

Dr. Pooja Gulati

Ph.D. Microbiology

Assistant Professor

Department of Microbiology

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Research Specialization: Antimicrobial resistance (AMR) and molecular epidemiology of water- and food-borne pathogens

Teaching subjects: Immunology, Medical Microbiology, Virology, Mycology and Phycology

Qualifications

- ▶ Ph.D. (Microbiology), University of Delhi South Campus, New Delhi, INDIA, 2002-2007. Thesis entitled “**Molecular characterization of strains of *Y. enterocolitica* isolated from India**”
- ▶ M.Sc. (Microbiology), University of Delhi South Campus, New Delhi, INDIA, 1999-2001, **First in Delhi University (Gold Medalist)**
- ▶ B.Sc. (Microbiology), University of Delhi South Campus, New Delhi, INDIA, 1996-1999, **Second in Delhi University**

Professional Profile

Teaching

- ▶ **Teaching post graduate** students in the field of Medical Microbiology, Immunology, Applied Mycology & Phycology
- ▶ Guiding PhD Scholars for research in field of **medical microbiology and molecular epidemiology**
- ▶ Writing modules for **ePG pathshala** in **Medical Microbiology** and **Industrial Microbiology**

Projects Undertaken

- ▶ Dr. Radha Krishnan Foundation Funds project entitled ‘Antibiotic susceptibility and ESBL detection in *Pseudomonas aeruginosa* isolated from Haryana’. **Ongoing.**
- ▶ **DST Project** titled “Bacterial arginine deiminase: characterization, cloning and evaluating their efficacy as anti-cancerous agent” submitted under Start Up Research Grant (Young Scientists). (Tenure-3 years: 2015-2018), **Completed.**
- ▶ **UGC-Major Research project** entitled ‘Identification and characterization of Integron-mediated antibiotic resistance in *Escherichia coli* isolated from Yamuna River water’ (Tenure-3years: 2012-2015), **Completed.**

Research Supervision

- ▶ **Ph.D Guidance**- 5 students, 1 submitted, 4 ongoing
- ▶ **MSc. Dissertations** supervised - 13

Awards / Scholarships / Fellowships

- ▶ **Best Oral presentation award** at UGC sponsored National seminar on “Biodiversity: status and significance on March 21st, 2017
- ▶ **Best Oral presentation award** at NSFGG2016 organized by Centre for Medical Biotechnology, MDU, Rohtak held in Nov., 2016
- ▶ **Best Poster presentation Award** at International Science Festival (IISF) – Young Scientists’ Conclave (YSC), National Physical Laboratory, New Delhi, Dec 8th-11th, 2016.
- ▶ **DST-FAST track Young Scientist Award 2015**
- ▶ **Platinum Jubilee Best Poster Award (AMI-2013)** at 54th annual conference of Association of Microbiologists of India at MDU Rohtak, between 17-20 November 2013.
- ▶ Qualified **Senior Research fellowship test** held by Council of Scientific and Industrial Research in Dec 2005
- ▶ Qualified **National eligibility test (NET)** for Lectureship held by Council of Industrial Research in Dec 2000
- ▶ Recipient of University **Gold medal** for the best student in the M.Sc. Microbiology in the University of Delhi South campus, New Delhi
- ▶ Recipient of **All India Post Graduate Scholarship** for the year 1999-2000 and 2000-2001.

Teaching Experience

- ▶ Working as Assistant Professor in Department of Microbiology, Maharishi Dayanand University, Rohtak, Haryana (From Sept., 2010)
- ▶ Worked as Adhoc-lecturer in Gargi College, University of Delhi, Sirifort Road, New Delhi (Aug 2007-sept., 2010 and Jul 2001-Mar 2002)
- ▶ Worked as Adhoc lecturer for three months in Institute of Home economics, Hauz Khas, New Delhi (Jan 2007-Mar 2007)
- ▶ Worked as Guest lecturer for the three months in Netaji Subhash Institute of Technology, Dwarka, New Delhi (Jan 2007- April 2007, Jan 2008- April 2008)

