

CURRICULUM VITAE

Name

Dr. Helianthous

Designation

Assistant Professor, Ramjas College, Department of Zoology, University of Delhi, Delhi-110007

Date & Place of Birth

30th May, 1990, Delhi, India

Education

Degree/ Certificates	Discipline/ Specialization	School/college	University/ Board	Year of Passing	Percentage
Ph. D.	Molecular Biology	Department of Zoology	University of Delhi	2016	NA
M. Sc.	Zoology	Department of Zoology	University of Delhi	2012	74.01%
B.Sc.(H)	Zoology	Hans Raj College, Delhi	University of Delhi	2010	78.89%
Intermediate (10+2)	Science	Dayanand Model Sr. Sec School, Delhi	C.B.S.E	2007	76.64%

Contact details

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Teaching Experience

Asst. Professor (adhoc basis) for 2 years (from 25th Feb, 2016 to 11th Mar, 2018) in Zoology Department, Kirori Mal College, University of Delhi, Delhi.

Asst. Professor (adhoc basis) (from 12th Mar, 2018 to till date) in Zoology Department, Ramjas College, University of Delhi, Delhi.

Specialization

Animal Biotechnology, Genetics, Bioinformatics, Genomics, Evolution, Molecular Biology

Memberships

1. Life Member, Association of Microbiologists of India (AMI).
2. Life Member, Indian Network for Soil Contamination (INSCR).

Editorial Board Member

1. Biosphere Journal, an INSCR journal

Publications

1. Negi V, Kumar R, **Verma H**, Sangwan N, Lal R. 2012. News and Views on “ Titan Cells: Barriers to Phagocytosis”. Indian J. Microbiol. **52**: 516.
2. Kaur J, **Verma H**, Tripathi C, Khurana J P, Lal R. 2013. Draft Genome Sequence of a Hexachlorocyclohexane-Degrading Bacterium, *Sphingobium baderi* Strain LL03^T. Genome Announc. **1**: e00751-13.

3. Sangwan N, **Verma H**, Kumar R, Negi V, Lax S, Khurana P, Khurana J P, Gilbert J A, Lal R. 2014. Reconstructing an ancestral genotype of two hexachlorocyclohexane degrading *Sphingobium* species using metagenomic sequence data. ISME J. **8**: 398-408.
4. Nayyar N, Sangwan N, Kohli P, **Verma H**, Kumar R, Negi V, Oldach P, Mahato N K, Gupta, V., and Lal, R. 2014. Hexachlorocyclohexane: persistence, toxicity and decontamination. Rev. Environ. Health. **29**:49-52.
5. Mahato N K, Tripathi C, **Verma H**, Singh N, Lal R. 2014. Draft genome sequence of *Deinococcus* sp. strain RL isolated from sediments of hot Spring located at Manikaran, India. Genome Announc. **2**: e00703-14. doi:10.1128/genomeA.00703-14.
6. **Verma H**, Kumar R, Oldach P, Sangwan N, Khurana J P, Gilbert J A, Lal R. 2014. Comparative genomic analysis of nine *Sphingobium* strains: Insights into their Evolution and Hexachlorocyclohexane (HCH) Degradation Pathway. BMC Genomics, **15**:1014.
7. Kumar R, Dwivedi V, Nayyar N, **Verma H**, Singh A K, Rani P, Rao D L N, Lal R. 2014. *Parapedobacter indicus* sp. nov., isolated from Hexachlorocyclohexane (HCH) contaminated soil. Int. J. Syst. Evol. Microbiol. **65**: 129-134.
8. **Verma H**, Rani P, Singh AK, Kumar R, Dwivedi V and Rup Lal. 2015. *Sphingopyxis flava* sp. nov., isolated from an hexachlorocyclohexane (HCH) contaminated soil, India. Int. J. Syst. Evol. Microbiol. **65**: 3720-3726.
9. Rani P, Mukherjee U, **Verma H**, Kamra K, Lal R. 2016. *Luteimonas tolerans* sp. nov., isolated from hexachlorocyclohexane (HCH) contaminated soil, Lucknow, India. Int. J. Syst. Evol. Microbiol. **66**: 1851-6.
10. Kumar R, **Verma H**, Haider S, Bajaj A, Sood U, Ponnusamy K, Nagar S, Shakarad M, Negi R, Singh Y, Khurana J, Gilbert J, Lal R. 2017. Comparative genomic analysis reveals habitat specific genes and regulatory hubs within the genus *Novosphingobium*. mSystems. **2**: e00020-17.
11. **Verma H**, Bajaj A, Kumar R, Kaur J, Anand S, Nayyar N, Puri A, Singh Y, Khurana JP, Lal R. 2017. Genome Organization of *Sphingobium indicum* B90A: An Archetypal Hexachlorocyclohexane (HCH) Degrading Genotype. Genome Biol Evol. **9**: 2191-7.
12. Mahato NK, Gupta V, Singh P, Kumari R, **Verma H**, Tripathi C, Rani P, Sharma A, Singhvi N, Sood U, Hira P, Kohli P, Nayyar N, Puri A, Bajaj A, Kumar R, Talwar C, Khurana H, Nagar S, Sharma M, Garg G, Mishra H, Negi RK, Shakarad M, Singh Y, Lal R. 2017. Taxo-

