Curriculum Vitae

Dr. Dharmesh Harwani

Summary: I am a trained bacterial geneticist, bacteriologist, and bioinformatician. I started my research carrier by working as a JRF in an International research project for Cooperation for Developing Countries involving Germany, Spain, Nepal, and India (INCO-DEV) to study *Bradyrhozbium*-assisted Biological Nitrogen Fixation (BNF) and plant growth-promoting Arbuscular Mycorrhizal Fungi (AMF). I pursued my Ph.D. on the same subject. After Ph.D., I joined Prof. Mahadevan's Lab, MRDG at the Indian Institute of Science (IISc), Bangalore as a DBT-Postdoctoral Fellow to understand the functional roles of cryptic genes in *Escherichia coli*. In 2011, I was appointed as an Assistant Professor in the Department of Microbiology at the State University of Bikaner (Maharaja Ganga Singh University). I started investigating the surrounding soils of the Thar Desert falling in Rajasthan for antibiotic-producing microbial communities colonizing and inhabiting this natural ecosystem. To this end, innovative strategies are being developed for the selective isolation, characterization, and de-replication of useful metabolites produced by them using a range of in silico, genotypic and phenotypic procedures. Besides, I have been also focusing my research on Multi-Drug-Resistant (MDR) diarrheagenic *Escherichia coli*, point-of-care diagnostic methods, and various bioinformatics tools to understand the host-pathogen relationship, and underlying mechanisms. I have received several awards including DST and ICMR travel awards for academic visits to USA and Europe. Several research grants have been obtained by me from several national funding agencies like DST-SERB, DST-NGP, DBT, and ICMR.

Date of Birth:	25 August 1977
Date of joining:	09 June 2011
Present Position:	Associate Professor
Institute/Department:	Department of Microbiology Maharaja Ganga Singh University, Bikaner (State Govt.) (Erstwhile University of Bikaner)
Pay Scale + Grade Pay:	143600.00 (Basic), PB-14
Office: Academic Block-I Department of Microbiology, Maharaja Ganga Singh University, N.H.15, Jaisalmer Road, Bikaner-334004	**Residence**: III-D-36, "KRISHIKA", Murlidhar Vyas Colony, Bikaner-334001, Rajasthan, India **Telephone No.**:0151-4079418
Fax No.: 0151-2212042	**Mobile No.**: +91 8764131240 **E-mail**: dharmesh@mgsubikaner.ac.in dharmesh_harwani@hotmail.com

Qualifications: M.Sc, Ph.D., and Post-Doctoral fellow in Microbiology
(Post Ph.D. >18 Years of Experience in Academics)

- **Assistant Professor (Selection grade)**, Microbiology, Maharaja Ganga Singh University, Bikaner ***(June 2011-continuing)***
- **Post-PhD (DBT-*P*ost *D*octoral *F*ellow),** Lab of Prof. S. Mahadevan, Microbial Genetics, Indian Institute of Science (IISc), Bangalore ***(Jan. 2007- June 2011)***
- **Ph.D.** (Biodiversity and Efficiency of Bradyrhizobial Strains and AMF), INCO-DEV Microbiology lab., Maharshi Dayanand Saraswati University, Ajmer, Rajasthan ***(Dec. 2002- 27 April 2006)***
- **Senior Lecturer**, Microbiology, Gyan Vihar University, Jaipur ***(Sept. 2006-Jan. 2007)***
- **Project Assistant and Junior Research Fellow** INCO-DEV Research Project (International Co-operation for Developing Countries (India, Spain, Nepal, Germany) for Improved *B*iological *N*itrogen *F*ixation, European Comm., Coordinator **Dr. Dietrich Werner**) ***(Aug. 2002 - Feb. 2006)***
- **UGC/CSIR NET** ***(2003)***
- **M.Sc**., Microbiology, Maharshi Dayanand Saraswati University, Ajmer ***(Aug. 2002)***
- **DOEACC "O-Level"**, New-Delhi in Computers ***(2001)***

Specialization:

- Microbial Genetics
- Bioinformatics
- Infectious Diseases

Research and Teaching Experience:

2002-2006 (Aug.-Sept.)	Teaching and Research	INCO-DEV* laboratory, Deptt. of Microbiology, Maharshi Dayanand Saraswati University, Ajmer-305009, Rajasthan
2006-2007 (Sept.-Jan.)	Pure Teaching	Deptt. of Microbiology, Gyan Vihar University, Jaipur
2007-2011 (Jan.-June)	Pure Research	Lab of Prof. S. Mahadevan, MRDG, Indian Institute of Science (IISc), Bangalore-560012, Karnataka
09 June 2011-continuing	Teaching and Research	Deptt. of Microbiology, Academic Block 4, Maharaja Ganga Singh University, Bikaner-334001

Research Projects and Grants:

S. No.	Title	Grant Period	Cost (In lakhs)
Minor Projects			
1. Microbial diversity of desert varnish/rock varnish commonly grown on desert rocks, ancient buildings, forts, and monuments of Bikaner, Rajasthan	BT-71, 2012	Completed/Minor	DST-Rajasthan
2. Screening of infectious microbial community in vegetables & fruits commonly available in the fruit market of Kote gate Bikaner	BT-76, 2012	Completed/Minor	DST-Rajasthan
3. Engineering of highly competitive pro-biotic strain/s from milk and milk products to prepare cheap pro-bioticsp supplement pouches for the improvement of gut health	BT-2014	Completed/Minor	DST-Rajasthan
4. Bioremediation: Use of Generally Recognized as Safe (GRAS) Bacterial Blend/Cocktail to Clean up Waste Water Bodies/Fish Ponds	BT-886, 2018	Completed/Minor	DST-Rajasthan
5. Bacterial Engineers for Discovery of Petroleum Reservoirs	BT-898, 2018	Completed/Minor	DST-Rajasthan
Major Projects			
1) Study on the Genetic Diversity of Malaria Vaccine Candidate Antigen Genes and their Co-relation with Infection in the Field Isolates of North East Region (Bikaner) (Project file no. SR/WOS-A/LS-29/2017) (Mentor Scientist)	2017-2020	27.5 Lakhs	DST-WOS-A
2) Biodiversity and Spatial Distribution of Microflora and Fauna of the Thar Desert	2018-2019	8.0 lakhs	DBT, India
3) Global analysis of protein profiles of Bgl- and Bgl+ strains to identify putative downstream target genes regulated by the bgl operon of E. coli.	2007-2011		* DBT-RA, Indian Institute of Science (IISc), Bangalore

4) GIS Mapping of Microbial Population for their Geographical Position, Geological and Geochemical Habitats to Explore Oil and Gas Reservoirs in Jaisalmer Sub-Basins of Thar Desert.	2021-2024	50.41	DST-NRDMS
5) Prevalence, Detection, Characterization of Multidrug-Resistant Diarrheagenic Escherichia Coli pathotypes and serotypes in Under-Five Children in Bikaner Region of Rajasthan.	2022-2025	49.38	ICMR, India
6) Comparative Genome-wide Analysis of adaptively evolved Streptomyces mutant phenotypes and LC-MS-based profiling of bioactive metabolites produced by them.	2024-2027	26.50	DST-SERB

Patent:
Submitted (02.07.2018, Application Published :201811024532, CBR:16976)

I. Books published:

A. Authored:	**2019** Foldscope and its Applications **Vol.1,** (eds: Arun Dev Sharma, Dharmesh Harwani et al.), National Press Associates, New Delhi. ISBN No: 978-93-85835-68-1. **2022** Foldscope and its Applications, **Vol. 2,** (eds: Arun Dev Sharma, Dharmesh Harwani et al.), National Press Associates, New Delhi. ISBN: 978-93-90863-51-8. **2025** Prospects and Challenges in Integrating NEP 2020 into Our Education System. Manoj Dixit, and Dharmesh Harwani, (Editors). Kitabwale, New Delhi. ISBN: 978-93-48029-19-5.
B. Edited Chapters:	1) 2025 Harwani, D., & Lakhani, J. (2025). Strategic implementation of National Education Policy 2020: Transforming higher education in universities. In M. Dixit & D. Harwani (Eds.), Prospects and challenges in integrating NEP 2020 into our education system (pp. 115) 2) 2023 *In* Applications of Machine Learning in Bioprocess Development and Optimization. Harwani, D., and Lakhani, J. In *Microbial Products* (pp. 463-472). CRC Press. eBook ISBN No. 9781003306931 3) 2022 *In* Foldscope and its Applications, Vol. 2, Foldscope applications: Floral and faunal species richness and relative abundance in arid Thar regions of Rajasthan, India. Harwani D., Begani J., and Lakhani J. Arun Dev Sharma, Inderjeet Kaur, Mohan Kale, M Gomathy, Pritam J, Parul Gurjar, Dharmesh Harwani, Tushar Borse, Suchita Gokhale, STV Raghavamma, Mousmi Saikia, KG Sabarinathan (eds.), National Press Associates, New Delhi, pg. 17-31. ISBN No: 978-93-90863-51-8. 4) 2020 *In* New and future developments in microbial biotechnology and bioengineering. Genetic diversity of polyketide synthases and nonribosomal peptide synthetases in fungi Harwani D., Barupal S., Begani, J., and Lakhani J. Joginder S. Gehlot P. (eds.) Elsevier, pp.11-22. ISBN: 978-0-12-821008-6. Elsevier 5) 2020 *In* New and future developments in microbial biotechnology and bioengineering. In silico detection tools to identify fungal secondary metabolites and their biosynthetic gene clusters. Lakhani J., Khunteta A., Chowdhary A., Harwani D. Joginder S. Gehlot P. (eds.) Elsevier, pp.11-22. ISBN: 978-0-12-821008-6. Elsevier 6) 2020 Multiple Sequence Alignment Algorithm Using Adaptive Evolutionary Clustering. *In* Advances in Information Communication Technology and Computing. Lakhani J., Harwani D. Proceedings of AICTC 2019, Springer Singapore ISSN: 2367-3370. 7) 2019 Local Pairwise Sequence Alignment Algorithm For Finding Longest DNA Sub-