Research Experience

- ▶ Worked as Senior Research Fellow on the ICMR sponsored project entitled “Multilocus variable number tandem repeat strains of *Yersinia enterocolitica* isolated from India” at Department of Microbiology, University of Delhi South Campus, New Delhi (December 2005- August 2007)
- ▶ Worked as Junior & Senior Research Fellow on the DBT sponsored project entitled “Molecular characterization of strains of *Yersinia enterocolitica* isolated from India” at Department of Microbiology, University of Delhi South Campus, New Delhi (July 2002-September 2005)
- ▶ 1 year M.Sc. Thesis entitled “Physicochemical factor affecting antibiotic susceptibilities of *Yersinia enterocolitica* ” under the supervision of Prof. J. S. Viridi, Department of Microbiology, University of Delhi South Campus, New Delhi (Jul 2000-Mar 2001)

- ▶ 2 months summer training project entitled “Diagnosis of Tuberculosis using both conventional and molecular biological techniques and cloning for construction of internal control of MTB-PCR.” At Department of Microbiology, All India Institute of Medical Sciences (AIIMS), New Delhi (Jun 2000-Jul 2000).

Courses Attended

- ▶ Attended **Orientation course** at UGC academic staff college, Jawaharlal Nehru University from October, 8th 2018 –Nov. 2nd 2018
- ▶ Attended **Orientation course** at UGC academic staff college, CPDHE, University of Delhi from August, 6th 2012 – Sept 5th 2012
- ▶ Attended **Refresher course** at UGC academic staff college, Jawaharlal Nehru University, from July, 28th 2014 – Aug 22nd 2014

Visits Abroad

- ▶ Heidelberg, Germany, April 22-26, 2004 for paper presentation at EMBO conference on molecular microbiology: Exploring prokaryotic diversity

Conferences organized

- ▶ Organizing secretary one day international conference ‘Microbes for Biotechnological Innovations (MBI-2018)’ organized by Department of Microbiology & AMI-Rohtak on 7th Dec., 2018
- ▶ Organizing secretary one day national seminar on “Trends in Bioprocess Technology: Innovations and Implications in Microbiology ” organized by Department of Microbiology & AMI-Rohtak on 10th March 2014

Research Publications

- ▶ In Journals & books (published) : 26
- ▶ Papers presented in national/international conferences : 39
- ▶ Others (Online publications) : 8

Publications in Refereed Journals:

1. Kaushik M., Khare N., Kumar S., **Gulati P.** (2018), High Prevalence of Antibiotic Resistance and Integrons in *Escherichia coli* Isolated from Urban River Water, India. **Microbial Drug Resistance**. doi: 10.1089/mdr.2018.0194.
2. Dhankhar R., **Gulati P.**, Kumar S., Kapoor R.K. (2018), Arginine-lowering enzymes against cancer: a technocommercial analysis through patent landscape. **Expert Opinion on Therapeutic Patents**. 28:603-614.
3. Gupta V., Jain K., Garg R., Malik A., **Gulati P.**, Bhatnagar R. (2018), Characterization of a two component system, Bas1213-1214, important for oxidative stress in *Bacillus anthracis*. **Journal of Cellular Biochemistry**. 119:5761-5774.
4. Singha T., **Gulati P.**, Kumar S. (2018), Nonconventional induction strategies for production of recombinant human tumor necrosis factor-alpha in *Escherichia coli*. **Journal of Applied Biology & Biotechnology**. 6:23-27.
5. Kaushik M., Kumar S., Kapoor R.K., Virdi J.S., **Gulati P.** (2018), Integrons in *Enterobacteriaceae*: diversity, distribution and epidemiology. **International Journal of Antimicrobial Agents**. 51:167-176.

