



## University Faculty Details Page on DU Web-site

Title	Prof.	First Name	JUGSHARAN SINGH	Last Name	VIRDI	Photograph
Designation	Professor					
Department	Microbiology					
Address (Campus)	University of Delhi South Campus, Benito Juarez Road, New Delhi – 110 021					
(Residence)	House No. 12 (First Floor), Type 5, University of Delhi South Campus Housing, New Delhi – 110 021					
Phone No Campus)	91-11- 2411 0950 91-11- 2411 2503 / 2411 2231 Extn. 164					
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Web-Page	<a href="http://www.du.ac.in">www.du.ac.in</a>					
<b>Education</b>						
<i>Subject</i>	<i>Institution</i>		<i>Year</i>	<i>Details</i>		
IMMUNOLOGY (PhD)	Post-Graduate Institute of Medical Education & Research (PGI), Chandigarh		1986	Thesis topic: Studies on neutrophil functions in experimental folate deficiency and nutritional megaloblastic anemias		
MICROBIOLOGY (M.Sc. Honours School)	Panjab University, Chandigarh		1977	Subjects: Physiology, genetics, immunology, pathogenics, Industrial, Advanced topics in microbiology		
MICROBIOLOGY (B.Sc. Honours School)	Panjab University, Chandigarh		1975	Subjects: Microbiology, Biochemistry, Biophysics, Statistics, Bio-organics		
<b>Career Profile</b>						
<i>Organization / Institution</i>		<i>Designation</i>	<i>Duration</i>	<i>Role</i>		
University of Delhi South Campus		Professor	2006 - till date	Teaching and Research		
University of Delhi South Campus		Reader	1998 - 2006	Teaching and Research		
University of Delhi South Campus		Lecturer	1988 - 1998	Teaching and Research		
PGI MER, Chandigarh		Pool Officer	1987 - 1988	Research		
<b>Teaching Experience (Subjects /Courses Taught)</b>						

- **Immunology (interdisciplinary course)** to M.Sc, M.Phil. & PhD students of Microbiology, Plant Molecular Biology & Biotechnology (PMBB) and Genetics.
- **Microbial Pathogenicity (interdisciplinary course)** to M.Sc. & PhD students of Microbiology and Biochemistry.
- **General and animal virology** to M.Sc. students of Microbiology.
- **Microbial Technology** to M.Phil. (Biotechnology) students.
- **General Virology** to M.Sc. (Biomedical Sciences) students of ACBR, Univ of Delhi.
- **Course - Pathogens in the environment** to M.Sc. (Environmental Biology) students, Univ of Delhi.
- **Course - Fundamental Immunology** to M.Sc. (Biotechnology) students of Barkatullah University (Bhopal).
- **Course - Fundamental Immunology** to M.Sc. (Microbiology) students of Jiwaji University (Gwalior).
- **Course - Food-borne Pathogens** to M.Sc (Microbiology) students of Jiwaji University (Gwalior).

### **Honors & Awards**

- Y.S. Narayana Rao oration Award by Indian Council of Medical Research (ICMR) for working out the Molecular epidemiology of *Y. enterocolitica* (a food- and water-borne enteric pathogen) in India (2006).
- INSA (Indian National Science Academy) visiting Fellowship (2004).
- Poster presentation awards in conferences (1994, 1997, 2005).
- University Gold Medal for securing first position in M.Sc. in Microbiology, Panjab University (1976).

### **Publications (LAST FIVE YEARS)**

#### **Books / Monographs**

YEAR OF PUBLICATION	TITLE	PUBLISHER	CO-AUTHORS
2010 (Revised)	Text Book of Biotechnology (XI Class)	Central Board of Sec. Edu. (CBSE), Delhi-92	Kannan K, Rajam MV, Nirmala K, Singh NK, Panda AK, Viridi JS & Others
2010 (Revised)	Practicals in Biotechnology (XI Class)	Central Board of Sec. Edu. (CBSE), Delhi-92	Kannan K, Kumar V, , Rajam MV, Pareek A , Panda AK, Viridi JS & Others
2008	Medical Microbiology	Indira Gandhi National Open University (IGNOU), New Delhi-68	Viridi JS
2006	Biology – Textbook for class XII	National Council of Edu. Res. & Training (NCERT), New Delhi-16	Narlikar JV, Muralidhar K, Rao TR, Viridi JS, Savithri Singh & Others
2006	e-Book on Immunology & Medical Microbiology	National Institute of Sci. Communication & Information Resources (NISCAIR), New Delhi-67	Ajit Singh, Madhu Pruthi & others, Viridi JS (Validator)
2004	Text Book of Biotechnology (XII Class)	Central Board of Sec. Edu. (CBSE), Delhi-92	Kannan K, Kumar V, Pareek A, Rajam MV, Panda AK, Viridi JS & Other