Genomics: A New Era of Polyphasic Approach and Beyond. Anton van Leeuwenhoek. **110**: 1357-71.

13. Dhingra G, **Verma H** and Lal R. 2017. Genome analysis of *Sphingopyxis* flava R11HT: An overview of genetic attributes". J Proteomics Bioinform. **10**:11.
14. **Verma H**, Dhingra GG, Sharma M, Gupta V, Negi RK, Singh Y and Lal R. 2020. Comparative genomics of *Sphingopyxis* spp. unravelled functional attributes. Genomics **112**: 1956-1969.
15. **Verma H**, Gundawar K, Choksket S, Korpole S and Lal R. 2020. Bergey's Manual for genus *Sphingopyxis*. Bergey's Manual of Systematic Bacteriology. DOI: [10.1002/9781118960608.gbm01409](https://doi.org/10.1002/9781118960608.gbm01409)
16. Puri A, Bajaj A, **Verma H**, Kumar R, Singh Y and Lal R. 2020. Complete genome sequence of *Paracoccus* sp. Strain AK26: Insights into multipartite genome architecture and methylotrophy. Genomics. **112**: 2572-2582.
17. Khurana H, Sharma M, **Verma H**, Lopes B, Lal R and Negi RK. 2020. Genomic insights into the phylogeny of Bacillus strains and elucidation of their secondary metabolic potential. Genomics **112**: 3191-3200.
18. Kumar R, **Verma H**, Singhvi N, Sood U, Gupta V, Singh M, Sharma R, Hira P, Nagar S, Talwar C, Nayyar N, Anand S, Rawat CD, Verma M, Negi RK, Singh Y and Lal R. 2020. Comparative Genomic Analysis of Rapidly Evolving SARS CoV-2 Viruses Reveal Mosaic Pattern of Phylogeographical Distribution. mSystems, 5:e00505-20, DOI: 10.1128/mSystems.00505-20
19. **Verma H**, Phian S, Lakra P, Kaur J, Subudhi S, Lal R and Dogra CD. 2020. Human Gut Microbiota and Mental Health: Advancements and Challenges in Microbe-Based Therapeutic Interventions. INJM: 60: 405–419 DOI : 10.1007/s12088-020-00898-z.
20. Gupta V, Haider S, Verma M, Ponnusamy K, Malik Z, Singhvi N, **Verma H**, Kumar R, Sood U, Hira P, Satija S, Lal R. 2021. Multi-Omics and Integrated Network Approach to Unveil Evolutionary Patterns, Mutational Hotspots, Functional Crosstalk and Regulatory Interactions in SARS-CoV-2. mSystems. 6, e00030-21. DOI: 10.1128/mSystems.00030-21.
21. **Verma H**, Nagar S, Vohra S, Pandey S, Lal D, Negi RK, Lal R and Dogra C. 2021. Genome analyses of 174 strains of Mycobacterium tuberculosis provide insight into the evolution of drug resistance and reveal potential drug targets. Microbial Genomics. 7:000542. Accepted.