6. Singh J., Saharan V., Kumar S., **Gulati P.**, Kapoor R.K. (2017), Laccase grafted membranes for advanced water filtration systems: a green approach to water purification technology. **Critical Reviews in Biotechnology**. 38:883-901.
7. Gupta V., Chaudhary N., Aggarwal S., **Gulati P.**, Bhatnagar R. (2017), Functional analysis of BAS2108-2109 two component system: evidence for protease regulation in *Bacillus anthracis* (2017). **The International Journal of Biochemistry & Cell Biology**, 89: 71-84.
8. Singha T., **Gulati P.**, Mohanty A., Khasa Y.P., Kapoor R.K., Kumar S. (2017), Efficient genetic approaches for improvement of plasmid based expression of recombinant protein in *Escherichia coli*: A review. **Process Biochemistry**. 55:17-31.
9. Gupta V., **Gulati P.**, Bhagat N., Dhar M., Viridi, J.S. (2015), Detection of *Yersinia enterocolitica* in food:an overview. **European Journal of Clinical Microbiology & Infectious diseases**. 34:641-650.
10. Kumar S., **Gulati P.**, Kapoor R.K. (2012), In Vitro Studies in *Solanum xanthocarpum* to compare the potential of different explants towards callus induction and shoot formation. **International Journal of Current Research** 5:1360-1362.
11. Kapoor R.K., Kumar S., **Gulati P.**, Malik U. (2011), Top 10 Innovative Technologies for Yogurt Making Shortlisted Through Patent Research **The Indian Buffalo Journal**. 1: 38-42.
12. **Gulati P.**, Varshney R.K., Viridi J.S. (2009), Development of multilocus variable number tandem repeat analysis (MLVA) as a tool to discern genetic relationships amongst strains of *Yersinia enterocolitica*. **Journal of Applied Microbiology** 107: 875-84.
13. **Gulati P.**, Viridi J.S. (2007), *rrn* loci and *gyrB* based genotyping confirms the existence of two clonal groups in strains of *Yersinia enterocolitica* subspecies *palaearctica* biovar 1A. **Research in Microbiology** 153: 236-243.
14. Viridi J.S., **Gulati P.**, Pai M. (2007), Genetic diversity of pathogenic microbes and its medical and public health significance. **Indian Journal of Medical Microbiology**. 25: 2-3.
15. **Sachdeva P.**, Viridi J.S. (2005), Molecular heterogeneity in *Yersinia enterocolitica* and *Y. enterocolitica*-like species – Implications for epidemiology, typing and taxonomy. **FEMS Immunology and Medical Microbiology** 45: 1-10.
16. Viridi J.S., **Sachdeva P.** (2005), Genetic diversity of pathogenic microorganisms – Basic insights, public health implications and the Indian initiatives. **Current Science** 89: 113-123.
17. **Sachdeva P.**, Viridi J.S. (2004), Repetitive elements sequence (REP/ERIC) - PCR based genotyping of clinical and environmental strains of *Yersinia enterocolitica* biotype 1A reveal existence of limited number of clonal groups. **FEMS Microbiology Letters** 240:193-201.
18. Sharma S., **Sachdeva P.**, Viridi J.S. (2003), Emerging water-borne pathogens. **Applied Microbiology and Biotechnology** 61: 424 - 428.
19. **Sachdeva P.**, Viridi J.S. (2003), Extinction of microbes. **Current Science** 85: 839-840.
20. Sharma S., **Sachdeva P.**, Viridi J.S. (2001), Emergence and spread of infectious diseases: Role of changing environment **The Botanica** 51: 52-57.

Publications in Books

1. J. S. Viridi , Pradeep Kumar , Sarita Mallik , Neeru Bhagat , and **Pooja Gulati**. (2012) Insights into the Genetic Relationships Between Environmental and Clinical Strains of *Yersinia enterocolitica* Biovar 1A. **In Microorganisms in Environmental Management: Microbes and Environment** (Ed. T. Satyanarayana). Published by Springer. pp 61-80
2. Dr. Rajeev Kumar Kapoor, Dr. Pooja Gulati, **Dr. Sanjay Kumar** (2012). Patenting of Genes and Their Subsequences- A Case Study of *Clostridium difficile* Toxin Genes. Proceedings of the National Seminar on Internet Applications in Research **March 23, 2012** Department of Zoology, MD University, Rohtak
3. Viridi, J.S., **Sachdeva, P.**, Bhagat, N., Mallik, S., Sharma, S., and Mittal, S. (2008) *Yersinia enterocolitica* and

- Yersiniosis (Eds. C. Vaishnavi). Paragon International publishers
4. **Sachdeva P, Viridi JS** (2006). DNA fingerprinting techniques for identification and characterization of bacteria. In: **Applied Microbiology (Eds. P. C. Trivedi)**, agribios India, Jodhpur, pp. 199-210
 5. Viridi JS, **Sachdeva P**, Sharma S, Bhagat N (2006). Serological, molecular and pathogenicity-related characteristics of *Yersinia enterocolitica* isolated from India. **Proceedings of 47th Annual Conference of Microbiologist of India**. Narosa Publishing House (In Press)
 6. Viridi, J.S., **Sachdeva, P.**, Bhagat, N., Singh, I., Sinha, I., Sharma, S., Mallik, S. and Mittal, S. (2005) Serological and molecular diversity of *Yersinia enterocolitica* isolated from India. Microbial Diversity: Current perspectives and potential applications, IK International Pvt. Ltd. (Ed. T. Satyanarayana and B. N. Johri) pp.1037-1052

