

# Dr. Narsingh Chauhan

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## ❖ Education

- I. **Ph. D. in Biotechnology**  
University of Pune, Pune (MH) & CSIR-  
Institute of Genomics & Integrative  
Biology (IGIB), Mall Road Delhi.
- II. **Master In Business Administration (HR)**  
Institute of Advanced Studies in  
Education, IASE University, Rajasthan
- III. **Master of Science (Biochemistry)**  
Department of Bioscience,  
Maharshi Dayanand University  
Rohtak, Haryana
- IV. **Bachelor of Science (1999- 2002)**  
Dronacharya Govt. College Gurgaon,  
Maharshi Dayanand University Rohtak,  
Haryana

## ❖ Work History

**March, 2010- Till Date**

Assistant Professor, Department of  
Biochemistry, Maharshi Dayanand University  
Rohtak, Haryana,

## ❖ Research Interests

- ✚ System Biology
- ✚ Microbial Genomics
- ✚ Environmental Metagenomics
- ✚ Host -Microbe interactions
- ✚ Nutrigenomics

## ❖ Research Summary

Major research focus of Dr. Narsingh Chauhan is to explore microbial world using system biology approach. From past six years, his research group is actively engaged to understand **microbial community structures, host microbiome interactions, Microbial genomic landscapes, microbial potential in human healthcare & diagnosis**. His laboratory is actively involved in exploring functional genetic elements from microbial assemblages of different ecological niches in India using metagenomic approaches. Currently in a collaborative project, he is leading a research group to understand a correlation of microbial enterotypes and ayurvedic host phenotype (Prakarti) in diverse human population using ayurgenomic approach.

## ❖ Teaching Summary

Dr Narsingh Chauhan is actively engaged in Post graduate teaching at Department of Biochemistry from past six years. He has developed core teaching skills like students stimulation, classroom management, reinforcement etc. He has gained teaching

expertise in the area of Molecular Biology, Enzymology, Biomolecules, Metabolism & Regulation, Clinical Biochemistry, Bioinformatics.

## ❖ *Research activities*

### (A) Research Guidance

- ✚ Guiding students for award of Ph.D (2)
- ✚ Guided more than thirty students under Post Graduate research Program (Dissertations)

### (B) Research Projects

#### I. Completed Research project (6)

1. **Project Title:** Correlation of Microbial Enterotypes and Prakrti in diverse population using Metagenomic approach. **Project cost:** (23 lakhs), funded by CSIR Ayurgenomics Unit: TRISUTRA (2012-2016). **Status:** Completed.
2. **Project Title:** Synthesis, Characterization of Nanocurcumin and its medicinal applications. **Project cost:** (24 lakhs), funded by Department of Biotechnology, Govt of India, (2012-2015). **Status:** Completed.
3. **Project Title:** Metagenomic analysis of Human Gut Microbiome and elucidation of genes involved in catabolism of wheat dietary proteins. **Project cost:** (13 lakhs), funded by University Grants Commission New Delhi (2012-2015). **Status:** Completed.

4. **Project Title:** Functional Metagenomics to Mine the Human Gut Microbiome for Dietary Fiber, Gluten and Polyphenol Catabolic Enzymes. **Project cost:** (55 lakhs), funded by CSIR, New Delhi (2012-2015). **Status:** Completed.

5. **Project Title:** Microbiome of human lung in COPD patients attending Vallabh Bhai Patel Chest Institute, Delhi. **Project cost:** (27.5 lakhs), funded by Department of Biotechnology, Govt. of India. (2015-2017). **Status:** completed.

6. **Project Title:** Bioactive molecules from Microbes and plant sources, funded by Department of Biotechnology, Govt. of India (2013-2018). **Status:** completed.