22. Garg G, Saxena A, Nigam A, Hira P, Singhvi N, Anand S, Kaur J, Kaur J, Dua A, Negi V, Gupta V, Sood U, Kumar R, Lal S, **Verma H** et al.,. 2021. Microbial world recent development in Health, Agriculture and Environmental Science (3rd to 5th Feb, 2021). Indian Journal of Microbiology 61, 111–115.
23. Lakra P, **Verma H**, Talwar C, Singh DN, Singhvi N, Lal R, Gupta V. 2021. Genome based reclassification of *Deinococcus swuensis* as a heterotypic synonym of *Deinococcus radiopugnans*. IJSEM, 71. doi: 10.1099/ijsem.0.004879..
24. Anand S, Lal S, Sood U, Gupta V, Dhingra GG, Solanki R, Kaur J, Kumar R, Saxena A, Dua A, Tripathi C, Talwar C, Rawat CD, Kaur H, **Verma H**. The Alphabet of the Elementary Microbiology: Revisited. INJM accepted.
25. Rawat VS, Verma M, **Verma H** and Rawat CD. Exploring Microbial Potential for Sustainable Agriculture. Biosphere. (accepted).
26. Microbial Journey: Mount Everest to Mars (accepted)

Book Chapters/e-Chapters

1. Singh G, Sharma R, Mehrotra R, Upadhyaya SK, Kumar M, **Verma H**, Kumar P. Microbial Genetics. Alagappa University: Directorate of Distance education. Vikas Publishing House Pvt. Ltd. ISBN: 9789353387969.
2. **Verma H**. 2019. Genetics. Alagappa University: Directorate of Distance education. Vikas Publishing House Pvt. Ltd. ISBN: 9789353387099
3. Garg N, **Verma H**. 2017. Large scale analysis of genome: Metagenomics. An MHRD project under its National Mission on Education information Communication Technology (NME-ICT), e content for postgraduate course.
4. Garg N, **Verma H**. 2017. Large scale analysis of genome: Functional Genomics. An MHRD project under its National Mission on Education information Communication Technology (NME-ICT), e content for postgraduate course.
5. Dua A, **Verma H**, Hira P, Shakarad M. 2016. An introduction to Biotechnology: a genetic manipulation perspective. In, Visualization of Nucleic Acids and Proteins, pub: I. K. international Publishing House Pvt. Ltd. Ed: Rup Lal. ISBN: 9384588865.

6. Singh P, **Verma H.** 2016. An introduction to Biotechnology: a genetic manipulation perspective. In, Purification of DNA from the agarose gels, pub: I. K. international Publishing House Pvt. Ltd. Ed: Rup Lal. ISBN: 9384588865.

Award/Prize/Certificate

1. Secured First Rank in Higher Senior Secondary (2007) (Science stream) in Dayanand Model Sr. Sec. School, New Delhi.
2. Recipient of 'Dr. Kartikeya Gupta Prize' for academic excellence by securing first rank in B.Sc (Hons) Zoology Ist Year (2007-08) in Hans Raj College, University of Delhi, Delhi.
3. Secured first rank in B.Sc (Hons) Zoology IInd Year (2008-2009) in Hans Raj College, University of Delhi, Delhi.
4. President elected for Biological Society, Hans Raj College, University of Delhi, Delhi in the year 2009-2010.
5. Cleared Junior Research Fellow-National Eligibility Test (JRF-NET) held in June 2011 and December 2011.
6. Assisted in M.Sc. Practical Course in “Computational Biology, Biostatistics and Bioinformatics” offered in semester III from July 2014 to November 2014 at Department of Zoology, University of Delhi, Delhi.
7. Assisted in M.Sc. Practical Course in “Genomics” offered in semester IV from January 2015 to May 2015 at Department of Zoology, University of Delhi, Delhi.
8. Awarded with the travel assistance for poster presentation in the international conference of 6th FEMS congress, held at MECC Maastricht, Netherlands from June 7-11, 2015 by Department of Science and Technology, Govt. of India.
9. Awarded first prize in Quiz Competition in the department fest-2016 organized by Evolvera Society, Department of Zoology, University of Delhi, Delhi.
10. Appointed as Co-President of Student Chapter of Indian Network for Soil Contamination Research (2016-2017).
11. Certificate of Appreciation by University of Delhi for timely evaluation of answer scripts of Environmental Science Open Book Examination (OBE) held in March 2021.

12. Certificate of Appreciation by University of Delhi for timely evaluation of answer scripts of Parasitology Open Book Examination (OBE) held in June, 2021.
13. Awarded as best oral presentation: Faculty at 6th INSCR international Conference on “insights into drug resistance and potential drug targets in *Mycobacterium tuberculosis*: a comparative genomics study” from 15th to 18th November, 2021.

