


NAME	Dr. Pooja Vijayaraghavan	
DESIGNATION	Professor	
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RESEARCH INTERESTS

- Understanding the effect of natural products and small molecules on virulence and Pathogenicity of *Aspergillus fumigatus*
- Identification of molecules from natural sources efficacious against Azole resistance *A. fumigatus* and their biofilms.
- To understand the host pathogen interaction of *Magnaporthe* 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 on the virulence and pathogenicity of *Mucorales*

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
<p>PUBLICATIONS</p>	<ol style="list-style-type: none"> 1. 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 <i>Rhizopus oryzae</i> Lovely Gupta, Pawan Kumar, Pooja Sen, Aniket Sharma, Lokesh Kumar, Abhishek Sengupta, Pooja Vijayaraghavan* <i>Current Research in Microbial Sciences</i> 2023. (Under review) 2. Systems Biology Approach Reveals Succinyl-CoA and Hydroxycitrate as potential therapeutics for the treatment of Vulvovaginal candidiasis. Abhishek Sengupta, Ph.D.; Sudeepti Kulshrestha; Ritu Redhu; Tushar Gupta; Aman Chakraborty; Anoorag Basu; Ankur Chaurasia; Muskan Syed; Pooja Vijayaraghavan. <i>Life Sciences</i> (Under Review) 3. <i>cyp51A</i> Mutations, Protein Modeling, and Efflux Pump Gene Expression Reveals Multifactorial Complexity towards Understanding <i>Aspergillus</i> Section <i>Nigri</i> Azole Resistance Mechanism. Pooja Sen, Lovely Gupta, Mukund Vijay, Jata Shankar and Pooja Vijayaraghavan 2024, <i>Nature Scientific Reports</i>. DOI: 10.1038/s41598-024-55237-9 4. Unveiling the Cell Wall-Targeting Mechanisms and Multifaceted Virulence Modulation by a Eugenol Glycoconjugate against <i>Aspergillus fumigatus</i>: Insights from in vitro and in ovo Studies. Lovely Gupta, Shalini Verma, Lakshmi Goswami, Himanshu Kamboj, Pooja Sen, Asish K. Bhattacharya, Pooja Vijayaraghavan* <i>Journal of Applied Microbiology</i> 2023. DOI: 10.1093/jambio/lxae009 5. Liver Extracellular matrix based Nanofiber scaffolds for the culture of primary hepatocytes and drug screening. Vasudevan, Ashwini; Kaur, Impreet ; Majumder, Nilotpal ; M Tripathi, Dinesh ; Sundarraj, Subramanian; Venugopal, Jayarama; Vijayaraghavan, Pooja; Singh, Neetu; Ramakrishna, Seeram; Ghosh, Sourabh; Kaur, Savneet. <i>ACS Biomater. Sci. Eng.</i> 2023 DOI: 10.1021/acsbiomaterials.3c01216 6. Systems-wide analysis of <i>A. fumigatus</i> 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. <i>J Biomol Struct Dyn</i>. 2023 Jun 19:1-16. doi: 10.1080/07391102.2023.2223726

7. Design and Synthesis of 1,3-Diynes Potent Antifungal Agents Against *Aspergillus fumigatus*. Lakshmi Goswami; Lovely Gupta; Sayantan Paul; **Pooja Vijayaraghavan***; Asish Kumar Bhattacharya*. *ChemmedChem*. 2023 DOI: [10.1002/cmdc.202300013](https://doi.org/10.1002/cmdc.202300013)
8. 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](https://doi.org/10.3389/fcimb.2023.1103957)
9. 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>
10. 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](https://doi.org/10.33393/dti.2022.2476)
11. 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](https://doi.org/10.1039/d2md00138a)
12. 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, 204, Article number: 214 <https://doi.org/10.1007/s00203-022-02817-w>
13. Understanding the fundamental role of virulence determinants to combat *Aspergillus fumigatus* infections: exploring beyond cell wall Lovely Gupta, Shanu Hoda, Maansi Vermani and **Pooja Vijayaraghavan**. *Mycological Progress* 2021 DOI:<https://doi.org/10.1007/s11557-021-01677-w>

