susceptibility: Vaginal Microbiome Meta-Analysis Using Systems Biology and Machine Learning Approaches. Sudeepti Kulshrestha, Priyanka Narad, Brojen Singh, Somnath S Pai, Pooja Vijayaraghavan, Ansh Tandon, Payal Gupta, Deepak Modi, Abhishek Sengupta. *American Journal of Reproductive Immunology*, 2024. <https://doi.org/10.1111/aji.13905>
9. FRI-547-YI Regenerative matrix-based hydrogels repair hepatocellular damage and promote cellular proliferation in pre-clinical models of acute liver injury. Ashwini Vasudevan, Arka Sanyal, AkashKumar Mourya, Aarti Sharma, Archana Rastogi, Sourabh Ghosh, Pooja Vijayaraghavan, ShivKumar Sarin, Savneet Kaur, Dinesh Mani Tripathi. *Journal of Hepatology*. 2024. [https://doi.org/10.1016/S0168-8278\(24\)01163-2](https://doi.org/10.1016/S0168-8278(24)01163-2)
10. Precision nutrition-based strategy for management of human diseases and healthy aging: Current progress and challenges forward. Vipin K Singh, Hu Xiaohu, Amit K Singh, Manoj K Solanki, Pooja Vijayaraghavan, Rajpal Srivastav, Naveen C Joshi, Madhuree Kumari, Sandeep Kumar Singh, Zhen Wang, Ajay Kumar. *Frontiers in Nutrition*. 2024 <https://doi.org/10.3389/fnut.2024.1427608>
11. cyp51A Mutations, Protein Modeling, and Efflux Pump Gene Expression Reveals Multifactorial Complexity towards Understanding Aspergillus Section Nigri Azole Resistance Mechanism. Pooja Sen, Lovely Gupta, Mukund Vijay, Jata Shankar and Pooja Vijayaraghavan, *Nature Scientific Reports* 2024. DOI: 10.1038/s41598-024-55237-9
12. Unveiling the Cell Wall-Targeting Mechanisms and Multifaceted Virulence Modulation by a Eugenol Glycoconjugate against *Aspergillus fumigatus*: Insights from in vitro and in ovo Studies. Lovely Gupta, Shalini Verma, Lakshmi Goswami, Himanshu Kamboj, Pooja Sen, Asish K. Bhattacharya, Pooja Vijayaraghavan. 2024 *Journal of Applied Microbiology*. DOI: 10.1093/jambio/txae009
13. Liver Extracellular matrix based Nanofiber scaffolds for the culture of primary hepatocytes and drug screening. Vasudevan, Ashwini; Kaur, Impreet ; Majumder, Nilotpal ; M Tripathi, Dinesh ; Sundarajan, Subramanian; Venugopal, Jayarama; Vijayaraghavan, Pooja; Singh,

Neetu; Ramakrishna, Seeram; Ghosh, Sourabh; Kaur, Savneet. *ACS Biomater. Sci. Eng.* **2023**
DOI: 10.1021/acsbio.3c01216

14. Systems-wide analysis of *A. fumigatus* using kinetic modeling of metabolic pathways to identify putative drug targets. Narad P, Kulshrestha S, Chikara A, Gupta V. Kakrania M, Saxena R, Gupta P, Gupta L, Vijayaraghavan P, Sengupta A.J *Biomol Struct Dyn.* **2023**. doi: 10.1080/07391102.2023.2223726
15. Design and Synthesis of 1,3-Diynesas Potent Antifungal Agents Against *Aspergillus fumigatus*. Lakshmi Goswami; Lovely Gupta; Sayantan Paul; Pooja Vijayaraghavan*; Asish Kumar Bhattacharya*. *ChemmedChem.* **2023** DOI: 10.1002/cmdc.202300013
16. 4-Allyl-2-methoxyphenol Modulates the Expression of Genes Involved in Efflux Pump, Biofilm Formation and Sterol Biosynthesis in Azole Resistant *Aspergillus fumigatus*. Pooja Sen, Lovely Gupta, Mukund Vijay, Maansi Vermani Sarin, Jata Shankar, Saif Hameed and Pooja Vijayaraghavan. *Frontiers in Cellular and Infection Microbiology, section Fungal Pathogenesis* **2023** doi: 10.3389/fcimb.2023.1103957