Posters Presented in National and International Conferences

1. Kaur, J., **Verma, H.**, Khurana, P., Khurana, J. P., and Lal, R. “Whole Genome Sequencing of Hexachlorocyclohexane (HCH) Degrading Bacterium *Sphingobium indicum* B90A”. Poster presented in the 53rd Annual Conference of Association of Microbiologists of India (AMI) entitled “Microbial World: Recent Innovations and Future Trends” held at KIIT University, Bhubaneswar, India from November 22-25, 2012.
2. Kaur, J., **Verma, H.**, Khurana, P., Khurana, J. P., and Lal, R. “Whole Genome Sequencing of Hexachlorocyclohexane (HCH) Degrading Bacterium *Sphingobium indicum* B90A”. Poster presented in the first Indian Network of Soil Contamination Research (INSCR) conference at Amity University, Noida, India on January 15th, 2013.
3. **Verma, H.**, Kaur, J., Moskalikova, H., Niharika, N., Damborsky, J., and Lal, R. “Taxonomical characterization of a novel bacterial strain *Sphingobium baderi* sp. nov., lacking hexachlorocyclohexane haloalkane dehalogenase *linB*, isolated from a HCH dumpsite”. Poster presented in the first Indian Network of Soil Contamination Research (INSCR) conference at Amity University, Noida, India on January 15th, 2013.
4. Sangwan, N., **Verma, H.**, Kumar, R., Negi, V., Khurana, j. P., Gilbert, J. A., and Lal, R. “Community wide insights into an ancestral genotype of two hexachlorocyclohexane degrading *Sphingobium* subspecies”. Poster presented in the 54th Annual Conference of Association of Microbiologists of India (AMI) held at MDU, Rohtak, Haryana, India from November 17-20, 2013.
5. Kumar, R., **Verma, H.**, Oldach, P., Sangwan, N., Negi, V., and Lal, R. “Comparative genomic analysis of ten strains of the genus *Sphingobium*: projecting into their phylogeny, adaptation, and bioremediation of Hexachlorocyclohexane (HCH) dumpsite”. Poster

presented in the 54th Annual Conference of Association of Microbiologists of India (AMI) held at MDU, Rohtak, Haryana, India from November 17-20, 2013.

6. Negi, V., Sangwan, N., Kumar, R., **Verma, H.**, Mahato, N. K., and Lal, R. “Metagenomic analysis of contaminated pond soil at Chinhat, Lucknow to gauge xenobiotic degraders”. Poster presented in the 54th Annual Conference of Association of Microbiologists of India (AMI) held at MDU, Rohtak, Haryana, India from November 17-20, 2013.
7. Tripathi, C., Kaur, J., **Verma, H.**, Khurana, J. P., and Lal, R. “Draft genome sequence of a hexachlorocyclohexane-degrading bacterium, *Sphingobium baderi* strain LL03^T”. Poster presented in the 54th Annual Conference of Association of Microbiologists of India (AMI) held at MDU, Rohtak, Haryana, India from November 17-20, 2013.
8. **Verma, H.**, Kumar, R., Kaur, J., and Lal, R. “Genome insights to *Sphingobium indicum* B90A: A promising Hexachlorocyclohexane (HCH) degrader”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
9. Kumar, R., **Verma, H.**, Dwivedi, V., and Lal, R. “Gene-targeted metagenomics of Hexachlorocyclohexane (HCH) dehydrochlorinase (linA) genes in the environment to reveal extensive diversity and predicting possible sites for site-directed mutagenesis”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
10. Mahato, N.K., Tripathi, C., **Verma, H.**, Singh, N., and Lal, R. “Draft genome sequence of an extremophile *Deinococcus* sp. Strain RL-An insight into resistance to environmental hazards”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
11. Rani, P., **Verma, H.**, and Lal, R. “Taxonomical characterization of *Sphingopyxis* sp. Nov. R11H, isolated from HCH contaminated soil”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
12. **Verma, H.**, Kumar, R., Oldach, P., Sangwan, N., Khurana, J.P., Gilbert, J.A., and Lal, R. “Comparative genomic analysis of nine *Sphingobium* strains: Insights into their Evolution

and Hexachlorocyclohexane (HCH) Degradation Pathway”. Poster presented in the 6th FEMS congress, held at MECC Maastricht, Netherlands from June 7-11, 2015.