Sequence. *In* Proceedings of International Conference on Recent Trends and Innovation in Engineering, Science & Technology (ICRTIEST-2019), Lakhani J., Khunteta A., Chowdhary A., Harwani D. Dec. 20-21, 2019, Jaipur, Rajasthan, India

8) 2019
In Foldscope and its Applications. Foldscope view of floral and faunal diversity in the thar desert of Rajasthan. Harwani D., Begani J., Barupal S., and Lakhani J. A.D. Sharma, G. Gurjar, T. Mastanamma, I. Sharma, S.A. Waghmode, S.G. Kulkarni, B. Prakash, D. Harwani, M. Saikia, M.S. Shekhawat, A. harshal. K.G. Sabarinathan, M. Gomathy (eds.), National Press Associates, New Delhi. ISBN No: 978-93-85835-68-1

9) 2018
In In-Silico Approach for Sustainable Agriculture. Genes to Metabolites and Metabolites to Genes Approaches to Predict Biosynthetic Pathways in Microbes for Natural Product Discovery. Harwani D., Begani J. and Lakhai J. D.K. Choudhary, M. Kumar, R. Prasad, V. Kumar (eds.). Springer, Singapore. https://doi. 10.1007/978-981-13-0347-0_5. SCOPUS Indexed

10) 2018
In In-Silico Approach for Sustainable Agriculture. In Silico Methods to Predict Disease-Resistance Candidate Genes in Plants. Lakhani J., Khunteta A., Chowdhary A., Harwani D. D.K. Choudhary, M. Kumar, R. Prasad, V. Kumar (eds.). *Springer*, *Singapore*. https://doi. 10.1007/978-981-13-0347-0_5. SCOPUS Indexed

11) 2018
In Fungi and their Role in Sustainable Development: Current Perspectives. Co-cultivation strategies to induce de-novo synthesis of novel chemical scaffolds from cryptic secondary metabolite gene clusters. Harwani D., Begani J. and Lakhai J. Praveen Gehlot and Joginder Singh (eds.). *Springer*, 617-631. https://doi.org/10.1007/978-981-13-0393-7_33. SCOPUS Indexed

12) 2017
In Genetic Construction of Stable Rhizobial Genotypes for Improved Symbiotic Nitrogen Fixation. Harwani D., Begani J., Lakhani J. A. Hansen, D. Choudhary, P. Agrawal, A. Varma (eds) Rhizobium Biology and Biotechnology. Soil Biology, vol 50. Springer, 165-184.

13) 2017
In Hierarchical Clustering-Based Algorithms and In Silico Techniques for Phylogenetic Analysis of Rhizobia. Lakhani J., Khuteta A., Choudhary A., Harwani D. A. Hansen, D. Choudhary, P. Agrawal, A. Varma (eds) Rhizobium Biology and Biotechnology. Soil Biology, vol 50. Springer pp. 185-214.

14) 2016
In Natural Resource Management in Arid and Semi-Arid Ecosystem for Climate Resilient Agriculture. Bio-prospecting for Natural and Novel Metabolites from Rare Thermophilic Actinomycetes from underexplored Arid Thar Desert Regions of Rajasthan, India. Begani J. and Harwani D. 2015. N.K. Pareek and Sanjay Arora (eds.). *Soil Conservation Society of India, New Delhi,* pp. 1-8. ISBN: 978-81-909228-6-9

15) 2015
In Microbes: In Action. Secondary Structure Modelling of ITS1, 5.8S and ITS2 Ribosomal Sequences for Intra-Specific Differentiation among *Aspergillus* species. Gehlot P., Lakhani J. and Harwani D. 2015.J. Singh and P. Gehlot (eds.), AGROBIOS, India, pp. 337-353. ISBN 978-81-7754-576-0

16) 2015
In Microbes: In Action. Endophytic microorganisms and their functions. Gehlot P. and Harwani D. J. Singh and P. Gehlot (eds.), AGROBIOS, India, pp. 167-187. ISBN 978-81-7754-576-0

17) 2009
In Biotechnology of Agricultural Microorganisms - An Agro-industry Approach. Tripartite Symbiotic Association: Legume-Rhizobia-Mycorrhiza - A Review. Harwani, D., Choudhary, P., Dhaker, S., Prasad, K. and Mahna, S.K. 2006. D.K. Maheshwari and R.C. Dubey (eds.), I. K. International Pvt. Ltd. New Delhi, India, pp. 406-435. *(Google Books)* ISBN: 93-80026-53-4.