**In Indexed/ Peer Reviewed Journals**

YEAR	TITLE	JOURNAL	CO-AUTHORS
2013	Detection, distribution and characterization of novel superoxide dismutases from <i>Yersinia enterocolitica</i> biovar 1A.	PLOS One 8 (5) e63919	Dhar MS, Gupta V, Viridi JS
2012	Identification and distribution of putative virulence genes in clinical strains of <i>Yersinia enterocolitica</i> Biovar 1A by suppression subtractive hybridization	Applied Microbiology 113: 1263-1272	Kumar P, Viridi JS
2011	Proteomic analysis of arsenite-mediated multiple antibiotic resistance in <i>Yersinia enterocolitica</i> biovar 1A	Journal of Basic Microbiology 51:1-8	Mallik S, Viridi JS, Johri A
2010	The enigma of <i>Yersinia enterocolitica</i> biovar 1A	Critical Reviews in Microbiology, 37: 25-39.	Bhagat N, Viridi JS
2010	Genetic relationship between clinical and non-clinical strains of <i>Yersinia enterocolitica</i> biovar 1A as revealed by multilocus enzyme electrophoresis (MLEE) and multilocus sequence typing (MLRT).	BMC Microbiology, 10: 158.	Mallik S, Viridi JS
2010	Whole cell protein profiling reiterate phylogenetic relationships among strains of <i>Yersinia enterocolitica</i> biovar 1A as discerned earlier by different genotyping methods.	J. Applied Microbiology, 109: 946-952.	Mallik S, Viridi JS
2009	Molecular and biochemical characterization of urease and survival of <i>Yersinia enterocolitica</i> biovar 1A in acidic pH <i>in vitro</i> .	BMC Microbiology 9, 262.	Bhagat N, Viridi JS
2009	Multilocus variable number tandem repeat (VNTR) analysis as a tool to discern genetic relationships among strains of <i>Yersinia enterocolitica</i> biovar 1A	J. Applied Microbiology, 107:875-884.	Gulati P, Varshney RK, Viridi JS
2008	Amelioratory effects of zinc supplementation on <i>Salmonella</i> -induced hepatic damage in the murine model.	Digestive Diseases and Sciences, 53: 1063-1070.	Rishi P, Kaur P, Viridi JS, Shukla G, Koul A
2007	Characteristics of beta-lactamases and their genes ( <i>bla A</i> and <i>bla B</i> ) in <i>Yersinia intermedia</i> and <i>Y. fredericksonii</i>	BMC Microbiology; 7, 25.	Mittal S, Mallik S, Sharma S, Viridi JS
2007	The <i>rrn</i> locus and <i>gyrB</i> genotyping confirm the existence of two clonal groups in <i>Yersinia enterocolitica</i>	Research in Microbiology, 158: 236-243.	Sachdeva Gulati P, Viridi JS
2007	Distribution of virulence-associated genes in <i>Yersinia enterocolitica</i> biovar 1A co-relates with clonal groups and not the source of isolation	FEMS Microbiology Letters, 266:177-186.	Bhagat N, Viridi JS
2007	Genetic diversity of pathogenic micro-organisms and their medical and public health significance	Indian J. Medical Microbiology, 23: 2-3. (GUEST EDITORIAL)	Viridi JS, Gulati P, Pai M
2006	Molecular characterization of beta-lactamase gene <i>blaA</i> and <i>bla B</i> of <i>Yersinia enterocolitica</i> biovar 1A	FEMS Microbiology Letters, 257:319-327.	Sharma S, Mittal S, Mallik S, Viridi JS
2005	Molecular heterogeneity in <i>Yersinia enterocolitica</i> and <i>Y. enterocolitica</i> -like organisms: Implications for epidemiology, typing and taxonomy	FEMS Immunology and Medical Microbiology 45:1-10.	Sachdeva P, Viridi JS
2005	Interaction of <i>Yersinia enterocolitica</i> biovar 1A of diverse origin with cultured cells <i>in vitro</i>	Japanese J. of Infectious Diseases, 58: 31-33.	Singh I, Viridi JS

2004	Repetitive elements sequence (REP/ERIC)-PCR based genotyping of <i>Yersinia enterocolitica</i> biovar 1A reveal existence of limited number of clonal groups	FEMS Microbiology Letters, 240:193-201.	Sachdeva P, Viridi JS
2004	Production of <i>Yersinia</i> stable toxin (YST) and the distribution of <i>yst</i> genes in <i>Yersinia enterocolitica</i> biovar 1A	J. Medical Microbiology, 53:1065-1068.	Singh I, Viridi JS
2004	Detection and assay of beta-lactamases in clinical and non-clinical strains of <i>Yersinia enterocolitica</i> biovar 1A	J. Antimicrobial Chemotherapy, 54: 401-405.	Sharma S, Ramnani P, Viridi JS
2004	<i>In Vitro</i> antibiotic susceptibilities of <i>Yersinia enterocolitica</i> biovar 1A	World J. Microbiology & Biotechnology, 20: 329-331.	Singh I, Viridi JS
2003	Emerging water-borne pathogens	Applied Microbiology & Biotechnology, 61:423-428.	Sharma S, Sachdeva P, Viridi JS
2003	Comparison of tryptone glucose yeast (TGY) extract agar with nutrient agar for enumeration of heterotrophic plate count in sewage	Pollution Research, 22: 65-66.	Sharma S, Kuhad RC, Viridi JS
2003	Susceptibility of environmental isolates (biovar 1A) of <i>Yersinia enterocolitica</i> to chlorine and heavy metals	Indian J. Microbiology, 43:199-201.	Bansal N, Viridi JS.
2003	Isolation and characterization of <i>Yersinia enterocolitica</i> from diarrheic human subjects and other sources	Current Science, 84:1353-1355.	Singh I, Bhatnagar S, Viridi JS
2003	Susceptibility of environmental isolates of <i>Yersinia enterocolitica</i> (Biotype 1A) to chlorine and heavy metals	Indian Journal of Microbiology 43:199-201.	Mittal N, Viridi JS
2003	Microbial contamination of various water sources in Delhi	Current Science, 84:1398-1399.	Sharma S, Singh I, Viridi JS
2001	Arsenite-induced multiple antibiotic resistance phenotype in environmental isolates of <i>Yersinia enterocolitica</i>	Current Microbiology 43:144-146.	Viridi JS, Sinha I, Rajendran P, Singh 1
2000	Differentiation of non-pathogenic (biotype 1A) <i>Yersinia enterocolitica</i> from pathogenic serotypes by sodium acetate utilization	J. Medical Microbiology, 49: 674.	Sinha I, Viridi JS
2000	Arsenic and cadmium resistance in environmental isolates of <i>Yersinia enterocolitica</i> and <i>Yersinia intermedia</i>	Canadian Journal of Microbiology 46:481-484.	Bansal N, Sinha I, Viridi JS
2000	Virulence plasmid (pYV)-associated susceptibility of <i>Yersinia enterocolitica</i> to chlorine and heavy metals		
2000	Isolation of <i>Yersinia enterocolitica</i> and <i>Yersinia intermedia</i> from wastewaters and their biochemical and serological characteristics.	Journal of Applied Microbiology 89:663-667.	Bansal N, Sinha I, Viridi JS
1999	Isolation, biochemical characterization and <i>in vitro</i> tests of pathogenicity of <i>Yersinia enterocolitica</i> isolated from pork	Current Science 79:510-513. Current Science 77:1019-1021.	Sinha I, Choudhary, I, Viridi JS Singh I, Viridi JS