13. **Verma, H.**, Bajaj, A., Kumar, R., Rani, P., and Lal, R. “Whole genome sequence of *Sphingobium indicum* B90A: reveals its plasmid organization and IS mediated rearrangements”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
14. Bajaj, A., Puri, A., **Verma, H.**, Singh, Y. and Lal, R. "Exploring Chemically contaminated sites for microbial applications: Isolation, characterization and biochemical assessment of bacterial pigments and genome based analysis of its biosynthetic pathway". Oral Presentation at 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 25-27, 2016.
15. Puri, A., Bajaj, A., **Verma, H.**, Singh, Y. and Lal, R. "Taxo-genomic characterization of carotenoid producing bacterium *Paracoccus* sp. novel strain AK26". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
16. Sharma, M., Khurana, H., **Verma, H.**, Negi, R.K. and Lal, R. "Genome based species identification of *Bacillus* strain RL isolated from cattle faeces" Poster presented in the INSCR International Conference (IIC-2017) held at University of Delhi, Delhi, India from September 26-28, 2017.
17. Dhingra G, **Verma H** and Lal R. "Genome analysis of *Sphingopyxis flava* R11H^T: An overview of genetic attributes” Poster presented in the IIC-2017 held at University of Delhi, Delhi, India from September 26-28, 2017.
18. Sharma, M., Khurana, H., **Verma, H.**, Negi, R.K. And Lal, R. "Comparative analysis of strains belongs to *Bacillus* genus and insights into conserved and flexible gene complement" Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
19. Vohra S, Yadav S, Singh A, Thanduanlung K, Soni K, **Verma H**, Lal D, Rawat CD, Lal S “Comparative Genomic Analysis of *Mycobacterium tuberculosis* revealed their

potential Total Drug Resistance (TDR) ability” poster presented at the IIC-2018 held at School of Biotechnology, KIIT University on 27th September, 2018.

20. Saxena A, Anushka, Gangwar A, Karn K, Pandey S, **Verma H**, Lal D, Rawat CD, Lal S “Isolation of Hexachlorocyclohexane (HCH) Degrading bacteria from HCH Contaminated Soil from an HCH Dumpsite” poster presented at the IIC-2018 held at School of Biotechnology, KIIT University on 27th September, 2018.
21. Gupta V, **Verma H**, Dhingra GG, Sharma M, Negi RK, Singh Y, Lal R.. Comparative genomics of *Sphingopyxis* spp. unravelled functional attributes at Southeast Asian Regional Symposium on Microbial Ecology (SARSME 2020) from 12 -14th February 2020 at Pokhara, Nepal.
22. Gaurav S, Awantika, Singh A, Gupta K, Bhardwaj R, Lal D, **Verma H**, Rawat CD, Lal S. “Managing covid-19 crisis: government initiatives and innovative ideas” presented at International e-conference organized by Sri Venkateshwara College, University of Delhi, phiXgen Pvt. Ltd. from 14th to 17th July, 2020.
23. Phian S, Singh DN, Verma H, Singh Y, Lal R and Rawat CD. “Tracking of hexachlorocyclohexane (HCH) – degrading *Sphingobium indicum* B90A inoculum during bioaugmentation of HCH contaminated soils presented at 61st annual conference of Association of Microbiologists of India (AMI) and Indian Network For Soil Contamination Research (INSCR) on “Microbial world: Recent developments in Health, Agriculture and Environmental Science” from 3rd to 5th Feb, 2020.
24. Rawat CD, Phian S, Verma H, Singh DN, Singh Y and Lal R. Overcoming challenges of microbe-assisted bioremediation – A genomic approach presented at 61st annual conference of Association of Microbiologists of India (AMI) and Indian Network For Soil Contamination Research (INSCR) on “Microbial world: Recent developments in Health, Agriculture and Environmental Science” from 3rd to 5th Feb, 2020.

Conference/Workshops/Seminars Organized

1. Organized a workshop entitled “Renovating bacterial taxonomy with bioinformatics” under the aegis of Indian Council of Agricultural Research-National Bureau of Agriculturally

Important Microorganisms (ICAR-NBAIM) and Department of Zoology, University of Delhi on 14th to 15th May, 2015 at Department of Zoology, University of Delhi, Delhi.