14. 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** *Mycology*, 2021 <https://doi.org/10.1080/21501203.2020.1868594> 2021
15. 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. *Coronavirus*
DOI : 10.2174/2666796701999201014161604
16. Cis-9-hexadecenal, a natural compound targeting cell wall organization, critical growth factor and virulence in *Aspergillus fumigatus*. Shanu Hoda, Lovely Gupta, Jata Shankar, Alok Gupta and **Pooja Vijayaraghavan**. *ACS Omega* DOI: 10.1021/acsomega.0c00615 (2020)
17. Anti-melanogenic activity of *Myristica fragrans* extract against *Aspergillus fumigatus* using phenotype based screening. Shanu Hoda, Maansi Vermani, Rajesh. K. Joshi and **Pooja Vijayaraghavan** *BMC Alternative and complementary Therapies* 20, 67 <https://doi.org/10.1186/s12906-020-2859-z> (2020).
18. SEM and qRT-PCR revealed quercetin inhibits swelling of conidia via modulating calcinerrin-Crz1 signal pathway in *Aspergillus flavus*. Sonia Kumari Shishodia, Shraddha Tiwari, Shanu Hoda, **Pooja Vijayaraghavan** and Jata Shankar. *Mycology* <https://doi.org/10.1080/21501203.2020.1711826> (2020)
19. *Myristica fragrans* extract inhibits melanin biosynthesis, hyphal growth and appresporium formation in *Magnaporthe oryzae*. Lovely Gupta, Chintu Mani Saikia, Aniket Sharma, Simran K. Ahluwalia, Maansi Vermani, Deepak Konwar and **Pooja Vijayaraghavan**. *Current Research in Environmental & Applied Mycology* (Journal of Fungal Biology) 9:1,255-270
20. Molecular insights into development and virulence determinants of Aspergilli: A proteomic perspective. Jata Shankar, Shraddha Tiwari, Sonia K Sisodia, Manali Gangwar, Shanu Hona, Raman Thakur and **Pooja Vijayaraghavan**. **8:180; 162-190** *Frontiers in Cellular and Infection Microbiology* (2018).
21. Occurrence of Azole Resistant *Aspergillus* in North Indian environment. Shanu Hoda, Harshita Agrawal, Simran Kaur Ahluwalia, Maansi Vermani and **Pooja Vijayaraghavan**. *Pure and Appl. Microbiology* 13:1, 385-392 (2019)
22. Inhibition of *Aspergillus fumigatus* Biofilm and Cytotoxicity Study of Natural Compound Cis-9-

hexadecenal. Shanu Hoda, Lovely Gupta, Harshita Agarwal, Gaurav Raj Maansi Vermani and **Pooja Vijayaraghavan**. *Pure and Appl. Microbiology* 13:2, 1207-1216 June (2019)