## Articles

- 1) **Singhal N, Sharma S, Nambram SS, Bajaj P, Viridi JS (2012)** Characteristics of  $\beta$ -lactamases and their genes in *Yersinia enterocolitica* isolated from India. Proceedings of the 11nd National Conference on **Antimicrobial Resistance: A cause of global Concern**, Sam Higginbottom Institute of Agriculture, Technology & Sciences, Allahabad, (In Press).
- 2) **Viridi JS, Kumar P, Mallik S, Bhagat N, Gulati P (2011)**. Insights into the genetic relationships between environmental and clinical strains of *Yersinia enterocolitica* biovar 1A. In **Microorganisms in Environmental Management** (Eds. **B.N. Johri, T. Satyanarayana and Anil Prakash**), Springer.
- 3) **Viridi JS, Kumar P, Bhagat N, Mallik S, Gulati P (2011)**. Genetic relationships between environmental and clinical strains of *Yersinia enterocolitica* biovar 1A. In **Biodiversity of Microorganism** (Ed. Ch. Paramageetham) (In press).
- 4) **Viridi JS (2009)** **Microbes and Man**. In: Life and Organicism, Part IV (Edited by **N.S. Rangaswamy**) for the GOI programme entitled – Project of History of Indian Science, Philosophy and Culture (PHISPC) Published by Centre for Studies in Civilizations funded by MHRD, New Delhi, pp. 237-256.
- 5) **Viridi JS, Bhagat N, Gulati P, Mittal S, Mallik S (2008)** *Yersinia enterocolitica*. In: **Microbiology of the Gastrointestinal Tract** (Edited by **C. Vaishnavi**), Published by IK International Pvt. Ltd., New Delhi (In Press).
- 6) **Mittal S, Viridi JS (2008)** Culturable and non-culturable approaches to study microbial diversity in soil ecosystems. In: **Soil Microbiology and Biotechnology** (Edited by **S. Kannaiyan**). Published by Narosa Publishing House, New Delhi (In Press).
- 7) **Viridi et al (2006)** Serological, molecular and pathogenicity related characteristics of *Yersinia enterocolitica*. In: **Microbial Biotechnology** (Edited by **AR Alagawadi, PU Krishnaraj, KS Jagadeesh, JH Kulkarni and S Kannaiyan**). Narosa Publishing House, New Delhi.
- 8) **Sachdeva P, Viridi JS (2006)** DNA fingerprinting techniques for identification and characterization of bacteria. In: **Applied Microbiology** (Edited by **P.C. Trivedi**), Published by Agrobios India, Jodhpur, pp.192-210.
- 9) **Viridi JS, Sachdeva P (2005)** Genetic diversity of pathogenic microorganisms: Basic insights, public health implications and the Indian initiatives. *Current Science* **89:113-123**.
- 10) **Johri BN, Ganguly BN, Goyal SK, Viridi JS, Tripathi AK, Jain RK, Kamara DN, Bhatnagar A (2005)** Microorganism diversity: Strategy and action plan. *Current Science* **89:151-154**.
- 11) **Viridi JS, Sachdeva S, Bhagat N, Singh I, Sinha I, Sharma S, Mallik S, Mittal S (2005)** Serological and molecular diversity of *Yersinia enterocolitica* isolated from India. In: Molecular diversity. Current perspectives and potential applications (Edited by **T. Satyanarayana and B.N. Johri**). Published by IK International Pvt. Ltd., New Delhi. pp. 1037-1052.
- 12) **Johri BN, Sharma A, Viridi JS (2003)** Rhizobacterial diversity in India and its influence on soil and plant health. *Advances in Biochemical Engineering and Biotechnology*, **84:49-89**.

## Conference Presentations

- 1) **Kumar P and Viridi JS (2011)** Identification and distribution of putative virulence genes in clinical strains of *Yersinia enterocolitica* biovar 1A isolated from India, Paper presented at **15<sup>th</sup> ADNAT Convention, Hyderabad**, Feb 23 – 25, 2011
- 2) **Dhar MS and Viridi JS (2009)** Interaction of strains of two clonal groups of *Yersinia enterocolitica* with cultured cells *in vitro*. **50th Annual conference of Association of Microbiologists of India**, Dec 15-18, **National Chemical Laboratory (NCL), Pune**.
- 3) **Nambram S and Viridi JS (2009)** Characterization of *Lactobacillus* spp. from probiotic preparations available commercially. **50th Annual conference of Association of Microbiologists of India**, Dec 15-18, **National Chemical Laboratory (NCL), Pune**.
- 4) **Gulati P and Viridi JS. (2008)** Multilocus variable number tandem repeat analysis and its use to discern clonal relationships amongst strains of *Yersinia enterocolitica* biovar 1A. **49th Annual conference of Association of Microbiologists of India and International symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics**, Nov 18-20, **University of Delhi**. New Delhi