Other Publications

- **Gulati P**, Bhagat N and Viridi JS (2005). *Yersinia enterocolitica*: Virulence and epidemiological attributes. <http://www.aclisassari.com/acli-openlearning/lectures.php>
- **Gulati P.** (2016) e PG pathshala module on **Molecular microbial epidemiology**: Protein profiling, multilocus enzyme electrophoresis (MLEE).
- **Gulati P.** (2016) e PG pathshala module on **Molecular microbial epidemiology**: Molecular typing; RFLP (ribotyping IS based), RAPD, 16S, 23S IGS, ARDA, rep (RFP,ERIC,BOX)-PCR
- **Gulati P and Gupta V.** (2016) e PG pathshala module on **Industrial Microbiology**: production of citric acid
- **Gulati P and Gupta V.** (2016) e PG pathshala module on **Industrial Microbiology**: production of Production of Antibiotics- penicillin, cephalosporin, streptomycin, rifamycin and their modification, pigments, enzyme inhibitor
- **Gulati P and Kaushik M.** (2015) e PG pathshala module on **Industrial Microbiology**: Production of Amino acids- Glutamic acid by microorganisms.
- **Gulati P and Kaushik M.** (2015) e PG pathshala module on **Industrial Microbiology**: Production of Amino acids- Lysine by microorganisms.

Presentation (Poster/Oral)

1. **Pooja Gulati**, Deepti Upadhyay, Megha Kaushik (2018). Antibiotic susceptibility profiling and ESBL detection in *Pseudomonas aeruginosa* isolated from Haryana. Microbes for Biotechnological Innovations, Maharshi Dayanand University, Rohtak, Dec. 7, 2018. **(Poster presentation)**.
2. **Pooja Gulati**, Megha Kaushik (2018). Production of pyocyanin pigment: a food colorant and food preservative from *Pseudomonas aeruginosa*. Climate Change and Food Safety, Center of Biotechnology, Maharshi Dayanand University, Rohtak, Jan. 25, 2018. **(Poster presentation)**.
3. **Pooja Gulati (2017)**. Impact of Big data Analytics on the IP industry. National Conference on Emerging trends in Cloud computing and Big Data analysis organized by Department of Computer Science and Applications, MD university, Rohtak on March 06, 2017 (oral presentation).
4. **Pooja Gulati**, Megha Kaushik, Preeti Khokkar (2017). Assessing the prevalence of ESBLs (Extended spectrum β -lactamases) in *E. coli* isolated from river water and animal sources. Microbes For Health and Wealth, Maharshi Dayanand University, Rohtak, Nov. 14, 2017. **(Poster presentation)**.
5. **Pooja Gulati** (2017). Diversity of Microbes of Human body: an unexplored treasure. UGC sponsored National seminar on “Biodiversity: status and significance on March 21st, 2017” **(Oral presentations, First prize)**
6. **Pooja Gulati** (2017). Benefits provided to startups by ‘StartUp India plans’ for patenting their