2. Organized a workshop entitled “Microbial Genomics and Metagenomics” held on 22nd September, 2016 at Department of Zoology, University of Delhi, Delhi.
3. Organized a two day **Bani School Innovation Camp (BaSIC)**, 2016 under University of Delhi-Indian National Science Academy (INSA) outreach program & DBT Star College Project, Ramjas College from 23rd to 24th Dec, 2016 at GSSS Bani School, Bani, H. P.
4. Organized a study visit of undergraduate students of Kirorimal College under CBCS course “Aquaculture” at the Central Institute of Freshwater Aquaculture (CIFA), Odisha, India from 20th-22nd March, 2017.
5. Organized a pre-conference workshop under Indian Network for Soil Contamination Research on Hands on to Computational Biology for (Meta)Genomics Analysis at IIC-2017, University of Delhi, Delhi on 26th September, 2017.
6. Organized the INSCR International Conference, 2017 under the aegis of INSCR co-president of student chapter on “Role of Microbe-Plant-Animal Interactions in Human Health” at University of Delhi, Delhi, India from 26th to 28th September, 2017.
7. Organized a pre-conference workshop under Association of Microbiologists of India-Indian Network for Soil Contamination and Research-International Soil Microbial Ecology (AMI-INSCR-ISME) on Hands on to Computational Biology for (Meta)Genomics Analysis at School of Environmental sciences, BBAU, Lucknow, Uttar Pradesh, India on 16th November, 2017.
8. Organized a **Bani School Innovation Camp (BaSIC)-II**, 2018 under University of Delhi-Indian National Science Academy (INSA) outreach program & DBT Star College Project, Ramjas College on 7th Mar, 2018 at GSSS Bani School, Bani, H. P.
9. Organized a “summer training research project” under DBT star college project at Ramjas College from 15th June to 15th July, 2018.
10. Organized a workshop on “Hands on Computational Biology for (Meta)Genomics Analysis” organized by Department of Zoology, Ramjas College under DBT Star College Project and IQAC, Ramjas College on 26th Feb, 2019 at Ramjas College.

11. Organized a workshop on “Hands on Computational Biology for (Meta)Genomics Analysis” organized by Department of Zoology, Ramjas College under DBT Star College Project and IQAC, Ramjas College on 12th March, 2019 at Ramjas College.
12. Organizing various events of the Zoological Society, held at Department of Zoology, Ramjas College, University of Delhi on 13th Mar, 2019 at Department of Zoology, Ramjas College.
13. Organized 61st annual conference of Association of Microbiologists of India (AMI) and Indian Network For Soil Contamination Research (INSCR) on “Microbial world: Recent developments in Health, Agriculture and Environmental Science” from 3rd to 5th Feb, 2021.
14. Co-Chaired a session during 61st annual conference of Association of Microbiologists of India (AMI) and Indian Network For Soil Contamination Research (INSCR) on “Microbial world: Recent developments in Health, Agriculture and Environmental Science” from 3rd to 5th Feb, 2021.
15. Organized “Microsphere: an international outreach program” on the occasion of international microorganism day organized by Deen Dayal Upadhyaya College, Ramjas College, Gargi College, IIT Roorkee, Acharya Narendra Dev College, Miatreyi College, Sri Venkateshwara College, Phixgen Pvt. Ltd., PG dept. MU, CMP college, AU on 17th September, 2021
16. Organized 6th annual conference of Indian Network For Soil Contamination Research (INSCR) on “Microbes in Sustainable Development” from 15th to 18th November, 2021.
17. Co-Chaired a session during 6th annual conference of Indian Network For Soil Contamination Research (INSCR) on “Microbes in Sustainable Development” from 15th to 18th November, 2021.

Oral Presentations/ Invited Talk

1. Presented on “Taxonomy: polyphasic approach and phylogeny using 16S rRNA gene sequence” in a workshop entitled “Renovating bacterial taxonomy with bioinformatics” under the aegis of Indian Council of Agricultural Research-National Bureau of

Agriculturally Important Microorganisms (ICAR-NBAIM) and Department of Zoology, University of Delhi on 14th May, 2015 at Department of Zoology, University of Delhi, Delhi.