- 5) **Bhagat N and Viridi JS (2008).** Biochemical and molecular characterization of the urease of *Yersinia enterocolitica* biovar 1A and its role in the survival of the organism under acidic conditions. **49th Annual conference of Association of Microbiologists of India and International symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics, Nov 18-20, University of Delhi, New Delhi**
- 6) **Kumar P and Viridi JS (2008)** Uncovering genomic differences between clinical and non-clinical strains of *Yersinia enterocolitica* isolated from India. **49th Annual conference of Association of Microbiologists of India and International symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics, Nov 18-20, University of Delhi, New Delhi.**
- 7) **Mallik S, Viridi JS, Johri AK, Dersch P and Chhatwal GS (2008)** Arsenic resistance and arsenite mediated multiple antibiotic resistance in *Yersinia enterocolitica* isolates from India and Germany. **1st National Conference on Yersinia, July 25 – 26, Braunschweig, Germany.**
- 8) **Mallik S, Viridi JS, Johri AK (2008)** Proteomic analysis of arsenite-mediated multiple antibiotic resistance in *Yersinia enterocolitica* biotype 1A. **108<sup>TH</sup> meeting of the American Society for Microbiology (ASM), June 6-9, Boston (USA).**
- 9) **Mallik S, Viridi JS (2006)** Whole cell protein profiling and multilocus enzyme electrophoretic analysis of clinical and non-clinical strains of *Yersinia enterocolitica* biotype 1A. **47<sup>TH</sup> Annual Conf of Assoc of Microbiologists of India, Barkatullah University, Dec 6-8, Bhopal.**
- 10) **Sharma S, Mittal S and Viridi JS (2005)** Molecular heterogeneity of  $\beta$ -lactamase genes (*bla A* and *bla B*) of *Yersinia enterocolitica* biotype 1A. **International Conf. on Microbial Diversity: Current perspective and potential applications, Apr. 16-18, University of Delhi South Campus, New Delhi.**
- 11) **Mallik S and Viridi JS (2005)** Protein profile analysis of clinical and environmental strains of *Yersinia enterocolitica* biotype 1A. **International Conf. on Microbial Diversity: Current perspective and potential applications, Apr. 16-18, University of Delhi South Campus, New Delhi.**
- 12) **Sachdeva P, Bhagat N and Viridi JS (2005)** Molecular typing of *Yersinia enterocolitica* biotype 1A strains isolated from different parts of the world. **International Conf. on Microbial Diversity: Current perspective and potential applications, Apr. 16-18, University of Delhi South Campus, New Delhi.**
- 13) **Sachdeva P and Viridi JS (2004)** Heterogeneity of biotype 1A strains of *Yersinia enterocolitica* isolated from diverse geographical regions. **EMBO Conf. on Molecular Biology. Exploring prokaryotic diversity, Apr. 2004, Heidelberg, Germany.**
- 14) **Mallik S, Sharma S and Viridi JS (2004)** Detection of  $\beta$ -lactamases of *Yersinia intermedia* and *Yersinia frederiksenii* isolated from India. **45<sup>th</sup> Annual Conf. of AMI, Nov. 23-25, NDRI, Karnal.**
- 15) **Bhagat N and Viridi JS (2004)** PCR detection of enterotoxin and urease genes in strains of *Yersinia enterocolitica* biotype 1A. **73<sup>rd</sup> Annual meeting of SBC, Nov. 21-24, GB Pant University of Agriculture & Technology, Pantnagar.**
- 16) **Sachdeva P and Viridi JS (2004)** VNTR-based typing of *Yersinia enterocolitica* biotype 1A strains isolated from diverse geographical regions. **73<sup>rd</sup> Annual meeting of SBC, Nov. 21-24, GB Pant University of Agriculture & Technology, Pantnagar.**
- 17) **Sharma S. and Viridi JS (2003)** Detection of  $\beta$ -lactamases in Indian strains of *Yersinia enterocolitica* biotype 1A. **10<sup>th</sup> Congress of Federation of Asian & Oceania Biochemists and Molecular Biologists, Dec. 7-11, IIS, Bangalore.**
- 18) **Srivastava S, Tiwari SK, Kumar A and Viridi JS (2003)** Probiotic potential of bacteriocin producing environmental isolates of lactic acid bacteria. **International Seminar and workshop on Fermented Foods: health status and social well being, organized by Gujarat Agricultural University and Swedish South Asian Network, Nov. 13-14, Anand (Gujarat).**
- 19) **Tiwari SK, Kumar M, Srivastava S and Viridi JS (2003)** Bacteriocin production by some natural isolates of *Lactobacillus* sp. **44<sup>th</sup> Annual Conf. of Association of Microbiologists of India, Nov. 12-14, Dharwad.**
- 20) **Ramnani P and Viridi JS (2003)** Physicochemical factors affecting  $\beta$ -lactamase production by *Yersinia enterocolitica*. **5<sup>th</sup> National Symposium – Biohorizon 2003, Dept. Biochem Engg Biotech, Mar. 7-8, IIT, New Delhi.**

**Total Publication Profile optional**

Books / Monographs..... 6

In Indexed/ Peer Reviewed Journals.....	40
Articles.....	14
Conference Presentations.....	15 (In last 5 years)
Book Reviews.....	8
e-articles.....	1

**Public Service / University Service / Consulting Activity**

- Co-ordinator, Special Assistance Programme (SAP) of the UGC to Department of Microbiology, University of Delhi.
- Member, National Organizing Committee, Intl. Symposium on Problems of Listeriosis (ISOPOL), ICAR Research Complex, Goa.
- Member Board of Studies, National Institute of Food Technology Entrepreneurship and Management (NIFTEM)
- Member Task Force - Enabling Young: Redefining Education, University of Delhi.
- DBT Nominee to IBSC, J.P. Institute of Information Technology, NOIDA.
- Guest Faculty, Indian Agricultural Research Institute (IARI), New Delhi.
- Member, Institute Academic Committee, Institute of Microbial Technology, Chandigarh.
- Member, Board of studies (BOS) in Microbiology, Thapar University, Patiala.
- Member, Board of studies (BOS) in Agricultural Microbiology, Aligarh Muslim University (Aligarh)
- Visiting Faculty, Department of Microbiology, Jiwaji University (Gwalior),
- Visiting Faculty, Department of Biotechnology, Barkatullah University (Bhopal).
- Member, Research Degree Committee (RDC), CCS University (Meerut),
- Member, Research Degree Committee (RDC), Jiwaji University (Gwalior),
- Member, Research Degree Committee (RDC), Barkatullah University (Bhopal),
- Member, Research Degree Committee (RDC), Himachal Pradesh University (Shimla).
- Member, Board of studies in Microbiology, ITM University, Gwalior.
- On faculty selection panel, King Abdul Aziz University, Jeddah (Saudi Arabia),
- On faculty selection panel, CCS Haryana Agricultural University (Hisar).
- Special invitee and expert, Bureau of Indian Standards (BIS), FAD, Drinking Water Sectional Committee.
- Peer reviewer for International and National scientific journals:  
 PloS One, PloS Pathogens, BMC Microbiology, BMC Infectious Diseases, FEMS Microbiology Letters, J. Antimicrobial Chemotherapy, J. Applied Microbiology, Microbiology (UK), J. Medical Microbiology, J. Basic Microbiology, J. Infections in Developing Countries, International J. Biomedical Sciences, International J. Hygiene & Environmental Health, J. Biotechnology & Biomedicine, International J. Integrative Biology, Indian J. Microbiology, Current Science, J. Food Sci & Technology, Polish J. Food Science, Pearson Publications. J Infectious Diseases and Immunity, Oxford University Press India, Tata Mac Graw Hill Publishing, European J Clin Microbiol and Infect Dis, Acta Pediat Microbiologica Immunol Scandinavica (APMIS),
- Joint Secretary, Association of Microbiologist of India.
- Participated in DBT-BCIL (Biotech Consortium India Ltd) to strengthen regulatory compliance by IBSC (Institute Biosafety Committee) Jan 29, 2009.
- Attended Indo-German Workshop on Epidemiology of Infectious Diseases, University of Hyderabad, Nov 28-30 2008, Hyderabad.