18) 2005
In Emerging Trends in Mycology, Plant Pathology and Microbial Biotechnology. Screening of efficient *Bradyrhizobium japonicum* strains for the improvement of

	soybean production. Mahna, S.K., Meghvansi, M.K., Prasad, K., Harwani, D. and Werner, D. 2005. G. Bagyanarayana, B. Bhadraiah and I.K. Kunwar (eds.),. B.S. Publications, Hyderabad, India, pp. 282-292. ISBN: 8178000814.
II. Research Journals Published (selected):	
A. Journals:	1) 2024 Barupal, S., Kochar, S., and Harwani, D. Prevalence and Distribution of Virulence Determinants in Diarrheagenic *Escherichia coli* associated with Children under Five Years of Age, Indian Journal of Natural Sciences, 15:87, 82985-83001 (Web of Science) 2) 2023 Acharya, J., Kochar, S.K. and Harwani, D., Thrombospondin - Related Anonymous Protein (TRAP) as a Vaccine Antigen Candidate against Neglected Plasmodium vivax Malaria. Indian Journal of Natural Sciences 14:80. ISSN: 0976–0997 61514-24. UGC care/Web of Science. 3) 2023 Lakhani, J. and Harwani, D., Nature Inspired Adaptive Evolutionary Clustering Algorithms for Biological Sequence Analysis. Indian Journal of Natural Science 14(14): 54182-54192. ISSN: 0976-0997. UGC care/Web of Science. 4) 2022 Lakhani, J. and Harwani, D. In silico analysis and cluster validation of potential breast cancer nsSNPs of serological tumor marker CA27. 29. Indian Journal of Natural Science 13(71): 39976-996. ISSN: 0976-0997 UGC care/Web of Science. 5) 2022 Acharya J, and Harwani D. Changing pattern of severe manifestations of *Plasmodium falciparum* and *Plasmodium vivax* malaria: A Retrospective study from Bikaner (Northwest) in India. Journal of Vector Borne Diseases 59:259-264 ISSN: 2414-6366 DOI: 10.4103/0972-9062.342396 SCI and SCOPUS Indexed 6) 2022 Harwani D, Begani J, Barupal S, Lakhani J, Adaptive laboratory evolution triggers pathogen-dependent broad-spectrum antimicrobial potency in *Streptomyces*. Journal of Genetic Engineering and Biotechnology 20 (1), 1-13. ISSN: 2090-5920 SCI and SCOPUS Indexed 7) 2021 Harwani D, Lakhani J. Rapid Diagnostics for Asymptomatic SARS-CoV-2 Infections. Indian Journal of Natural Science 12(69): 37708-719. ISSN: 0976-0997 UGC care/Web of Science 8) 2021 Lakhani J, Harwani D. Deep convolution neural network-based prediction and classification of blight disease of potato. Journal of Phytolical Research. 34 (2): 177-185. ISSN: 0970-5767. UGC care/Web of Science 9) 2019 Begani J, Lakhani J, Harwani D. Sand Dune Streptomyces JB66 Native to the Great Indian Thar Desert Inhibits Multidrug-Resistant Pathogens. International Journal of Pharmaceutical Sciences and Drug Research. 11(6):289-98. ISSN: 0975-248X UGC care 10) 2019 MPSAGA: A matrix-based pairwise sequence alignment algorithm for global alignment with position based sequence representation. Lakhani J., Khunteta A., Choudhary A. and Harwani D., Indian Academy of Sciences *Sadhana,* Springer 44:171 ISSN: 0256-2499 (Print) 0973-7677 SCI and SCOPUS Indexed 11) 2019 A broad-spectrum antimicrobial activity of thermophilic sp. producing *Nocardiopsis* multiple extracellular enzymes of industrial and therapeutic use. Begani J., Lakhani J. and Harwani D., *Asian Journal of Pharmacy and Pharmacology* 5(3):525-534. ISSN: 2455-2674. UGC care 12) 2019 Cluster validation of evolutionary clustering algorithm for multivariate datasets. Lakhani J., Khunteta A., Choudhary A. and Harwani D., *National Journal of System and Information Technology*, 12:1:1-14. ISSN : 0974-3308. UGC care 13) 2018

Diarrheagenic Escherichia coli pathotypes and childhood diarrhea in the Bikaner region of Western Rajasthan. . Barupal S., Lakhani J. and Harwani D., *International Journal of Scientific Research in Biological Sciences*, 5:6, 212-214 E-ISSN: 2347-7520 https://doi.org/10.26438/ijsrbs/v5i6.212214. UGC care

14) 2018
Current strategies to induce secondary metabolites from microbial biosynthetic cryptic gene clusters. Begani J., Lakhai J. and Harwani D., *Annals of Microbiology,* 68:7, 419-432. ISSN: 1869-2044. SCI and SCOPUS Indexed

15) 2018
Draft genome sequence of *Streptomyces* sp. strain DH-12, a soilborne isolate from the Thar Desert with broad-spectrum antibacterial activity. Jiao J, Paterson J, Busche T, Rückert C, Kalinowski J, Harwani D, Gross H. *Genome Announcements,* 6:9, 1-3. e00108-18 SCOPUS Indexed

16) 2017
Improvisation of Global Pairwise Sequence Alignment Algorithm Using Dynamic Programming. Lakhani J., Khunteta A., Harwani D. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, 2:6, 909-914. ISSN : 2456-3307. UGC care

17) 2016
Auto-Evolving Clusters based on Rejection and Migration. Lakhani J., Khunteta A., Chowdhary A., Harwani D. AICTC '16 Proceedings of the International Conference on Advances in Information Communication Technology & Computing. ACM, USA. ISBN: 978-1-4503-4213-1. SCOPUS Indexed [1–6]