2. Presented on “Visualizing genomes using linear alignments” in a workshop entitled “Renovating bacterial taxonomy with bioinformatics” under the aegis of Indian Council of Agricultural Research-National Bureau of Agriculturally Important Microorganisms (ICAR-NBAIM) and Department of Zoology, University of Delhi on 15th May, 2015 at Department of Zoology, University of Delhi, Delhi.
3. Presented on “Complete genetic repertoire of a hexachlorocyclohexane degrading bacterium, *Sphingobium indicum* B90A” under Innovative Science special session for faculty at INSCR International Conference, 2017 on “Role of Microbe-Plant-Animal Interactions in Human Health” at University of Delhi, Delhi, India on 27th September, 2017.
4. Presented on “Insights into the intrinsic genomic attributes of *Sphingopyxis* strains” under young Scientist colloquium at INSCR International Conference, 2018 on “Trends in Biotechnology for innovations in Health & Environment” at School of Biotechnology, KIIT University on 27th September, 2018.
5. Presented on “Insights into the evolution of drug resistance and potential drug targets of *Mycobacterium tuberculosis* using comparative genomics” at 61st annual conference of Association of Microbiologists of India (AMI) and Indian Network For Soil Contamination Research (INSCR) on “Microbial world: Recent developments in Health, Agriculture and Environmental Science” from 3rd to 5th Feb, 2021.
6. Presented on “Insights into drug resistance and potential drug targets in *Mycobacterium tuberculosis*: a comparative genomics study” at 6th INSCR international Conference from 15th to 18th November, 2021.
7. Invited Talk on “Study of Potential Molecular Drug Targets against *Mycobacterium tuberculosis* using Comparative Genomics” in the conference entitled “Mitigating environmental issues by sustainable approaches (ICMCESA-2022)” organized by Acharya Narendra Dev College from February 22-28, 2022.
8. Invited Talk on “Phylogenomics using ANI, AAI and GGDC” in 2 weeks virtual workshop & hands on training on “Next Generation Bioinformatics Approaches In Infection Biology”

held at Jaypee Institute of Information Technology, Noida from 4th April to 15th April 2022.

Orientation/Refresher/FDP Attended

1. Completed a one week Faculty training program under Deen Dayal Upadhyay College IQAC, DBT star College and K.H.T.M. College Nashik on "Pedagogical training for effective online teaching & learning" from 3rd to 10th August, 2020.
2. Completed a month 4-Week Induction/Orientation Programme for "Faculty in Universities/Colleges/Institutes of Higher Education" with grade A+ organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of Ministry of Human Resource Development under Pandit Madan Mohan Malaviya National Mission on Teachers And Teaching from November 10- December 09, 2020.
3. Completed 2 week refresher course on "Data analysis with statistical methods" organized by Teaching Learning Centre, Ramanujan College, University of Delhi and Indian Accounting Association, NCR Chapter under the aegis of Ministry of Education, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching from 21st December, 2020 - 3rd January, 2021

Workshops/Seminars/Webinars Attended

1. Attended the online workshop on 'Empowering Women through Entrepreneurship', organised by the Women Development Committee, Ramjas College, University of Delhi under the aegis of IQAC, held on 8th March, 2022.
2. Attended the webinar entitled "Seasonality in wild birds: regulation by environmental factors" organized by Department of Zoology, Shivaji College, University of Delhi on 26th February, 2022.
3. Attended the webinar entitled « Microbiome: Human Health, Environment and Society » organized by Synergia, Life sciences society of Deshbandhu College, University of Delhi on 16th February, 2022.

4. Attended the webinar on the theme entitled « Wetland Action for People and Nature » organized by Zoology Society, Dyal Singh College (University of Delhi), Delhi under the aegis of IQAC of the College as a part of World Wetland Day 2022 on 2nd Feb 2022.
5. Attended the webinar entitled "Accelerate your research using Elsevier's Scopus » organized by University of Delhi under the umbrella of Elsevier on 11th February 2022.
6. Completed One Week Online Training Program on Statistical Data Analysis using "R" Software organised by Science Tech Institute (Run by MKS Educational Society), Lucknow, UP India from December 21-27, 2021.
7. Participated in international webinar on "World Ozone Day, 2021" organised by Department of Zoology, Deshbandhu College, University of Delhi, under the aegis of IQAC and DBT star college scheme on 16th September, 2021.
8. Participated in the Virtual Industrial Visit to National Dairy Research Institute, Karnal, organized by Department of Zoology, Deen Dayal Upadhyay College, University of Delhi under the aegis of synapses and science foundation on 9th September, 2021.
9. Attended the international e-conference on "NeuroEunoia 2020: A Neuroscience Affair" hosted by Gargi College, University of Delhi, held under the aegis of IQAC, Gargi College on 16-17 October 2020.
10. Attended the e-Webinar On "How to Read Scientific Literature?" successfully completion of the Online Evaluation and English Proficiency test organized by IISER, Pune and NCCS, Pune, under the aegis of MANAV-human atlas initiative on 3rd Oct, 2020.
11. Attended a e-webinar on 'Bioinformatics: Concepts & Applications' organized by the Department of Biochemistry, Institute of Home Economics, University of Delhi held from Sept 18-19, 2020.
12. Attended webinar series on Mammalian cell culture including : Introduction to Mammalian Cell Culture, Cell Culture – Best Practices and Challenges and Cell Culture in 3D-Systems – Moving from 2D to 3D environment organised by Merck High-End Skill Development Centre, a CSIR-IMTech Initiative, conducted in July-August, 2020
13. Attended webinar series on Nucleic Acid Handling including :Nucleic acid Extraction and Purification, Polymerase Chain Reaction (PCR) & Electrophoresis, cDNA synthesis and Real Time PCR and Nucleic Acid Sequencing - Traditional and Modern Methods organised by Merck High-End Skill Development Centre, a CSIR-IMTech Initiative, conducted in June-July, 2020