- Special invitee, DBT task force on Microbial Consortia Development. Meeting held at TERI (Southern Regional Centre), Bangalore Oct 23-24, 2008.
- Associate Editor, Gut Pathogens (BioMed Central Journal); Indian Journal of Microbiology
- Member, University Court, University of Delhi.
- Member, Governing Body, Maitryei College, University of Delhi.
- Treasurer, Maitryei College, University of Delhi.
- Member, Managing Committee, Saramati Hostel, University of Delhi South Campus.
- Member, Delhi University Library System (DULS) Committee for purchase of e-resources.
- Member, Governing Body: Ramlal Anand College (Univ. of Delhi),
- Member, Governing Body, Lady Harding College (Univ. of Delhi).
- Member, Governing Body, Motilal Nehru College (Univ. of Delhi).
- Treasurer, Ramlal Anand College, New Delhi.
- Treasurer, Delhi Unit II, Association of Microbiologist of India (AMI).
- In-charge – Biomerieux (Vitek-2), Biolog & Omnlog, Central Instrumentation Facility, UDSC, New Delhi.
- **PhD Examiner/ Subject expert / Paper setter & evaluator / Curriculum development / Academics:**  
Indian Institute of Science, Institute of Microbial Technology, Jawaharlal University (JNU), Institute of Genomics and Integrative Biology (IGIB), Indian Agricultural Research Institute (IARI), National Institute of Immunology (NII), All India Institute of Medical Sciences (AIIMS), Netaji Subhash Institute of Technology (NSIT), Ambedkar Centre for Biomedical Research (ACBR), Wellcome Trust Foundation, DBT, DST, CSIR, ICMR, Panjab Univ., Kurukshetra Univ., Defence Research and Development Establishment (DRDE), Maharishi Dayanand Univ., Maharishi Dayanand Saraswati Univ., Himachal Pradesh Univ., Guru Nanak Dev Univ., Aligarh Muslim Univ., G.B. Pant University of Agriculture & Technology, National Dairy Research Institute (NDRI), Amity Univ., PGIMS (Lucknow), Mysore Univ., Central Institute for Fisheries Technology, B.R. Ambedkar University, Kalyani Univ., Rani Durgawati Univ., TERI Univ., HNB Univ., Chhatapati Sahuji Maharaj Univ, Jamia Millia Islamia, Jamia Hamdard Univ., Guru Jhambeshwar Univ., Miranda House, Ramjas College, Ramlal Anand College, Swami Shradhdhanand College, DAV Colleges Managing Committee, V.P. Patel Chest Institute; HNB University, Mata Vaishnodevi University, Jadavpur Uni, Punjab Technical University (PTU), Banaras Hindu University (Varanasi), Central University of Rajasthan (Kishangarh).
- Revised the teaching programs (Theory) in the subjects of Immunology, Virology and Pathogenic Microbes for B. Sc. (Hons.) Microbiology students of Delhi University.
- Revised the curriculum for conducting practical in the subject of Immunology and Pathogenic Microbes for M. Sc. (Microbiology) students.
- Served as cultural co-ordinator between the department and the cultural council of the University.
- Coordinated in conducting educational-cum-scientific tours for M. Sc. Students of the department.
- Many young students who come to seek advice and suggestions about their career and related problems were guided appropriately.
- Delivered invited talk on “Career Opportunities in Microbiology” at DAV Centenary Public School, Oct. 22<sup>nd</sup>, 1999.
- Member, Admission Committee, Indira Gandhi Institute of Physical Education and Sports Sciences (Years 2006 and 2005), University of Delhi
- Member, Library Committee, University of Delhi South Campus.
- Member, Purchase Committee, University of Delhi South Campus.
- Member, Institute Biosafety Committee (IBSC), University of Delhi South Campus.
- Member, Selection Committee MPS (Microbiology), for Delhi University Colleges.
- Member, Animal House Committee, University of Delhi South Campus.



- Regularly served as a member of the 'University Observers Team' for the smooth conduct of Annual & Entrance Examinations of the University of Delhi.
- From time to time served as observer for entrance examinations (Medical, Engineering, Computer and Management) conducted by the University.
- In charge, central instrumentation facility of the department.
- Member, various departmental committees.
- In charge for keeping leave records of technical and laboratory staff.
- Superintendent for conducting annual theory and practical examinations.

### ***Professional Societies Memberships***

- Life member, International Society for General and Evolutionary Microbiology (ISOGEM).
- Life Member, Indian Association of Medical Microbiologist (IAMM).
- Life Member, Association of Microbiologist of India (AMI).
- Life Member, Society of Biological Chemists of India (SBC).
- Editor (Medical Microbiology section), Indian Journal of Microbiology.
- Member (Editorial Board) Indian Journal of Microbiology.
- Member Central Council, Association of Microbiologist of India.