18) 2015
Clustering techniques for Biological Sequence Analysis: A Review, Lakhani J. and Harwani D. *Journal of Applied Information Science* , 3:1, 14-32. ISSN 2321-6115. Refereed

19) 2015
Regulation of Gene Expression: Cryptic β-glucoside (*bgl)* Operon of *Escherichia coli* as a Paradigm. Harwani, D. *Brazilian Journal of Microbiology* 4;45(4):1139-44. ISSN 1517-8382. SCI and SCOPUS Indexed

20) 2015
Disambiguation of Multiple Inheritance in C++ Using Biological Law of Genetics Given By Mendel. Harwani, D. and Lakhani, J. *Academic Journal of Science, UniversityPublications.net, USA* 3:2:361-371. ISSN 2165-628. Refereed

21) 2014
Clustering Trend Predictions using Evolutionary k-means Algorithm for Automated Clustering Lakhani, J. and Harwani, D. *International Journal of Knowledge Based Computer System* 1: 33-36. ISSN Number: 2321-5623. Refereed

22) 2014
Microbial Contamination of Raw Fruits and Vegetables. Mathur A., Joshi A. and Harwani D. *Internet Journal of Food Safety* 16:26-28. ISSN 1930-0670. Refereed

23) 2014
Cloning the Metagenome to Access the Biodiversity of Unculturable Bacteria. Joshi A and Harwani D. *Multi Disciplinary Edu Global Quest* 3:48-55. ISSN 2250-3048. UGC care

24) 2013
Biodiversity of rare thermophilic actinomycetes in the great Indian Thar Desert: An Overview. Harwani, D. *Indo American Journal of Pharmaceutical Research* 3:9349-9356. ISSN 2231-6876. UGC care

25) 2013
Recent advances in culturing the unculturable bacteria. Harwani, D. *International Journal of Recent Scientific Research* 4:1488-1491. ISSN: 0976-3031. UGC care

26) 2013
The great plate count anomaly and the unculturable bacteria. Harwani, D. *International Journal of Scientific Research* 2:350-51. ISSN 2277-8179. UGC care

27) 2013
Bacteria eating pollution and generating electricity. Harwani, D. *International Journal of Pharma and Bio Sciences* 4:996-1002. ISSN 0975-6299. SCOPUS Indexed

28) 2012

	The β-glucoside (*bgl)* operon of *Escherichia coli* is involved in the regulation of *oppA* encoding an oligo-peptide transporter. Harwani, D. and Mahadevan, S. *Journal of Bacteriology* 194:90-99. *(http://jb.asm.org/content/194/1/90)* Print ISSN: 0021-9193 Online ISSN: 1098-5530. SCI and SCOPUS Indexed 29) 2008 Response of soybean cultivars toward inoculation with three arbuscular mycorrhizal fungi and *Bradyrhizobium japonicum* in the alluvial soil. Meghvansi, M.K, Prasad, K., Harwani, D., Mahna, S.K. and Werner, D. *European journal of soil biology* 44: 316-323. *(http://www.elsevier.com/locate/ejsobi)* ISSN: 1164-5563. SCI Indexed 30) 2006 Stimulatory effect of adonitol on the redifferentiation potential of soybean root nodules bacteroids. Harwani, D., Meghvansi, M.K, Prasad, K., Mahna, S.K. and Werner, D. *Current Science* 90: 1474-1475. *(http://www.ias.ac.in/currsci/jun102006/1474.pdf)* ISSN: 0011-3891. SCI Indexed 31) 2006 Distribution of arbuscular mycorrhizal fungi in soybean (*Glycine max* (L.) Merrill) rhizosphere. Prasad, K., Meghvansi, M.K., Harwani, D., Mahna, S.K. and Werner, D. *Mycorrhiza News* 17:14-17. (*http://mycorrhizae.org.in/files/Jan06.pdf)* ISSN: 0970-695X. Refereed

Visits Abroad:

- **Academic Visit to Gothenburg, Sweden (2009)**
  Poster presentation on research work entitled "Global Protein Profiles to Identify Downstream target gene regulated by *bgl* operon of *E. coli."* in "**FEMS 2009- 3rd Congress of European Microbiologists**
- **Academic Visit to the University of Nevada, Las Vegas, USA (2014)**
  Oral presentation on research work entitled "Cell to cell contact is necessary for Growth Advantage in Stationary Phase phenotype (GASP)". **in IJAS-2014, UNLV**, Las Vegas, USA
- **Chaired Two Sessions** based on Science and Technology at **IJAS-2014, UNLV**, Las Vegas, USA

Research Supervised - Ph.D./M.Phil. (Name of student and title):

Scholars awarded PhD

1. Ms. Jyotsna Begani 2014. Thesis title: Isolation and Characterization of Thar Desert Actinomycetes producing useful Secondary Metabolites.
2. Ms. Jyoti Acharya Gopa 2016. Thesis title: Study on the Genetic Diversity of Malaria Vaccine Candidate Antigen Genes and their Co-relation with Infection in the Field Isolates of North East Region (Awarded 24.02.2024).
3. Ms. Sweta Barupal 2018. Thesis Title: Detection, Prevalence, and Polyphasic Characterization of Diarrheagenic *Escherichia coli* in Children Under Five Years of Age in the Bikaner Region of Rajasthan.

