Curriculum Vitae

Dr. Deepanshu Rana

Assistant Professor
Department of Microbiology,
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Date of Birth: 20th October, 1991 **Country of Citizenship:** India
Gender: Male **Marital Status:** Unmarried

Permanent Address:
House No. 115, Lane No. 4, Khanna Nagar, Jawalapur, Haridwar-249407, Uttarakhand-INDIA

Professional Education:

- **Doctor of Philosophy-PhD, Microbiology** **2015-2021**
  Gurukul Kangri Vishwavidyalaya, Haridwar, Uttrakhand, INDIA
- **Master of Science-MSc, Microbiology (71.05%)** **2012-2014**
  Gurukul Kangri Vishwavidyalaya, Haridwar, Uttrakhand, INDIA
- **Bachelor of Science-BSc, Industrial Microbiology (60.8%)** **2009-2012**
  Gurukul Kangri Vishwavidyalaya, Haridwar, Uttrakhand, INDIA

Research Topic:

"Antimicrobial Potential of Bacteria from Cow Dung"
Supervised by Asst. Prof. Dr. Kartikey Kumar Gupta

- Firstly reported the quercetin producing *P. aeruginosa* strains from cow dung.
- Firstly reported a bacterial strain *Alishewanella fetalis* from cow dung.
- Two solvent systems adopted for better yield of crude metabolites in bacteria
- Evidenced that the optimized culture conditions positively enhances the biomass as well as bioactivity of the strains.

Postgraduate Dissertation:

"Analysis of Soil, water & air samples"
Supervised by Dr. N.G. Shrivastav, 2014

- Executed microbiological techniques for Isolation of coliforms.
- Monitoring of pollution levels in air near industrial work place.
- Quality assessment of soil, river water and drinking water.

Field of Research:

- Gut Bacteria, Secondary Metabolites, Microbe-Microbe Interaction, Antimicrobial agents, Ecological Niche, Nanotechnology, In-silico study

Research Interest:

- Identification of Bacteria, Characterization of Compounds, Antimicrobial Activities, Human Pathogens, Bacterial Physiology, Preparation and assessment of Nanoparticles, In-silico modeling of chemical compounds

Scientific Expertise:

- ***Microbiological Techniques*:** Media preparation, Plating, Isolation and purification of bacteria (gut bacteria and dung bacteria), antimicrobial techniques, culture maintenance, staining and bacterial identification techniques.
- ***Nanotechnological Techniques*:** Synthesis of biogenic nanoparticles and used to enhance the antimicrobial potential of secondary metabolites.
- ***Molecular Techniques*:** Genomic DNA isolation, Agarose gel electrophoresis, PCR purification, Restriction digestion and Real-time PCR.
- ***Software Skills*:** Computational and statistical analysis of biological systems by using software's viz. RSM, BLAST, STATIXL, MEGA-X, Design expert, ADME, NEB Cutter, and other web based bioinformatics tools.

Professional Background:

- Working as Assistant Professor in Department of Microbiology, Sardar Bhagwan Singh University, Dehradun from 02-August-2021.
- Assistant Professor in Department of Agriculture & Forestry, Roorkee College, Roorkee from 16-February-2021 to 31-July-2021.
- Teaching assistantship in Department of Botany and Microbiology, Gurukula Kangri (Deemed to be University) (02 August 2016 to 30 November 2016; 02 February 2017 to 11 April 2017; 03 August 2017 to 15 November 2017; 01 August 2018 to 30 November 2018; 16 January 2019 to 30 April 2019).

Academic Duties:

- NAAC and NBA committee
- Project drafting & commencement
- Preparation of course files
- Preparation of students training reports

Subjects Taught:

- Food Microbiology
- Industrial Microbiology
- Recombinant DNA Technology
- Microbial Physiology
- Environmental Microbiology
- Agricultural Microbiology
- Plant Pathology
- Crop Physiology
- Medical Microbiology
- General Microbiology

Development Programs:

- Attended Online Faculty Development Program on "**Life Skills for Blissful Life**" organized by Centre for Life Skills and Soft Skills, M.D. University, Rohtak Haryana approved & funded by AICTE ATAL from 7th-11th, June 2021.
- Attended Online faculty development program on "**Innovation Management for Nurturing Entrepreneurial Culture in Education Institutes**" organized by Bombay College of Pharmacy, Bombay, Maharashtra, approved & funded by AICTE ATAL from 21st-25th, June 2021.