14. Participated in International e-conference on 'Health and Research in Current Scenario : with special emphasis on COVID-19 virus Genomics and Pathogenicity' organized by Sri Venkateshwara College, University of Delhi and PhiXgen Pvt. Ltd. On 17th July, 2020.
15. Participated in e-quiz on E-Quiz 'General Awareness on Health and Covid-19' organized by Kalindi College, University of Delhi and World University Service Delhi University Committee on 12th July, 2020.
16. Participated in online quiz on 'Corona Gyan' organized by Department of Zoology, Deen Dayal Upadhaya College, University of Delhi under the aegis of science foundation o 2nd- 3rd July, 2020.
17. Attended the International Webinar Series on 'Vector Borne Disease :current scenario' organized by Department of Zoology, Maitreyi College, University of Delhi under the aegis of IQAC from 30th June to 1st July, 2020.
18. Attended the international conference on 'How to build up efficient immunity against respiratory infections including Covid-19 issue' organized by Kalindi College, University of Delhi under the aegis of IQAC and Biomedical and Biotechnological Centre- (BBZ), University of Leipzig, Germany on 28th June, 2020.
19. Attended the Webinar on 'You can be there over the Rainbow!' by on the topic "Challenges faced by Women during lockdown" organised by Gender Champion Cell, Daulat Ram College on 19th June, 2020.
20. Attended the webinar on 'Endofullerenes: Nano-scale test tubes for single molecules and atoms' organized by The National Academy of Sciences, India (NASI) - Delhi Chapter and MHRD-Institution Innovation Council (IIC) Deen Dayal Upadhyaya College Chapter Under the aegis of DBT Star College Program on June 08, 2020.
21. Attended the National Webinar on "World Environment Day" organized by Department of Zoology, Deshbandhu College, University of Delhi, India Under the aegis of DBT STAR College Scheme & IQAC on 6th June, 2020.
22. Attended the 58th annual Conference of AMI on 'Microbes for sustainable development :Scope and applications' held at BBAU, Lucknow, Uttar Pradesh, India on 16-19th November, 2017.
23. Attended two-days symposium on "Art of Grant Writing" under DBT Star College at Miranda College, University of Delhi, Delhi on 5th and 6th January, 2017.

24. Attended two days workshop on “Fundamentals of GCMS with GCMS solution workstation” on 22nd and 23rd July, 2014 held at SAIP, Delhi
25. Attended ASM workshop on “The art of Science Communication” on 8th February, 2014 at Indian Institute of Technology, Roorkee, Uttarakhand.
26. Attended ASM workshop on “The art of Science Communication” on 25th October, 2013 at IGIB, Delhi.
27. Attended American Society of Microbiology (ASM) workshop on “The culture of responsibility: Biosafety and Biosecurity” on 3rd September, 2013 at Convention Centre, Jawaharlal Nehru University, New Delhi.
28. Attended one day seminar on Natural Products: Application in Human Welfare on 27th June, 2013 at Ramjas College, University of Delhi, Delhi.
29. Attended ASM workshop on “Scientific Writing and Publishing” on 6th February, 2013 at Sri Venkateswara College, University of Delhi, New Delhi.
30. Attended in RGCON-2010 workshop organized by Rajiv Gandhi Cancer Institute and Research Centre, Delhi from 26th to 28th March, 2010.

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