### ***Projects (Major Grants / Collaborations)***

#### **Major Grants**

- **Title:** Comparative genomics of  $\beta$ -lactamase genes including *in-silico* analysis to identify sequences for  $\beta$ -lactamase inhibitors (PI: J. S.Virdi ; Co-PI: Manish Kumar and Manisha Goel, Department of Microbiology and Biophysics).  
**Funding Agency:** Indian Council of Medical Research (ICMR)  
**Status:** Ongoing
- **Title:** Role of Probiotic lactic acid bacteria in modulating antibiotic susceptibilities of enteric pathogens (PI: J.S.Virdi).  
**Funding Agency:** Indian Council of Medical Research (ICMR)  
**Status:** Sanctioned
- **Title:** Detection and analysis of emerging water-borne pathogens in the River Yamuna under an interdisciplinary project entitled – Development of indicators for anthropogenic, environmental and chemical stress on urban ecosystem: A study of aquatic and terrestrial ecosystems of Yamuna River catchment from National Capital Region (Delhi). **Status: On-going: DU-DST-PURSE Programme.**
- **Title:** Relationship between virulence and immune response to clinical and non-clinical strains of *Yersinia enterocolitica* isolated from India. **Status: On-going: Indian Council of Medical Research (ICMR).**
- **Title:** Uncovering genomic differences between clinical and non-clinical strains of *Yersinia enterocolitica* isolated from India. **Status: On-going: Indian Council of Medical Research (ICMR).**
- **Title:** Multilocus variable number tandem repeats analysis for typing of *Y. enterocolitica* isolated from India and other parts of the world. **Status: Completed: Indian Council of Medical Research (ICMR).**
- **Title:** Studies on  $\beta$ -lactamases and ESBL of strains *Yersinia enterocolitica* isolated from India. **Status: Completed: Defenses Res. & Development Organization (DRDO).**
- **Title:** Molecular characterization of *Y. enterocolitica* isolated from India. **Status: Completed; Department of Biotechnology (DBT).**
- **Title:** Biodiversity of aerobic gram-positive bacteria under All India Co-coordinated Project on Taxonomy **Status: Ongoing; Ministry of Environment and Forests (MoEF).**

- **Title:** Bacteriocin diversity among environmental isolates of lactic acid bacteria - search for an effective biopreservative. **Status: Completed; Council of Scientific and Industrial Research (CSIR).**
- **Title:** Pathogenicity of *Yersinia enterocolitica* of human and animal origin  
**Status: Completed; Indian Council of Medical Research (ICMR).**
- **Title:** Microbial load of water and the prevalence of emerging water-borne pathogens in Delhi. **Status: Completed; Department of Science and Technology (DST).**
- **Title:** Role of bacterivorous zooplanktons in reducing microbial load in wastewater. **Status: Completed Ministry of Environment and Forests (MoEF).**

### **Collaborations**

#### ***International***

- **Prof. G.S. Chhatwal, Division of Microbiology**  
Helmholtz Center for Infection Research, Braunschweig (Germany)
- **Prof. Petra Dersch**  
**Technical University of Braunschweig (Germany)**  
(Subject: Proteomics of the multiple antibiotic resistance in *Yersinia enterocolitica*)  
Programme: DAAD Fellowship Programme
- **Prof. Alan McNally, Department of Biological Sciences**  
**Nottingham Trent University, Nottingham (United Kingdom)**  
(Subject: Comparative microarray-based analysis of *Yersinia enterocolitica* from Indian and UK)

#### ***National***

- **Dr. Atul K. Johri, School of Life Sciences**  
**Jawaharlal Nehru University, New Delhi (India)**  
(Subject: Proteomics of the multiple antibiotic resistance in *Yersinia enterocolitica*)

### **Invited lectures**

- 1) Genomic insights for relationship of environmental and clinical strains of *Yersinia enterocolitica* isolated from India. International conference on Microbes in Environmental Management and Biotechnology, **Barkatullah University (Bhopal), July 1-3, 2011.**
- 2) Research on *Yersinia* and some efforts to generate intellectual property. National conference on Intellectual Property – Generation and Protection, **Maharishi Dayanand University (Rohtak), May 21, 2011.**
- 3) The Indian experience with emerging water-borne pathogens. **Jai Prakash Mukund Lal Institute of Technology, Radaur (Kurukshetra University), Mar 5, 2011.**
- 4) Genomic studies on *Yersinia enterocolitica* isolated from India, MICROCON - 2011, **Panjab University, Chandigarh Jan 10, 2011.**
- 5) Genomic analysis of strains of *Yersinia enterocolitica* isolated from India, **27<sup>th</sup> Annual Conference of Society of Biological Chemists of India, Bangalore, Dec 13-15, 2010.**
- 6) Genomic analysis of *Yersinia enterocolitica* isolated from India. **National conference on Medical Biotechnology – Vision 2020. Maharishi Dayanand University (Rohtak) Apr 16-18, 2010.**
- 7) Genomic analysis of *Yersinia enterocolitica* – a food and water-borne enteropathogen, **School of Sciences, Jiwaji University (Gwalior), National Science Day celebrations, Mar 27, 2010.**
- 8) Genomic analysis of strains of *Yersinia enterocolitica* isolated from pigs, pork, wastewater and humans. **10<sup>th</sup> Indian Veterinary Congress, Jabalpur Veterinary College (Jabalpur), Mar 11-12, 2010.**
- 9) Epidemiology of pathogens – Genomics *versus* Proteomics, **Workshop on *in silico* Proteomics, Barkatullah University (Bhopal), Sept. 2009.**
- 10) The Indian experience with *Yersinia enterocolitica* – **Dolphin Institute of Biomedical Sciences (Dehradun), Oct 10, 2010.**
- 11) The epidemiology of *Yersinia enterocolitica* in India. **Institute of Allied Sciences and Computer Applications (IASCA), ITM Universe, Gwalior, Apr 2009.**
- 12) Phylogenetic relationships of *Yersinia enterocolitica* as revealed by the study of different genes during **CPDHE Course at Department of Zoology, University of Delhi, Feb 10, 2009**
- 13) The molecular epidemiology of *Yersinia enterocolitica*. **Deptt. of Animal Biotechnology, CCS Haryana Agricultural University, Hisar, Jan 2009**
- 14) The Indian experience with *Yersinia enterocolitica*- an enteropathogen. **49<sup>th</sup> Annual conference of Association of Microbiologists of India and International symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics, University of Delhi, Nov 18-20, 2008.**
- 15) The Indian experience with *Yersinia enterocolitica* – an emerging food- and water-borne enteropathogen. **Annual meeting of the Society of Biological Chemists of India, Venkateswara University (Tirupati) Nov 25-27, 2007.**
- 16) Molecular and serological characteristics of *Yersinia enterocolitica* isolated from India. All India coordinated project in taxonomy (AICOPTAX) programme, **Agrhakar Research Institute (Pune), Dec 22, 2006.**
- 17) Molecular and serological diversity of *Yersinia enterocolitica* isolated from India. **International Conference on Microbial diversity: Current perspective and potential applications, University of Delhi South Campus (New Delhi), Apr 16-18, 2005.**
- 18) The Indian experience with *Yersinia enterocolitica*: a food- and water-borne enteropathogen. **2<sup>nd</sup> International Conference on Recent Advances in Biomedical & Therapeutic Sciences – 2005, Bundelkhand University (Jhansi), Jan 6-8, 2005.**
- 19) Emerging pathogens -The Indian experience with *Yersinia enterocolitica* **Academic Staff College, Jamia Millia Islamia (New Delhi), Aug 25, 2005.**
- 20) Diversity and pathogenicity of Indian *Yersinia enterocolitica* species. **IUPAC International Conference on Biodiversity and Natural Products, University of Delhi (Delhi) Jan. 26-31, 2004.**