17. Gene expression, molecular docking and molecular dynamics studies to identify potential antifungal compound targeting virulence proteins/genes C1V1B and THR as a possible drug target against *Curvularia lunata* Himanshu Kamboj, Lovely Gupta, Pawan Kumar, Pooja Sen1, Abhishek Sengupta and Pooja Vijayaraghavan *Frontiers in Molecular BioSciences.* **2022** <https://doi.org/10.3389/fmolb.2022.1055945>
18. Understanding the Environmental Drivers of Clinical Azole Resistance in *Aspergillus* Species. Pooja Sen, Mukund Vijay, Shweta Singh, Saif Hameed* and Pooja Vijayaraghavan* *Drug Targets Insights* . **2022** DOI: 10.33393/dti.2022.2476
19. Design and Synthesis of Eugenol/Isoeugenol Glycoconjugates and Other Analogues as Antifungal Agents Against *Aspergillus fumigatus*†Lakshmi Goswami, Lovely Gupta, Sayantan Paul, Maansi Vermani, Pooja Vijayaraghavan* and Asish K. Bhattacharya. *RCS Medicinal Chemistry* **2022**, DOI: 10.1039/d2md00138a
20. Isoeugenol Affects Expression Pattern of Conidial Hydrophobin Gene RodA and Transcriptional Regulators MedA and SomA Responsible for Adherence and Biofilm Formation in *Aspergillus fumigatus*. Lovely Gupta, Pooja Sen, Asish Bhattacharya, Maansi Vermani and Pooja Vijayaraghavan. *Archives of Microbiology* **2022**, <https://doi.org/10.1007/s00203-022-02817-w>

	<p>21. Understanding the fundamental role of virulence determinants to combat <i>Aspergillus fumigatus</i> infections: exploring beyond cell wall Lovely Gupta, Shanu Hoda, Maansi Vermani and Pooja Vijayaraghavan. <i>Mycological Progress</i> 2021 DOI:https://doi.org/10.1007/s11557-021-01677-w</p> <p>22. Insights on the molecular targets in the progression of rice blast and new approaches to combat it. Lovely Gupta, Maansi Vermani Simran K Ahluwalia, and Pooja Vijayaraghavan <i>Mycology</i>, 2021 https://doi.org/10.1080/21501203.2020.1868594 2021</p> <p>23. In-silico Structure-Based Drug Discovery of Candidate Drugs against Novel Protein Receptor Complex Nsp10-Nsp16 of SARS-CoV-2 using Drug Repurposing Approach. Abhishek Senguptaa, Pooja Vijayaraghavana, Priyansh Srivastavaa, Lovely Gupta, Chaitanya Chandwania and Priyanka Narad. <i>Coronavirus</i> 2021 DOI : 10.2174/2666796701999201014161604</p> <p>24. Cis-9-hexadecenal, a natural compound targeting cell wall organization, critical growth factor and virulence in <i>Aspergillus fumigatus</i>. Shanu Hoda, Lovely Gupta, Jata Shankar, Alok Gupta and Pooja Vijayaraghavan. <i>ACS Omega</i> 2020 DOI: 10.1021/acsomega.0c00615</p> <p>25. Anti-melanogenic activity of <i>Myristica fragrans</i> extract against <i>Aspergillus fumigatus</i> using phenotype based screening. Shanu Hoda, Maansi Vermani, Rajesh. K. Joshi and Pooja Vijayaraghavan <i>BMC Alternative and complementary Therapies</i> 2020 https://doi.org/10.1186/s12906-020-2859-z.</p> <p>26. SEM and qRT-PCR revealed quercetin inhibits swelling of conidia via modulating calcinerrin-Crz1 signal pathway in <i>Aspergillus flavus</i>. Sonia Kumari Shishodia, Shraddha Tiwari, Shanu Hoda, Pooja Vijayaraghavan and Jata Shankar. <i>Mycology</i> 2020 https://doi.org/10.1080/21501203.2020.1711826</p>
<p>BOOKS PUBLISHED: 1</p>	<p>Recent Advances in Human Fungal Diseases: Progress and Prospects. Publisher: <i>Springer Verlag, Singapore</i> (ISBN: 9789819749089). Editors: Saif Hameed and Pooja Vijayaraghavan</p>