Scholar pursuing PhD

Parvinder Kumar
Chetna Agarawal

4. Guidance of more than 45 PG dissertations in Microbiology

Other activities:

Seminars, Workshop, Conferences, Awards	**Seminars Organized (Selected)** **2024** Vision Bharat at 2047: Bharat's Ambitious Pursuit of Transforming into a Developed Nation. National seminar on transformative journey of Bharat during last decade. 20-21 January 2024. **2023** Strategic Implementation of National Education Policy 2020: Transforming Higher Education in Universities. National Seminar on Prospects and Challenges in Integrating NEP 2020 into our Education System" 11 September 2023. **Workshop Organized (Selected)** **2021** On the occasion of International Microorganism's Day organized Popular lectures by two eminent Microbiologists **(17.9.2021)** **2021** National Webinar on Virtual Meetings: Methods, Issues and Challenges **(27.02.2021)** **2021** Webinar Series "Covid-19 Pandemic: The Holistic Approach of Yoga towards Promoting

Natural Health and Immunity" and Live Yoga Sessions (21-25 June 2021)

2019

Trained various faculty members and students from schools and colleges of Bikaner and nearby regions in a workshop on the use of Foldscope at Govt. Chopra Sr. Secondary School, Bikaner, Rajasthan, on December 9, 2019, sponsored by the Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India, and the Prakash Lab at Stanford University, USA.

2013

Technology Transfer in Nano Science and Technology. Research to Product Awareness Workshop. Harwani D. Nano-Medicine and Nano-Therapeutics, 20 June, Dept of Biotechnology, Madurai Kamaraj University, Madurai, Tamilnadu.

2013

Organized a two-day Workshop "Field functionaries/Extension offices on organic farming" at the department of Microbiology, Maharaja Ganga Singh University under the auspices of "National Center of Organic Farming" Ghaziabad on 30-31 January 2013.

2012

Organised OPEN DAY cum Exhibition: One day visit open to the students and faculty from various colleges and Institutes of Bikaner to the Microbiology Laboratory, Maharaja Ganga Singh University, Bikaner, Rajasthan on 7 Nov. 2012.

Active Participation (Selected)

2024

Vision Bharat at 2047: Bharat's Ambitious Pursuit of Transforming into a Developed Nation. National seminar on transformative journey of Bharat during last decade. 20-21 January 2024

2023

Strategic Implementation of National Education Policy 2020: Transforming Higher Education in Universities. National Seminar on Prospects and Challenges in Integrating NEP 2020 into our Education System" 11 September 2023

2019

Intellectual Property Rights awareness workshop and training programme organized by M.N. College and Research Institute, Bikaner sponsored by Department of Science ad Technology, Govt. of Rajasthan. Jaipur on 28 March.

2017 (Best Poster-Consolation Award)

Polyphasic Characterization of a rare actinomycete strain from a sand dune soil of Thar Desert in Rajasthan producing anti-leukemic enzyme L-asparaginase. Begani J. and Harwani D. Scientific Symposium in Hindi, 29-30 October 2017, Desert Medical Research Center, Rajasthan India, p-8.

2017

Study of Genetic Polymorphism in Vaccine Candidate Genes to Develop Stable Vaccine against Malaria. Gopa J. and Harwani D. Scientific Symposium in Hindi, 29-30 October 2017, Desert Medical Research Center, Rajasthan India, p-3.

2016

Optimization and Purification of Anti-Leukemic Enzyme L-Asparaginase from Actinomycetes Bacteria Native to the Thar Desert of Rajasthan, India. Harwani D, Begani J and Lakhani J. National Seminar on Environment Management and Technology 8-9 March 2017, MGSU, Bikaner, Rajasthan, India.

2016 (Best Poster Award)

Unconventional Methods to Characterize Thermophilic Actinomycetes Producing Novel Metabolites from underexplored Thar Desert. Harwani D and Begani J. National Conference on Biotechnology for Sustainable Development, 23-24 December 2016, MD College, Sri Ganganagar, Rajasthan India.

2016 (Key note Speaker)

Bioprospecting for Potential Drug Candidates for Biotechnological Development of Antibiotics targeting Multi Drug Resistance Pathogens. Harwani D. National Conference on Biotechnology for Sustainable Development, 23-24 December 2016, MD College, Sri Ganganagar, Rajasthan India

2016 (Best Poster Award)

Bio-prospecting for Natural and Novel Metabolites from Rare Thermophilic Actinomycetes from underexplored Arid Thar Desert Regions of Rajasthan, India. Begani J and **Harwani D.** 25th National Conference on "Natural Resource Management in Arid

and Semi-Arid Ecosystem for Climate Resilient Agriculture and Rural Development", 17-19 February, 2016, Swami Keshwanand Rajasthan Agricultural University, Bikaner, Rajasthan p-

2016 (Best Oral Award)

Probiotics and Antibiotics Resistance : Safety Issue of Dietary Supplements. **Harwani D** and Begani J. National Seminar on "Agriculture Resource Management for Sustainability and Eco-Restoration", March 11-13, 2016, ICAR-Central Institute for Arid Horticulture, Bikaner, Rajasthan, p.171.