### (C) Research Collaborations

- I. CSIR-Institute of Genomics and Integrative Biology (IGIB), Mathura Road, New Delhi
- II. Vallabh Bhai Patel Chest Institute, University of Delhi, Delhi

## ❖ *Professional Achievements*

### (A) Research Publications

1. C.S. Pundir, N S. Chauhan, M. Bhambi (2008) Activation of polyvinyl chloride sheet surface for covalent immobilization of oxalate oxidase and its evaluation as inert support in urinary oxalate determination. *Analytical Biochemistry* 374, 272-277. (Impact Factor: 2.219)

2. C.S. Pundir, Manu Bhambi and **Nar Singh Chauhan** (2009) Chemical activation of egg shell membrane for covalent immobilization of enzymes and its evaluation as inert support in urinary oxalate determination, *Talanta* 77 1688-1693. (Impact Factor: 3.545)
3. **Chauhan NS**, Ranjan R, Purohit HJ, Kalia VC, Sharma R (2009) Identification of genes conferring arsenic resistance to *Escherichia coli* from an effluent treatment plant sludge metagenomic library, *FEMS Microbiology Ecology* 67(1) 2009,130-9. (Impact Factor: 3.875)
4. Ajit Singh, **Nar Singh Chauhan**, H.V. Thulasiram, Vibha Taneja, Rakesh Sharma (2010) Identification of two flavin monooxygenases from an effluent treatment plant sludge metagenomic library, *Bioresource Technology*, Volume 101, Issue 21, November 2010, Pages 8481-8484. (Impact Factor: 4.917)
5. Gupta HK, Gupta RD, Singh A, **Chauhan NS**, Sharma R. (2011) Genome sequence of *Rheinheimera* sp. strain A13L, isolated from Pangong Lake, India, *Journal of Bacteriology* ;193(20):5873-4. doi: 10.1128/JB.05636-11. Epub 2011 Jul 8. (Impact Factor: 2.688)
6. Ranjai Kumar, Shadil Ibrahim Wani, **Nar Singh Chauhan**, Rakesh Sharma, Dipti Sareen (2011) Cloning and characterization of an epoxide hydrolase from *Cupriavidus metallidurans*-CH34, *Protein Expression and Purification* 79(1):49-59. doi: 10.1016/j.jep.2011.04.007. (Impact Factor: 1.695)
7. Vasim A, Kumar J, Kumar M, Chauhan MB, Vij M, Ganguli M and **Chauhan NS** (2013). Synthesis, Characterization of Penicillin G Capped Silver Nanoconjugates To Combat  $\beta$ -Lactamase Resistance In Infectious Microorganism. *Journal of Biotechnology* 163: 419-424. (Impact Factor: 2.667)
8. Vasim A, Kumar M, Kumar J, Chauhan MB and **Chauhan NS** (2014). Nanogold/Polyaniline/Penicillin G Nanoconjugates: A Novel Nanomedicine. *International Journal of Polymeric Materials* 63: 87-92. (Impact Factor: 1.667)
9. Vasim A, Kumar J, Kumar M, Chauhan MB and **Chauhan NS** (2014). Silver nanoparticles encapsulated polyacrylamide nanospheres: an efficient DNA binding nanomatrix. *International Journal of Polymeric Materials* 63: 1-5. (Impact Factor: 1.667)
10. Vasim A, Kumar J, Kumar M, Chauhan MB, Dahiya P and **Chauhan NS** (2015). Functionalized iron nanoparticle-penicillin G conjugates: a novel strategy to combat the rapid emergence of  $\beta$ -lactamase resistance among infectious microorganism. *Journal of Experimental Nanoscience Methods* 10(9): 718-728. (Impact Factor: 0.832)