- 21) Drinking water safety: Application of hazard analysis critical control plan (HACCP). 5<sup>th</sup> **International Food Convention. Central Food Technological Research Institute (CFTRI)**, Mysore, Dec 5-8, 2003.
- 22) Microbial load of water and emerging water-borne pathogens, **National Institute of Communicable Diseases (NICD)**, New Delhi, Mar 12, 2003.
- 23) Serological and molecular characteristics of *Yersinia enterocolitica* isolated from India. **44<sup>th</sup> Annual conference of Association of Microbiologists of India**, University of Agricultural Sciences (Dharwad), Nov 12-14, 2003.
- 24) Indian Experience with *Yersinia enterocolitica*. **43<sup>rd</sup> Annual Conference of Association of Microbiologists of India. CCS Haryana Agricultural University** (Hisar), Dec 11-13, 2002.
- 25) The Indian experience with *Yersinia enterocolitica* – an emerging food and water-borne enteropathogen. **71<sup>st</sup> Annual meeting of the Society of Biological Chemists of India**. Panjab Agricultural University (Ludhiana), Nov 14-16, 2002.
- 26) Modern tools for bacterial taxonomy. Department of Microbiology. **Maharishi Dayanand University (Ajmer)**, Nov 30, 2002.
- 27) Microbiological threats due to water contamination: overview and emerging water-borne pathogens. **International Conference on water-quality management: South Asian perspectives** (International Life Sciences Institute)

### **Indian strains submitted (>300 cultures):**

- The strains of *Yersinia enterocolitica* isolated from diarrheic patients, pigs, pork and wastewater submitted to three International & national culture collections:

### **International Culture Collections:**

1. *Yersinia* National Reference Laboratory and WHO collaborating center, Pasteur Institute, France.
2. Central Public Health Laboratory (CPHL), Public Health Laboratory Services (PHLS), Colindale (UK).

### **National Repository:**

3. Microbial Type Culture Collection (MTCC) & Gene Bank, Institute of Microbial Technology (IMTECH), Chandigarh, India

### **GENBANK Submissions of sequences of Indian strains:**

#### **16S r RNA gene (Ribosomal RNA gene):**

- DQ001324 (*Yersinia enterocolitica* strain C16, clinical isolate).
- DQ001325 (*Yersinia enterocolitica* strain E13, clinical isolate).
- DQ001326 (*Yersinia enterocolitica* strain E6, clinical isolate).
- DQ001327 (*Yersinia enterocolitica* strain C777, clinical isolate).
- DQ001328 (*Yersinia enterocolitica* strain PO/Y/1-3, pork isolate).
- DQ001329 (*Yersinia enterocolitica* strain E1, clinical isolate).
- DQ001330 (*Yersinia enterocolitica* strain E14, clinical isolate).
- DQ001331 (*Yersinia enterocolitica* strain T/Y/48, wastewater isolate).
- DQ001332 (*Yersinia enterocolitica* strain C760, clinical isolate).
- DQ001333 (*Yersinia enterocolitica* strain IP-49, clinical isolate).
- EU552037 (*Lactobacillus plantarum* strain LR/3).
- EU552038 (*Lactobacillus plantarum* strain LR/16).
- EU552039 (*Lactobacillus plantarum* strain MeL-2).
- EU552040 (*Lactobacillus* sp. DL-DW).
- EU552041 (*Lactobacillus* sp. CL).
- EU552042 (*Lactobacillus* sp. SL).

#### **gyr B gene sequences (Gyrase B gene):**

- DQ140396 (*Yersinia enterocolitica* strain C16, clinical isolate).
- DQ140397 (*Yersinia enterocolitica* strain C777, clinical isolate).
- DQ140398 (*Yersinia enterocolitica* strain K/Y/62, wastewater isolate).

#### **VNTR containing sequences (Variable Number Tandem Repeats):**

- DQ976374 (*Y. enterocolitica* strain C16 microsatellite VNTR01 sequence, clinical isolate).
- DQ976375 (*Y. enterocolitica* strain E6 microsatellite VNTR02 sequence, clinical isolate).
- DQ976376 (*Y. enterocolitica* strain C16 microsatellite VNTR03 sequence, clinical isolate).
- DQ976377 (*Y. enterocolitica* strain C16 microsatellite VNTR05 sequence, clinical isolate).
- DQ976378 (*Y. enterocolitica* strain C16 microsatellite VNTR08 sequence, clinical isolate).