2015

Phylogenetic Appraisal of Rare Actinomycetes Native to the Thar Desert Environment using Conserved Ribosomal 16SrDNA Sequence Analysis. **Harwani D.** National Seminar on Current Trends in Environmental Research. 18 Feb.-March 2, 2015, MGSU, Bikaner, Rajasthan, India.

2014

Cell to Cell Contact is Necessary for the Growth Advantage in Stationary Phase (GASP) Phenotype Conferred by the Activation of the *bgl* operon of *Escherichia coli*. **Harwani D.** "International Journal of Arts and Science: Conference of Science and Technology", University of Nevada, Las Vegas, USA.
http://vegas2014internationalconference.sched.org/?s=dharmesh

2014

Selective Discovery of Rare Thermophilic Actinomycetes Producing Novel Antimicrobial Compounds from Desert Soils. **Harwani D**. ESF, EMBO Symposium, Synthetic Biology of antibiotic production, Sant Feliu de Guixols, Costa Brava, Spain.
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2013 (Best Poster Award)

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	Paradigm. **Harwani, D.** "UGC Sponsored National Conference on Biotechnology", Mahila P.G. College, 11-12 January, 2013, odhpur, Rajasthan, p. 24. **2012** The β-glucoside (*bgl)* operon of *Escherichia coli* is involved in the regulation of *oppA* encoding an oligo-peptide transporter. **Harwani, D**. and Mahadevan, S. "NCOB-2012 National conference on Omics for Biotechnology" Central university of Rajasthan at Kishangarh, Ajmer, Rajasthan, p. 149. **2012** A World of Science and Technology Beyond the English or Within. Harwani D. and Lakhani J. "National Symposium on Interrogating New Worlds of English Language Teaching 2012", Bikaner, p. 30. **2011** Microbial fuelling cell (MFC): A bacterial way to clean up nature and produce electricity. Harwani, D. "ICAER-2011 – International conference on Advances in Ecological Research", Bikaner, Rajasthan, p.97. **2009** Global analysis of protein profiles of Bgl^+ and Bgl^- strains to identify putative downstream target genes regulated by the *bgl* operon of *E. coli.* **Harwani, D**. and Mahadevan, S. *Proc.* "FEMS 2009- 3rd Congress of European Microbiologists" Gothenburg, Sweden, p. 198. **2004** Efficiency of bradyrhizobia in different soybean cultivars in pots filled in with rhizospheric soils of soybean/ non-legume cultivated land. Mahna, S.K., Prasad, K., Meghvansi, M.K., **Harwani, D**. and Werner, D. *Proc.* "Rhizosphere 2004 - Perspectives and Challenges - A Tribute to Lorenz Hiltner" Munich, Germany, p. 135. **2004 (Junior Scientist Award)** Stimulatory effect of three carbon sources on re-differentiation potential of soybean nodulating bacteria. **Harwani, D.,** Meghvansi, M.K., Prasad, K., Werner, D. and Mahna, S.K. *Proc.* International Symposium on "**Microbial Diversity: Challenges, Opportunities & Relevance in new Millennium**" Jabalpur, India, p. 25. **2000** Participated Microbiotech 2000. 41st Annual Conference, Association of Microbiologists of India, Nov. 2000. Birla Indstitute of Scientific Research, Jaipur, Rajasthan, India.
Invited Lectures	• I have presented my research work at numerous conferences, symposia and meetings as an invited or keynote speaker.
Membership	• ASM (American Society of Microbiology), USA (ASM MN # 56756547) • TERI (The Energy and Resources Institute), India • AMI (Association of Microbiologists of India LMID#4533-2017)
Awards	• Best Poster-Consolation Award, 29-30 October 2017, Desert Medical Research Center, Rajasthan India • Best Poster Award (First) at National Conference on Biotechnology for Sustainable Development, 23-24 December 2016, MD College, Sri Ganganagar, Rajasthan India. • Best Poster Award (Second) at Natural Resource Management in Arid and Semi-Arid Ecosystem for Climate Resilient Agriculture and Rural Development", 17-19 February, 2016, Swami Keshwanand Rajasthan Agricultural University, Bikaner, Rajasthan. • Best Oral Award (second) at National Seminar on "Agriculture Resource Management for Sustainability and Eco-Restoration", March 11-13, 2016, ICAR-Central Institute for Arid Horticulture, Bikaner, Rajasthan. • First Prize Anveshan 2015: National Student Research Convention, West Zone • Non-ICMR Scientist Travel Award for Academic Visit to USA 2014 • Best Poster Award (First) at UGC Sponsored National Conference on Biotechnology in 2014, Jodhpur, India • IAS-SPRF, Indian Academy of Science 2012 • DBT-RA, DBT, Govt. of India Funded Project 2007-2011 • DST-ITG, Gothenburg, Sweden 2009 • UGC-CSIR NET 2003 • DOEACC-"O" Level, New Delhi 2001