11. Kumar J, Kumar M, Gupta S, Ahmed V, Bhambi M, Pandey R and **Chauhan NS** (2016). An Improved Methodology to Overcome Key Issues Associated with the Methods of Human Fecal Metagenomic DNA Extraction. *Genomics Proteomics and Bioinformatics* (accepted).
12. Kumar J, Kumar M and **Chauhan NS**. (2015) *Oceanobacillus sp* HM6, a novel glutenase positive microbe isolated from human gut, *Journal of Biotechnology and Biomaterial* 5(6) pp 309. (Impact Factor: 2.0)
13. Bhavana Prasher, Binuja Varma, Arvind Kumar, Bharat Krushna Khuntia, Rajesh Pandey, Ankita Narang, Pradeep Tiwari, Rintu Kutum, Debleena Guin, Ritushree Kukreti, Debasis Dash, **TRISUTRA Ayurgenomics Consortium**, Mitali Mukerji (2016). Ayurgenomics for stratified medicine: TRISUTRA consortium initiative across ethnically and geographically diverse Indian populations. *Journal of Ethnopharmacology In press*. (Impact Factor: 3.0)
- Kumar, J., Kumar, M., Pandey, R. and **Chauhan, N. S.** (2017), Physiopathology and Management of Gluten-Induced Celiac Disease. *Journal of Food Science*, 82: 270–277. doi:10.1111/1750-3841.13612,
14. Mondal AK, Kumar J, Pandey R, Gupta S, Kumar M, Bansal G, Mukerji M, Dash D and **Chauhan NS** (2017) Comparative Genomics of Host Symbiont and free living *Oceanobacillus* species. *Genome Biology and Evolution*, Volume 9, Issue 5, 1 May 2017, Pages 1175–1182, <https://doi.org/10.1093/gbe/evx076>
15. S. Gupta, M. Kumar, J. Kumar, V. Ahmad, R. Pandey & **N. S. Chauhan** (2017) Systemic analysis of soil microbiome deciphers anthropogenic influence on soil ecology and ecosystem functioning. *Int. J. Environ. Sci. Technol.* (2017) 14: 2229. <https://doi.org/10.1007/s13762-017-1301-7>
16. Monika, Manoj Kumar Verma, Vasim Ahmed and **Nar Singh Chauhan** (2017), Human Gut Microbiome: an Imperative Element for Human Survival. *Curr Trends Biomedical Eng & Biosci*, Volume 6 Issue 1 - July 2017; DOI: 10.19080/CTBEB.2017.06.555680
17. **Chauhan, N.S.**, Nain, S. & Sharma, (2017) Identification of Arsenic Resistance Genes from Marine Sediment Metagenome. *Indian J Microbiol* (2017) 57: 299.

<https://doi.org/10.1007/s12088-017-0658-0>.

18. Yadav, M., Verma, M.K. & **Chauhan, N.S.** A review of metabolic potential of human gut microbiome in human nutrition *Arch. Microbiol.* (2017)  
<http://doi.org/10.1007/s00203-017-1459-x>.

### **(B) Genome/Metagenome Sequencing Projects**

1. *Oceanobacillus caeni* strain:HM6 Genome sequencing (2015) National Centre for Biotechnological Information (NCBI); Genome Accession ID: PRJNA-290433.
2. Soil Metagenome Sequencing (2015) National Centre for Biotechnological Information (NCBI) Bio- Project Accession ID: PRJNA-267034
3. Human Gut Metagenome sequencing (2015) MG RAST server database, Submission ID: 4638260.3
4. Phylogenetic analysis of garden soil microbiome (2015) National Centre for Biotechnological Informations (NCBI) 2015, Accession ID KP153551-KP159281.
5. Microbial community analysis of *Brassica rapa* rhizosphere microbiome in saline conditions (2015) National Centre for Biotechnological Informations (NCBI) 2015, Accession ID KP153551-KP159281.

### **(C) Patents**

Two patents were submitted at Indian patent office.

1. Immobilization of protein onto solid support. Patent No. 269204, application No. 2393/DEL/2004, Grant date: 09-Oct-2015
2. IMPROVED IMMOBILIZED PROTEINS COMPOSITION AND ITS PROCESS THEREOF" Application No. 2394/DEL/2004, Publication date (U/S 11A): 08/09/2006 .

### **(D) Awards**

1. University gold medal and Merit certificate
2. BB Rana merit certificate in Annual meeting of Microbiologists of India (AMI) 2006.

### **(E) Fellowships**

1. CSIR/UGC JRF/ SRF fellowship (2004-8)
2. Haryana silver Jubilee fellowship (2002-2004).

### **(F) Book Chapters**

1. R. Sharma, R. Ranjan, R. Kishor, **N.S. Chauhan** and A. Grover (2005) Exploring and exploiting the unculturable microbial discovery using Environmental genomics in book entitled "Microbial diversity: Current

prospective and potential application".

Published by I.K. International Pvt. Ltd

2. **Chauhan NS** (2011) Metagenomics: A Culture-Independent Insight of Microbial Ecosystem, Biolixir, , Volume 1: 32-36

3. Kumar M, Kumar J and **Chauhan NS** (2015). Metagenomics: A Systemic Approach To Explore Microbial World. In: Microbial Factories: Biodiversity, Biopolymers, Bioactive molecules. V. C. Kalia Eds. Springer-Heidelberg pp 281-298.