- innovations at international conference on “Startup India recipe for Inclusive Entrepreneurship and Innovations: issues and Challenges” on March 2-3, 2017 at MDU, Rohtak (**Oral presentations**)
7. **Pooja Gulati** (2017). Biotechnological means to get a firm grip on the Challenges posed by climate change in Indian Council of Social science research sponsored national seminar on ‘Climate Change and agriculture’ on February 6-7, 2017 at MDU, Rohtak (**Oral presentations**)
 8. **Pooja Gulati (2016)**. Comparison of whole genome and gene based typing methods to analyze molecular heterogeneity amongst various strains of pathogenic microorganisms in National seminar on Frontiers in Genetics and Genomics organized by Center for Medical biotechnology, MD university, Rohtak on November 22, 2016 (oral presentation, **First position**).
 9. Pooja Gulati, **Megha Kaushik**, Neha Khare, Rajeev Kumar Kapoor, Sanjay Kumar (2016). Understanding the phenotypic and genotypic diversity of *Escherichia coli* isolated from Yamuna River water for better management of indigenous water bodies. India International Science Festival (IISF) – Young Scientists’ Conclave (YSC), National Physical Laboratory, New Delhi, Dec 8th-11th, 2016. (**Poster presentation**).
 10. **Pooja Gulati** and J S. Viridi. (2015). “Comparative efficacy of five different genotyping methods to discriminate *Yersinia enterocolitica* biotype 1A isolated from India” AMI 2015, JNU, New Delhi, 7th-10thDecember, 2015. (**Poster presentation**).
 11. **Pooja Gulati** and J S. Viridi. (2015). “Arsenic resistance and its effect on the antibiotic susceptibility of *E. coli*” at National conference on Therapeutic potentials of natural products” on March 19, 2015 at MDU, Rohtak (**Poster presentation**).
 12. **Pooja Gulati**, Gulshan Kumar, Amit, Neha Khare, Megha Kaushik, Sanjay Kumar, (2014) Isolation and characterization of strains of *E. coli* from various farm animals in and around Rohtak. National Conference on Pollution mitigation for a sustainable future. Maharshi Dayanand University, Rohtak, Haryana, 26th March, 2014. (**Poster presentation**).
 13. **Pooja Gulati**, Kiran Dokhwal and Ritu Rani (2012) Isolation of actinomycete producing anti-fungal agent from soil. 53rd Annual Conference of Association of Microbiologist of India (AMI), KIIT University, Odisha, Nov. 22-25, 2012. (**Poster presentation**).
 14. **Pooja Gulati** Rajeev Kumar Kapoor, Sanjay Kumar. (2012) Isolation of bacteria producing antifungal substances and studying their spectrum of activity. International Conference on Mycology and Plant pathology: Biotechnological approaches. Banaras Hindu university, Varanasi, India, Feb 27-29. (**Poster presentation**).
 15. **Pooja Gulati**, Viridi JS (2008). Development of multilocus tandem repeat analysis and its use to discern clonal lineages amongst strains of *Yersinia enterocolitica* biotype 1A. AMI conference, New Delhi, Nov. 18-20, 2005. (**Poster presentation**).
 16. **Sachdeva P**, Viridi JS (2008). Development of multilocus tandem repeat analysis and its use to discern clonal lineages amongst strains of *Yersinia enterocolitica* biotype 1A. AMI conference, New Delhi, Nov. 18-20, 2005. (**Poster presentation**).
 17. **Sachdeva P**, Viridi JS (2005). Molecular typing of *Yersinia enterocolitica* biotype 1A isolated from different parts of the world. Microbial diversity 2005 – Current perspective and potential Applications: An International conference, New Delhi, April 16-18, 2005. (**Poster presentation**)- **Best Poster Award**.
 18. **Sachdeva P**, Viridi JS (2004). VNTR-based typing of *Yersinia enterocolitica* biotype 1A isolated from diverse geographical regions. SBC conference Pant Nagar, Haryana, November 20-24, 2004. (**Oral**

Presentation).

19. **Sachdeva, P**, Viridi JS (2004). Heterogeneity of biotype 1A strains of *Yersinia enterocolitica* isolated from diverse geographical sources. EMBO conference on molecular microbiology: Exploring prokaryotic diversity, EMBL Heidelberg, Germany, April 22-26, 2004, pp. 109 **(Poster presentation)**.
20. **Sachdeva, P**. and J.S. Viridi Heavy metal-mediated expression of multiple antibiotic resistance (MAR) phenotype in *Yersinia enterocolitica*. 9th Asian Conference on Diarrheal Diseases and Nutrition, New Delhi, September 28-30, 2001; p. 57 **(Poster presentation)**.
21. **Sachdeva, P**. and J.S. Viridi. Physico-chemical factors affecting antibiotic susceptibilities of *Yersinia enterocolitica*. Silver Jubilee Congress of Indian Association of Medical Microbiologist (IAAM), All India Institute of Medical Sciences, New Delhi, 21-25 November 2001; p. 156 **(Poster presentation)**.
22. **Sachdeva, P**. and J.S. Viridi. Physico-chemical factors affecting antibiotic susceptibilities of *Yersinia enterocolitica*. 43rd Annual conference of microbiologists of India (AMI), CCs Haryana agricultural University, Hisar, 11-13 December 2002; p. 73 **(Poster presentation)**