<p>PATENTS: 5 (Granted)</p>	<ol style="list-style-type: none"> 1. Novel effect of spices on demelanization of pathogenic fungus (1627/DEL/2011) V. Pooja, Seema Bhatnagar, Hina Sanwal, Ashwani K. Srivastava 2. Novel bioactive extract for prevention treatment of Acne Megha Rikki, Swati Kaushik, V. Pooja, Hina Sanwal, Seema Bhatnagar and Ashwani K. Srivastava 2909/DEL/2010 3. A method for the preparation of disinfectant air purifier and hand sanitizer using combination of plant extracts. Swati Kaushik, Megha Rikki , Hina sanwal, V. Pooja,

	<p>Ashwani K. Srivastava, Seema Bhatnagar 2740/DEL/2010</p> <ol style="list-style-type: none"> 4. Novel composition of natural extracts as disinfectant and air purifiers Swati Kaushik, Megha Rikki , V. Pooja, Ashwani K. Srivastava, Seema Bhatnagar (2473/DEL/2011) 5. Biocompatible and bio-polymer based herbal coating for enhancement of shelf life of perishable fruits Pooja Vijayaraghavan, Lovely Gupta, Aniket Sharma, Gaurav Raj, Shivangi Gulati (No 201811045273)
<p>PATENTS (filled) 10</p>	<ol style="list-style-type: none"> 1. Novel effect of medicinal plant as antifungals leading to reduced pathogenicity (1625/DEL/2011) Megha Rikhi , Seema Bhatnagar, Hina Sanwal , .V. Pooja , .Ashwani K. Srivastava 2. Novel effect of citrus plant as antifungal leading to reduced pathogenicity. (1626/DEL/2011) Swati Kaushik, Hina Sanwal , V. Pooja, Ashwani K. Srivastava, Seema Bhatnagar 3. Novel Bioactive extract of ratanjot to inhibit/Decrease the melanin production in melanocytes (2472/DEL/2011) V. Pooja, Hina Sanwal, Seema Bhatnagar and Ashwani K Srivastava 4. Novel effects of orange peel exhibiting bactericidal property against <i>Micrococcus</i> Swati Kaushik, Hina Sanwal , V. Pooja, Ashwani K. Srivastava, Seema Bhatnagar (2471/DEL/2011) 5. Novel bioactive extract for prevention treatment of Acne Megha Rikki, Swati Kaushik, , V. Pooja, Hina Sanwal, Seema Bhatnagar and Ashwani K. Srivastava 2909/DEL/2010 6. A methanolic extract of lichen <i>Parmelia</i> as potent anti-<i>Helicobacter pylori</i> agent. Rajashree Das, V. Pooja, Sweta Mahant, Hina Sanwal and Seema Bhatnagar (3856/DEL/2012) 7. Biphenyl-2,6-diethanone analogs and their derivatives as antifungal agents. Megha Rikhi, Shanu Hoda, Swati Kaushik, Seema Bhatnagar, V. Pooja, Anjali Soni, B. Jayaram(1673/DEL/2015) 8. Cis-9 hexadecanal binding with the polyketide synthase protein for virulence of conidial structure of <i>A. fumigatus</i>. Shanu Hoda and Pooja Vijayaraghavan (No. 201711016937) 9. Fungicidal effect of Isoeugenol in azole resistant <i>Aspergillus fumigatus</i>. Shanu Hoda, Meenakshi Jeena and Pooja Vijayaraghavan (201711016284) 10. Natural Small molecules as potential biopesticide against Rice blast fungus, <i>Magnaporthe oryzae</i> Lovely Gupta, Chintu Mani, Aniket Sharma, Deepak Konwar and Pooja

	Vijayaraghavan (No. 201811003270)
Products commercialized/In process 3	<ol style="list-style-type: none"> 1. Herbal Hand Sanitizer-Technology Transferred to Nagarjuna Argo Chemicals Ltd, Hyderabad: Inventors Dr. Pooja Vijayaraghvan and Dr. Seema Bhatnagar. 2. Biocompatible, Plant based film for Enhancement of shelf life of perishable fruits- NDA/MTA signed with Lawrancedale Agro, Ooty:: Inventor Dr. Pooja Vijayaraghvan 3. Biopesticide to combat Rice Blast Disease: Product under initial phase of NDA/MTA signing: Inventor: Dr. Pooja Vijayaraghvan