Workshop Attended:

- Attended the workshop on **Advanced Microbiological Techniques in Pharmaceutical Industries** organized by Department of Botany and Microbiology.

Gene Sequences Submitted:

- Gene sequences ***Serratia marcescens*** with accession no. **KY630558.1** has been deposited at **National Centre for Biotechnology of Information (NCBI), USA.**
- Gene sequences ***Pseudomonas aeruginosa*** with accession no. **MK801233.1** has been deposited at **National Centre for Biotechnology of Information (NCBI), USA.**
- Gene sequences ***Pseudomonas aeruginosa*** with accession no. **MK801234.1** has been deposited at **National Centre for Biotechnology of Information (NCBI), USA.**
- Gene sequences ***Pseudomonas aeruginosa*** with accession no. **MK801773.1** has been deposited at **National Centre for Biotechnology of Information (NCBI), USA.**
- Gene sequences ***Alishewanella fetalis*** with accession no. **MN809397.1** has been deposited at **National Centre for Biotechnology of Information (NCBI), USA.**
- Gene sequences ***Bacillus thuringiensis*** with accession no. **MN809398.1** has been deposited at **National Centre for Biotechnology of Information (NCBI), USA.**

Member of Professional Societies:

- Life Member of Indian Science Congress-Haridwar Chapter.
- Annual Member (Till 2019) of Indian Science Congress, Kolkata.

Conferences Attended:

- Presented a paper entitled "**Isolation and Evaluation of *Bacillus* spp. for their Antagonistic Activities**" in 7th Conference of Indian Science Congress-Haridwar Chapter on Science and Technology for National Development, Hosted By Department of Chemistry Gurukula Kangri Vishwavidyalaya, from 20-22 November, 2016.
- Presented a paper entitled **"Antimicrobial Screening and Production of Bioactive Crude Extract from Four Bacterial isolates against Bacteria of Medical Importance**" in 104th Indian Science Congress, Organised by S.V. University, Tirupati from 3-7 January, 2017.
- Presented a paper entitled **"Isolation of Bacteria from Dung of Desi and Cross-Breed Cow and Evaluation of their Antimicrobial Properties**" in 12th Uttarakhand State Science & Technology Congress, Held at Vigyan Dham, Dehradun from 7-9 March, 2018.
- Presented a paper entitled **Optimization of Chemical Factors to Increase the Productivity of Antibacterial Compound by *Serratia Marcescens* KD118**" in National Conference on Microbial Inoculants for Agriculture and Environmental Sustanability, Organised by Department of Botany and Microbiology, Gurukul Kangri Vishwavidyalaya and PBRI, Haridwar from 28-30 September, 2018.
- Presented a paper entitled "**Appraisement in reference to Antagonistic potential of *Enterobacter aerogenes*, an gut bacteria isolated from cow dung**" in 9th Conference of Indian Science Congress-Haridwar Chapter on Future India: Science and Technology, Hosted By Department of Biological Sciences, G.B. Pant University of Agriculture & Technology, Pantnagar, from 13-14 October, 2018.
- Presented a paper entitled "**Antimicrobial screening and production of bioactive metabolite from gut bacteria isolated from cow dung against bacteria of medical importance**" in 106th Indian Science Congress, Organised by Lovely Professional University, Phagwara from 3-7 January, 2019.
- Presented a paper entitled **"Enhancement of antimicrobial efficacy of *Bacillus spp.* isolated from cow dung by using three different cultivation medium**" in 13th Uttarakhand State Science & Technology Congress, Held at Vigyan Dham, Dehradun from 26-28 February, 2019.
- Presented a paper entitled **"Antimicrobial efficacy of intracellular metabolites of bacteria isolated from cow dung**" in Innovative Approaches in

Microbial Technology organized by Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar from 08-09 March, 2019.

- Presented a paper entitled **"In vitro antibacterial and antifungal activity of extra and intracellular metabolites extracted from *Alishewanella fetalis* KD 167 and *Bacillus thuringiensis* KD168 isolated from cow dung**" in Advances and Innovations in Agriculture & Allied Sciences organised by Society for Agriculture and Allied Research (SAAR) at Jawaharlal Nehru University, New Delhi from 31 January to 1 February, 2020.