#### **Virulence & Virulence-associated genes:**

- AY966878 (*Y. enterocolitica* strain C760 subtilisin/kexin-like protease (*hreP*), partial cds).
- AY966879 (*Y. enterocolitica* strain C801 mucoid yersinia fimbriae (*myfA*), partial cds).
- AY966880 (*Y. enterocolitica* strain C760 heat stable enterotoxin (*ystB*) gene, partial cds).
- AY966881 (*Y. enterocolitica* C760 streptogramin acetyltransferase (*sat*), partial cds).
- AY970513 (*Y. enterocolitica* strain C760 YmoA (*ymoA*) gene, complete cds).
- AY970514 (*Y. enterocolitica* strain C777 YmoA (*ymoA*) gene, complete cds).
- AY970515 (*Y. enterocolitica* strain R/Y/56 YmoA (*ymoA*) gene, complete cds).
- AY970516 (*Y. frederiksenii* strain C249 YmoA (*ymoA*) gene, complete cds).
- AY970517 (*Y. intermedia* strain C702 YmoA (*ymoA*) gene, complete cds).
- AY970518 (*Y. enterocolitica* strain C760 ABC transporter (*fepD*) gene, partial cds).
- AY970519 (*Y. enterocolitica* strain C777 ABC transporter (*fepD*) gene, partial cds).
- AY970520 (*Y. frederiksenii* strain C249 ABC transporter (*fepD*) gene, partial cds).
- AY970521 (*Y. intermedia* strain C702 ABC transporter (*fepD*) gene, partial cds).
- DQ144904 (*Y. enterocolitica* strain C760 enterochelin esterase (*fes*) gene, partial cds).
- DQ144905 (*Y. enterocolitica* strain C777 enterochelin esterase (*fes*) gene, partial cds).
- DQ144906 (*Y. frederiksenii* strain C249 enterochelin esterase (*fes*) gene, partial cds).
- DQ144907 (*Y. intermedia* strain C702 enterochelin esterase (*fes*) gene, partial cds).
- DQ144908 (*Y. enterocolitica* strain C760 invasin (*invA*) gene, partial cds).
- DQ144909 (*Y. enterocolitica* strain C760 ferricenterochelin receptor (*fepA*), partial cds).
- DQ144910 (*Y. enterocolitica* strain C842 ferricenterochelin receptor (*fepA*), partial cds).
- DQ144911 (*Y. enterocolitica* STM 483 putative insecticidal toxin complex protein (*tccC*), partial cds).
- DQ350880 (*Y. enterocolitica* strain C760 urease UreA (*ureA*), UreB (*ureB*), UreC (*ureC*), UreE (*ureE*), UreF (*ureF*), UreG (*ureG*), UreD (*ureD*) genes complete cds; Yut (*yut*) gene partial cds).
- EU527335 (*Y. enterocolitica* strain C760 urea transporter (Yut) gene partial cds).

#### **β – lactamases (BlaA & Bla) gene sequences:**

- AY954728 (*blaA* of *Y. enterocolitica* biotype 1A).
- DQ150252 (*blaB* of *Y. enterocolitica* biotype 1A).
- DQ424965 (*blaA* of clinical strain of *Y. intermedia*).
- DQ424966 (*blaA* of non-clinical strains of *Y. intermedia*).
- DQ656113 (*blaA* of *Y. frederiksenii*).
- DQ424967 (*blaB* of *Y. intermedia*).
- DQ424968 (*blaB* of *Y. frederiksenii*).

#### **Arsenic resistance (ars) gene sequences:**

- GQ229151 (*Y. enterocolitica* C801 arsenical pump memb protein (*arsB*), partial cds)
- GQ229152 (*Y. enterocolitica* T/Y/34 arsenical pump memb protein (*arsB*), partial cds)

#### **House keeping Genes for Multi Locus Restriction Typing (MLRT):**

- FJ899547 (*Y. enterocolitica* strain C16 adenylate cyclase (*cyaA*) gene, partial cds).
- FJ899548 (*Y. enterocolitica* strain C64 adenylate cyclase (*cyaA*) gene, partial cds).
- FJ899549 (*Y. enterocolitica* C51 glu-6-phosphate dehydrogenase (*zwf*), partial cds).
- FJ899550 (*Y. enterocolitica* C64 glu-6-phosphate dehydrogenase (*zwf*), partial cds).
- FJ899551 (*Y. enterocolitica* C20 glu-6-phosphate dehydrogenase (*zwf*), partial cds).
- FJ899552 (*Y. enterocolitica* strain C16 glutamine synthetase (*glnA*) gene, partial cds).
- FJ899553 (*Y. enterocolitica* strain C64 glutamine synthetase (*glnA*) gene, partial cds).
- FJ899554 (*Y. enterocolitica* strain T/Y/48 glutamine synthetase (*glnA*) gene, partial cds).
- GQ229153 (*Y. enterocolitica* strain C16 malate dehydrogenase (*mdh*) gene, partial cds).
- GQ229154 (*Y. enterocolitica* strain C64 malate dehydrogenase (*mdh*) gene, partial cds).
- GQ229155 (*Y. enterocolitica* O/Y/44 malate dehydrogenase (*mdh*) gene, partial cds).
- GQ229156 (*Y. enterocolitica* strain E1 malate dehydrogenase (*mdh*) partial cds).
- GQ229157 (*Y. enterocolitica* strain C16 glutamate dehydrogenase (*gdhA*) partial cds).
- GQ229158 (*Y. enterocolitica* strain R/Y/56 glutamate dehydrogenase (*gdhA*), partial cds).
- GQ229159 (*Y. enterocolitica* strain E13 glutamate dehydrogenase (*gdhA*), partial cds).
- GQ229160 (*Y. enterocolitica* strain C16 isocitrate dehydrogenase (*icdA*), partial cds).
- GQ229161 (*Y. enterocolitica* strain R/Y/48 isocitrate dehydrogenase (*icdA*), partial cds).
- GQ229162 (*Y. enterocolitica* strain R/Y/56 isocitrate dehydrogenase (*icdA*), partial cds).

#### **Genes identified by Suppression Subtractive Hybridization (SSH):**

- GU253386 (*Y. enterocolitica*, Strain C-93, Conserved hypothetical protein, Partial cds).
- GU253387 (*Yersinia enterocolitica*, Strain C-93, Hemophore A (HasA), Partial cds).
- GU253388 (*Yersinia enterocolitica*, Strain C-93, Type 1 secretion protein, Partial cds).
- GU253389 (*Y. enterocolitica*, Strain C-93, Outer membrane protein PgaA, Partial cds).
- GU253390 (*Yersinia enterocolitica*, Strain no. C-93, Flagellar hook protein, Partial cds).

- **GU253391** (*Y. enterocolitica*, Strain C-93, Restriction modification system, Partial cds).
- **GU253392** (*Yersinia enterocolitica*, Strain C-93, Putative exported protein, Partial cds).
- **GU253393** (*Y. enterocolitica*, Strain C-93, ABC type multidrug transporter, Partial cds).

(Signature of Faculty Member)

(Signature & Stamp)  
Head of the Department