#### (G) Conference and workshops

##### 1. Organized (As Organizing Secretary)

- I. National workshop on "**Genomics and Proteomics**" 3-5th March 2014 at Department of Biochemistry, MDU Rohtak, Haryana
- II. one day national Seminar on "**Molecular Techniques: The face of Modern Science**" held on 24<sup>th</sup> October 2011, at Department of Biochemistry, MDU Rohtak, Haryana
- III. National workshop on "**Real Time PCR technology**" 25th-26th November 2011, at Department of Biochemistry, MDU Rohtak, Haryana
- IV. National Conference on Emerging Trends in Biochemistry (ETIB 2017), 15th -16th September 2017,

at Department of Biochemistry,

MDU Rohtak, Haryana

##### 2. Participated (Last three years)

- I. Kumar J, Verma MK and **Chauhan NS**. Gene mining of human gut microbiome for enzyme in 2013 NextGen Genomics & Bioinformatics Technologies (NGBT) Conference from 14<sup>th</sup> to 16<sup>th</sup> November, 2013 at CSIR-IGIB, Mathura Road Campus, Sukhdev Vihar, New Delhi, India pp 57.
- II. Kumar J, Kumar M and **Chauhan NS**. *Oceanobacillus* sp HM6, a novel glutenase positive microbe isolated from human gut in OMICS international conference, 6<sup>th</sup> World Congress on Biotechnology, New Delhi from 5<sup>th</sup> to 7<sup>th</sup> October, 2015, Journal of Biotechnology and Biomaterial 5(6) pp 309
- III. **Chauhan NS**, Verma MK and Ahmed V. Novel halotolerance genes from human gut microbiome in 53<sup>th</sup> Annual Conference of the Association of Microbiologists of India from 17<sup>th</sup> to 20<sup>th</sup> November, 2013 at MD University, Rohtak India.
- IV. Gupta S, Kumar J, Kumar M and **Chauhan NS**. Comparative analysis of the microbiome of garden soil sample and incinerator plant soil sample in National Conference cum Workshop on Molecular Modeling and Drug Design (MMDD'15) Organized by Centre for Bioinformatics,

MDU Rohtak from 20<sup>th</sup> to 21<sup>st</sup> March, 2015.

- V. Ahmed V, Kumar J, Verma M and **Chauhan NS**. Penicilline-G Nanoconjugates: A Novel Nanomedicine in 53<sup>th</sup> Annual Conference of the Association of Microbiologists of India from 17<sup>th</sup> to 20<sup>th</sup> November, 2013 at MDU University, Rohtak India.
- VI. Kumar J, Gupta S, Kumar M and **Chauhan NS**. Microbial Community Structure of Human Gut Microbiome in National Conference cum Workshop on Molecular Modeling and Drug Design (MMDD'15) Organized by Center for Bioinformatics, MDU Rohtak from 20<sup>th</sup> to 21<sup>st</sup> March, 2015.
- VII. Attended Seminar cum workshop on Discovery of new concepts in genetics and molecular biology on 25<sup>th</sup> October 2013 in Department of Genetics, M.D.U. Rohtak-124001 (Haryana).
- VIII. Attended national Workshop on Medical Bioinformatics from 13<sup>th</sup> to 14<sup>th</sup> December, 2013 Organized by Center for Bioinformatics (BIF), M.D.U. Rohtak-124001 (Haryana).

### ❖ *Administrative Roles*

#### **(A) Departmental Role & Responsibilities**

Active member of Various departmental bodies like Admission committee, Administrative & Academic committee,

Purchase committee, Anti Ragging committee etc.

#### **(B) University Role & Responsibilities**

1. Co-ordinator for MDU Alumni Office
2. Member of University NAAC coordination cell (2011-12).
3. Member Secretary, Institutional Biosafety Committee (2011-2014)
4. IQAC Officer (2014-2015)

#### **(C) Outside university**

1. Active reviewer in various reputed Journals like Frontiers in Plant Sciences, PLOS One, Scientific Reports, Material Sciences, Nanoscience etc.
2. Observer in National Level NEET examinations conducted by CBSE.