Research Articles:

- Gupta KK and **Rana D** (2016) Isolation and Evaluation of Cow Dung Bacteria for their Antimicrobial Potential. Biotechnology International 9(2):47-54.
- Gupta KK and **Rana D** (2016) Antimicrobial Activity of Certain Bacterial Isolates – A Screening Study. Biotechnology International 9(3):55-59.
- Gupta KK, Devi D and **Rana D** (2016) Isolation and Screening of Low Density Polyethylene Degrading Bacterial Strains from Waste Disposal Sites. World Journal of Pharmaceutical Research 5(11):1633-1643.
- Gupta KK and **Rana D** (2017) Evaluation of Antagonistic Activities of *Bacillus* Spp. against Certain Bacteria of Medical Importance. Archives of Agriculture and Environmental Science 2(4):353-356.
- Gupta KK and **Rana D** (2018) Bioactivity of *Alcaligenes* Spp. Isolated from Cow Dung against Certain Human Pathogens. Environment Conservation Journal 19 (1&2):59-64.
- Gupta KK and **Rana D** (2018) Preliminary study on inhibitory activity of *Enterobacter sp.* strain KD111 isolated from the Cow feces. Environment Conservation Journal 19 (3):139-144.
- **Rana, D.** and Gupta, K.K. (2020) In vitro antibacterial and antifungal activity of extra and intracellular metabolites extracted from *Alishewanella fetalis KD*167 and *Bacillus thuringiensis* KD168 isolated from cow dung. Plant Archives 20: 145-155.
- Gupta KK and **Rana D** (2021) Spectroscopic and chromatographic identification of bioprospecting bioactive compounds from cow feces: Antimicrobial and antioxidant activities evaluation of gut bacterium *Pseudomonas aeruginosa* KD155. Biotechnology Reports 29 (2021) e00577.

Review Articles:

- Gupta KK, Aneja KR and **Rana D** (2016) Current Status of Cow Dung as A Bioresource For Sustainable Development. Bioresource and Bioprocessing 3:28.
- Shukla RK, Nandan K, Shukla A, Kaur A and **Rana D** (2020) Review on traditional uses, biological activities, phytoconstituents of bombax ceiba Linn. Research Journal of Pharmacy and Technology 13(12): 1-6.

Book Chapters:

- **Deepanshu Rana**, Nancy Gautam, Keshari Nandan, Ankit Singh (2022) *Introduction to Flavonoids*, Advances in Nutraceuticals by Apple Academic Press, CRC Press, Taylor and Francis Group (In Press).
- **Deepanshu Rana**, Shrivardhan Dheeman, Nidhi S. Belwal (2022) *Role of Probiotics and Dietary Fibres in Combating Heart Disease*, Nutraceuticals in Cardiovasular Disease by Apple Academic Press, CRC Press, Taylor and Francis Group (Communicated).
- **Deepanshu Rana** and Vikash Singh Jadon (2022) Endothelial Effects of Marine and Plant Derived Omega-3 Fatty Acids, Nutraceuticals in Cardiovasular Disease by Apple Academic Press, CRC Press, Taylor and Francis Group (Communicated).
- Vipin Nautiyal and **Deepanshu Rana** (2022) Role of Nutraceuticals in Dyslipidemia, Nutraceuticals in Cardiovasular Disease by Apple Academic Press, CRC Press, Taylor and Francis Group (Communicated).

Awards:

- **Young Scientist Award** at Advances and Innovations in Agriculture & Allied Sciences organised by Society for Agriculture and Allied Research (SAAR) at **Jawaharlal Nehru University**, New Delhi January 31- February 1, 2020.

Academic Qualifications:

- **12th Standard, Central Board of Secondary Education, New Delhi** **2009**
  Biology, Chemistry, Physics, Mathematics, English, 64.0%
- **10th Standard, Central Board of Secondary Education, New Delhi** **2007**
  Science, Mathematics, English, Social Studies, Hindi 60.8%

References:

Dr. Kartikey Kumar Gupta (Ph. D. Supervisor)
Assistant Professor
Department of Botany and Microbiology, Gurukul Kangri (Deemed to be University), Haridwar,
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Assistant Professor,
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