23. Moringa coreia has an anti-Helicobacter pylori effect against the multi drug resistant clinical isolate of North-East India. Shweta Mahant, Valentina Gehlot, Shanu Hoda, Pooja Vijayaraghavan, W. Selvamurthy, N. Thirumurthy and Rajashree Das. 11:12; 143-148 *Asian Journal of Pharmaceutical and Clinical Research*, (2018).
24. Antifungal activity of biphenyl-2, 6-diethanone derivatives. Rikhi, M.; Hoda, S.; Nagpal, S.; **Vijayaraghavan, P.**; Bhatnagar, S. *International Journal of Pharmacy and Pharmaceutical Sciences* 2016 DOI: 2-s2.0-84982705996
25. Antimicrobial Prospective of Parmotrema perlatum extract against various pathogenic microorganisms Shanu Hoda and **Pooja Vijayaraghavan** *International Journal of Pharmaceutical Research and Allied Sciences* 4:2 47-53, 2015
26. Activity of myristica fragrans and its effect against filamentous and non-filamentous fungus **Pooja, V.**; Sanwal, H.; Goyal, A.; Bhatnagar, S.; Srivastava, A.K. *International Journal of Pharmacy and Pharmaceutical Sciences* 2012 DOI: 2-s2.0-84855514353
27. Antimicrobial Properties of Indian Medicinal Plants and Their Effect in Attenuating Fungal Virulence: A Herbal Approach. Megha Rikki, Swati Sharma, Seema Bhatnagar, Hina Sanwal and **Pooja Vijayaraghavan**,. *International Journal of Pharmaceutical Research and Allied Sciences* 4:2 101-11, 2015
28. Targeting virulence: Novel effect of myristica fragrans on melanisation and conidiation of Aspergillus niger. **Pooja, V.**; Sanwal, H.; Bhatnagar, S.; Srivastava, A.K. *American Journal of Drug Discovery and Development* 2012 DOI: 10.3923/ajdd.2012.32.39
29. Exploring the effect of plant derived small molecule to inhibit DHN melanin, a major virulence factor in Aspergillus fumigatus: An early stage drug discovery, **Pooja Vijayaragahvan** and Shanu Hoda. Presented in 21st Century Drug Discovery Keystone Symposia to be held in Berlin 16th-20th Oct, 2018.
30. 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
31. Inhibition of Aspergillus fumigatus biofilm formation and cytotoxicity studies of novel plant derived small molecule. Shanu Hoda, Gaurav Raj and Pooja Vijayaraghavan. Mycocon 2018, held from 22-23 Sept.

	<p>2018 at Aerocity, New Delhi.</p> <p>32. Targeting melanin synthesis pathway: A new approach towards combating Aspergillosis at Rajasthan Conclave-2, DMRC, Jodhpur, India, 2014</p> <p>33. Targeting Virulence of Aspergillus niger using natural extracts” Key Stone Symposia Fungal Pathogenesis, held at Santa Fe New Mexico. 2012</p>
<p>PATENTS (Granted) 4</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, Ashwani K. Srivastava, Seema Bhatnagar 2740/DEL/2010 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)
<p>PATENTS (filled) 11</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

	<p>Kaushik, Seema Bhatnagar, V. Pooja, Anjali Soni, B. Jayaram(1673/DEL/2015)</p> <ol style="list-style-type: none"> 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) 11. 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>Products commercialized/In process 3</p>	<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
<p>RESEARCH PROJECTS Completed: <i>(total no.)</i> Seven Ongoing: <i>(total no.)</i> One</p>	<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 Aspergillois 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

	<ol style="list-style-type: none"> 7. Lifecare Innovations: Efficacy testing of antifungal molecules against resistant Aspergillus environmental and Clinical Isolates. 2022-2023 8. Absolute Agri: Integrated Pest and Disease Management for Thirty Two Key Agricultural Crops: 2023-24
<p>AWARDS & HONOURS/ DISTINCTIONS</p>	<ol style="list-style-type: none"> 1. Awarded 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 Aspergillus fumigatus biofilm formation and cytotoxicity studies of novel plant derived small molecule. Shanu Hoda, Gaurav raj and Pooja Vijayaraghavan 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 Aspergilliosis 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), selected among 7 scientist world wide, to present paper in keystone symposium at Santa Fe New Mexico
<p>Professional/ Academic bodies</p>	<ul style="list-style-type: none"> • Fellow of Royal Society of Biology • Campus Ambassador, Association of Commonwealth Universities • Member of ASM Microbe • Member of ESCMID, EU • Member of ISHAM • Frontiers of Fungal Biology (Review Editor) • ACS Infectious Biology (Editorial Board)

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