RESEARCH PROJECTS: completed 8.	<ol style="list-style-type: none"> 1. An Integrated Approach for Phenotype based DST-SERB, Govt. of India; Melanin Synthesis Pathway as a possible drug target against Aspergillosis 2013-2016 2. NE-DBT, Govt. of India Twinning Project; Exploring the inhibitory effect of bio- pesticide on virulence and pathogenicity in <i>Magnaporthe oryzae</i> amounting 2016-2018 3. DST-TEC Sponsored Intramural Project: Biocompatible and biopolymer based herbal coating for enhancement of shelf life of perishable fruits. 2020-21 4. DST, Govt. of India, Extramural Grant; An Integrated Approach for Phenotype based Identification and Target Validation of Antifungal Compounds Active against <i>Aspergillus fumigatus</i> 2017-2020 5. International Grant from Bayer, Germany: Target specific lead compound identification and validation for the production of MPI based bio-pesticides effective against pathogenic fungal strains. 2019-20 6. Luxor Pvt. Ltd, India: Validation of the efficacy Claims of various cleaning and disinfectant products. 2021-2022 7. Lifecare Innovations: Efficacy testing of antifungal molecules against resistant <i>Aspergillus</i> environmental and Clinical Isolates. 2022-2023 8. Absolute Agri: Integrated Pest and Disease Management for Thirty Two Key Agricultural Crops: 2023-24
AWARDS & HONOURS/DISTINCTIONS	<ol style="list-style-type: none"> 1. Awarded 100% scholarship from European Confederation of Medical Mycologist to attend and present in 11th Advances against Aspergilliosis and Mucormycosis in Milan Italy from 24th to 27th January 2024. 2. Selected as Fellow of Royal Society of Biology (FRSB), The Royal Society, U.K 3. Awarded 100% scholarship by Bill and Melinda Gates foundation (2018) for Keystone symposia for 21st Century Drug Development in Berlin, Germany 16-20 Oct. 2018 4. Awarded best poster award in Mycocon 2018, held at Aerocity, New Delhi. Inhibition of <i>Aspergillus fumigatus</i>

	<p>biofilm formation and cytotoxicity studies of novel plant derived small molecule. Shanu Hoda, Gaurav raj and Pooja Vijayaraghavan</p> <ol style="list-style-type: none"> 5. Awarded best paper award in Identification of biopesticide on inhibition of fungal infection and enhancement of rice plant growth. Lovely Gupta and V. Pooja, DST, DAAD, RSC and INSA funded conference on pesticide and human health. 2-5 Nov 2017, Bangalore India. 6. 50% Bursary awarded by Wellcome Trust, to attend advanced training on small molecule drug discovery at Genome campus, Cambridge, UK. 7. 100% Scholarship awarded at Advances against Aspergillosis conference, Manchester U.K. to present research work (2016) 8. Awarded Young Scientist Grant by Department of Biotechnology, Govt. of India (2013). 9. 100% scholarship Awarded Bill and Melinda Gates Global Health Travel Award (2012) to present research findings at Keystone Symposium in Santa-Fe, USA.
<p>Professional/ Academic bodies</p>	<ul style="list-style-type: none"> • Fellow of Royal Society of Biology • DST-GoI, Expert reviewer for CRG grants • Member of ASM Microbe • Member of ESCMID, EU • Member of ISHAM • Frontiers of Fungal Biology (Review Editor) • ACS Infectious Biology (Editorial Board)