	• Junior Scientist Award, Microtech 2004-International Symposium, SBAM, Jabalpur (19-21 November 2004) • Gold Medalist in Inter School Hockey Tournament at St. Pauls', Ajmer • Ranked Runner Up MDS Olympiad Table Tennis 2003, MDSU, Ajmer • NCC (2 Raj Naval Wing), First Cadet-March Past, 1992
Refresher/Orientation Courses	**Refresher/Orientation and Other Courses** • Gujarat University, Ahmedabad, University Grants Commission, Human Resource Development Centre (HRDC), 2nd Online Refresher Course in Life Science (Microbiology) from 12/07/2022 to 25/07/2022. • Jawaharlal Nehru University, New Delhi 5th Refresher Course (Interdisciplinary) in Contemporary Studies (Natural Sciences, Environmental Sciences, Biological Sciences, Demography and Education) 31st December to 25th January, 2019 • Indian Academy of Science (IAS), Bangalore- Summer Research Fellowship. Cell (Bgl+) to cell (Bgl^-) contact (cellular signaling) analyis by *F*luorescent *A*ctivated *C*ell *S*orting (FACS) analysis. Indian Institute of Science, Bangalore, Karnataka, India (May-June 2012) • Indian Academy of Science (IAS) Sponsored Refresher Course- Dept of Biotechnology, Madurai Kamaraj University, Madurai, Tamilnadu, India (15.5.2013-29.5.2013) • Orientation Program (68)- Academic Staff College, Madurai Kamaraj University, Madurai, Tamilnadu, India (30.5.2013-26.6.2013) • Refresher Course in Microbiology (May-June 2015) Human Resource Development Centre, Panjab University, Chandigarh. (12.05.2015-01.06.2015)
SWAYAM-MOOC (FDPs) Courses	• Online Refresher Course (MHRD) in Biotechnology from 1.11.2018 to 28.02.2019. • Online Refresher Course (MHRD) in Pedagogical Innovations And Research Methodology (Interdisciplinary) from 1.11.2018 to 28.02.2019. • Online 2 Week FDP from Delhi University, Managing Online Classes and Co-creating MOOCS from 20.04.2020 to 06.05.2020.
Other Academic, Administrative Jobs, Academic Training and Technology Transfer	• Director IQAC (2022-) • Swayam|, National Coordinator, Local Chapters (MGSU, Bikaner) (2024-) • Director Innovation Cell (2024-) • Director Incubation Cell (2021-2024) • Director, Centre for Entrepreneurship and Skill Development (CESD), MGS University, Bikaner (2017-2022) • Center Supritendent-Exam (2022-) • Admission Incharge, MGSU (2022-) • Member Academic Council, Microbiology (2021-) • Coordinator Scholl of Law (2022-) • Coordinator Department of Yoga (2017-) • Center Superintendent and Assistant Center Superintendent Examinations MGS University, Bikaner (2017-2019) • RUSA Coordinator, MGS University, Bikaner (2016-) • Coordinator Public Outreach and Extension Cell, MGS University, Bikaner (2016-) • Member of Board of Studies, MGS University, Bikaner (2013-) • Research Co-ordinator, Microbiology and Biotechnology, Gyan Vihar University • Assisted in Coordinating Small Teachers and Doctoral Students Training Program in *Rhizobium* Technology • Technology Transfer of Bradyrhizobial Bacterial Bio-fertilizers Production from INCO-DEV Laboratory at MDS University, Ajmer to the Farmers' Fields in Kota, Bhundi and Baran Regions of Rajasthan.
Teacher Fellowship and Reports	**2012** *I*ndian *A*cademy of *S*cience (IAS) SPRF-2012 (8 weeks) (LFT-86-Teacher) Cell to cell contact is necessary for the growth advantage in stationary phase (GASP) phenotype conferred by the activation of the *bgl* operon of *Escherichia coli* Worked as a Research fellow with Prof. V. Nanjundiah and Prof. S. Mahadevan, MRDG at Indian Institute of Science, Malleshwaram Bangalore-560012 **2011**

		DBT (Department of Biotechnology), India (2007-2011) reports on two projects entitled "Global analysis of protein profiles of Bgl^- and Bgl^+ strains to identify putative downstream target genes regulated by the *bgl* operon of *E. coli*" and "Cell to cell contact is necessary for the growth advantage in stationary phase (GASP) phenotype conferred by the activation of the *bgl* operon of *Escherichia coli* " (Worked as a DBT–PDF/RA-III with Prof. Mahadevan, MRDG at Indian Institute of Science, Malleshwaram Bangalore-560012) **2006** INCO DEV (International Cooperation for developing countries), International Scientific Cooperation Project (Germany, Spain, Nepal and India), "Soybean *B*iological *N*itrogen *F*ixation (BNF) and Mycorrhization for Improved Production in South Asia" Contract number: ICA4-CT- 2001-10057. (Worked as a team member) *http://www.staff.unimarburg.de/~werner/INCO_DEV.html*