Hena Dhar, Ph.D.

Shoolini University,
Solan-Oachghat-Kumarhatti Highway,
Bajhol, Himachal Pradesh 173 229 (India).
henadhar@gmail.com
Phone: +91-7018261807

Experience:

Assistant Professor	**03 Oct 2024**
Shoolini University, Solan, Himachal Pradesh	
Assistant Professor	**20 Feb 2023 to 01 Oct 2024**
RIMT University, Mandi Gobindgarh, Punjab	
DST-INSPIRE Faculty	**25 Apr 2017 to 24 Jun 2022**
National Agri-Food Biotechnology Institute (NABI), Mohali	
Senior Research Fellow	**28 Dec 2016 to 20 Apr 2017**
Department of Veterinary Physiology and Biochemistry, Dr G C Negi College of Veterinary and Animal Sciences, CSK-HPKV, Palampur	
Senior Research Fellow	**18 Jul 2016 to 27 Dec 2016**
Department of Veterinary Microbiology, Dr G C Negi College of Veterinary and Animal Sciences, CSK-HPKV, Palampur	
CSIR-Senior Research Fellow	**01 Apr 2011 to 31 Mar 2014**
CSIR-Institute of Himalayan Bioresource Technology, Palampur	
Project Assistant II	**16 Jan 2008 to 31 Mar 2011**
CSIR-Institute of Himalayan Bioresource Technology, Palampur	
Postgraduate trainee	**11 May 2006 to 10 Aug 2006**
CSIR-Institute of Himalayan Bioresource Technology, Palampur	

Area of Expertise:

Microbiology, Enzyme Technology, Microbial Technology, Bioprocessing, Molecular Biology, Microbial Genomics, Metagenomics, Synthetic Biology and Metabolic Engineering

Research interests:

High value biomolecules from microbes – Nutraceuticals and industrially important microbial enzymes

Academic Details:

Ph.D. (Biological Sciences) 2016

Academy of Scientific and Innovative Research

Thesis title: Exploring Endoglucanase-Producing Bacteria from the Cold Environments of the Western Himalayas and Molecular Characterization of Extracellular Endoglucanases

M.Sc. (Microbiology) 2007

University of Bikaner

Title: Isolation, Identification and Assessing the Effect of Carbon Sources on Bacteriocin Production by *Leuconostoc lactis*

B.Sc. 2005

Himachal Pradesh University

Awards/Academic Distinctions:

Award	Year
Early Career Research Award (ECRA) by SERB	2019
DST-INSPIRE Faculty Award	2017
Awarded 'Senior Research Fellowship' by CSIR-HRDG	2011
Qualified ICAR NET	2016

Research Projects:

Sr. No.	Project Title	Funding Agency	Duration	Amount of Grant (₹)	Role	Status
1	Genomics-guided exploration of PUFA synthases for sustainable production of long chain omega-3 fatty acid via metabolic engineering	SERB	Three years (30.03.2019-29.03.2022)	35,67,661	Principal Investigator	Completed
2	Recombinant production of omega-3 polyunsaturated fatty acids of bacteria from high altitude lakes of Indian Himalayas	DST	Five years (25.04.2017-24.04.2022)	1,04,69,328	Principal Investigator	Completed
3	Optimization and characterization of cold active and alkaline	CSIR	Three years (01.04.2011-	7,72,800	CSIR-SRF	Completed

	stable endoglucanase from psychrotrophic bacteria for application in textile industry	31.03.2014)

Teaching Experience:

Sr. No.	Subject	Degree	University/Institute
1	Fundamentals of Molecular and Cell Biology	Ph.D.	NABI
2	Food Processing	Ph.D.	NABI
3	Nutritional Biochemistry	Ph.D.	NABI
4	Food and Dairy Microbiology	B.Sc.	RIMT University
5	Industrial Microbiology	B.Sc.	RIMT University
6	Agro and Industrial Biotechnology	B.Sc.	RIMT University
7	Enzymology	B.Sc.	RIMT University
8	Genetic Engineering	B.Sc.	RIMT University
9	Introduction to Biotechnology	B.Sc.	RIMT University
10	Zoogeography and Evolution	M.Sc.	RIMT University
11	Fundamentals of Genetics	B.Sc.	RIMT University
12	Bioprocess Engineering and Technology	B.Sc.	RIMT University
13	Environmental Biotechnology	B.Sc., M.Sc.	RIMT University
14	Plant Biotechnology	B.Sc., M.Sc.	RIMT University, Shoolini University
15	Bioinformatics	B.Sc.	Shoolini University
16	Plant Cell Culture and Transgenics	B.Sc.	Shoolini University

Research Supervision:

Sr. No.	Name of the student	M.Sc./Ph.D	Role	Status
1	Anchal Chaudhary	Ph.D.	Guide	Awarded
2	Karanjeet Kaur	M.Sc.	Guide	Completed
3	Saira Amla	M.Sc.	Guide	Completed
4	Sahil Kumar	M.Sc.	Guide	Completed
5	Kumari Naina	M.Sc.	Guide	Completed

6	Kajal	M.Sc.	Guide	Completed
7	Gurbir Singh	B.Tech	Guide	Completed

Publications:

1. Thakur, R*, **Dhar, H.**, Mathew, S., Gulati, A. (2024) PGPR Inoculants Journey from Lab to Land: Challenges and Limitations. Microbiological Research 289, 127910 https://doi.org/10.1016/j.micres.2024.127910 (**IF 6.1**) ISSN 0944-5013
2. Editorial: **Dhar, H.**, Bhat, J. A., Kadam, U., Deshmukh, R.* (2024) Editorial| Plant Nano Biology. Plant Nano Biology, 100088.
3. Thakur, R., Rana, A., **Dhar, H.**, Soni, R. Sharma, A., Kaushal, K., Yasmin, S., Shah, M.A., Reshi, Z.A., Mathew, S., Nehvi, F.A., Gulati, A.* (2024) Enhancing saffron (*Crocus sativus* L.) growth in the Kashmir valley with resilient and widely effective Plant Growth-Promoting Rhizobacteria (PGPR) under field conditions. Industrial Crops and Products 222(1): 119475 https://doi.org/10.1016/j.indcrop.2024.119475 **(IF 5.6)** ISSN 0926-6690
4. Thakur, R., **Dhar, H.**, Swarnkar, M., Soni, R., Sharma, K.C., Singh, A.K., Gulati, A., Sud, R.K., Gulati, A. (2024) Understanding the Molecular Mechanism of PGPR *Priestia megaterium* Strain IHB B 7164 in Stress Alleviation and Crop Growth Enhancement. Plant Stress 12, 100494 https://doi.org/10.1016/j.stress.2024.100494 (**IF 6.8**) ISSN: 2667-064X
5. Thakral, V., Sudhakaran, S., Jadhav, H., Mahakalkar, B., Sehra, A., **Dhar, H.**, Kumar, S., Sonah, H.*, Sharma, T.R., Deshmukh, R.* (2024) Unveiling silicon-mediated cadmium tolerance mechanisms in mungbean (*Vigna radiata* (L.) Wilczek): Integrative insights from gene expression, antioxidant responses, and metabolomics. Journal of Hazardous Materials 474, 134671 https://doi.org/10.1016/j.jhazmat.2024.134671 (**IF 12.2**) ISSN 0304-3894
6. Gulati, A., Soni, R., Thakur, R., Sharma, A., Swarnkar, M.K., **Dhar, H.**, Chawla, A., Sharma, K.C., Nautiyal, C.S., Chauhan, P. (2024) Broad-spectrum PGPR strain of *Halotalea alkalilenta* from the Cold Deserts of the Indian trans-Himalayas showing stress-tolerance to environmental factors and multiple growth- promoting traits corroborated by genomic analysis. Plant Growth Regulation https://doi.org/10.1007/s10725-024-01159-5 (**IF 3.5**) Print ISSN 0167-6903
7. Aggarwal, B., Rajora, N., Raturi, G., **Dhar, H.**, Kadam, S.B., Mundada, P.S., Shivaraj, S.M., Varshney, V., Deshmukh, R., Barvkar, V.T., Salvi, P.*, Sonah, H.* (2024)

Biotechnology and urban agriculture: A partnership for the future sustainability. *Plant Science* 338, 111903. https://doi.org/10.1016/j.plantsci.2023.111903 **(IF 4.2)**. ISSN 0168-9452

8. **Dhar, H.**, Verma, S.*, Dogra, S., Katoch, S., Vij, R., Singh, G., Sharma, M. (2023) Functional attributes of bioactive peptides of bovine milk origin and application of *in silico* approaches for peptide prediction and functional annotations. *Critical Reviews in Food Science and Nutrition* 23, 1-23. https://doi.org/10.1080/10408398.2023.2212803 **(IF 7.3)**. ISSN 1549-7852
9. Raturi, G., Rana, V., Chaudhary, A., Mandlik, R., Sharma, Y., Barvkar, V., Salvi, P., Deshmukh, R.*, **Dhar, H.*** (2023) Microbial remediation and plant-microbe interaction under arsenic pollution. *Science of the Total Environment* 864, 160972. https://doi.org/10.1016/j.scitotenv.2022.160972 (**IF 8.2**). ISSN 0048-9697
10. Tayade, R., Rana, V., Shafiqul, M., Syed, R.B., Raturi, G., **Dhar, H.**, Thakral, V., Kim, Y.-H. (2022) Genome-wide identification of aquaporin genes in Adzuki Bean (*Vigna angularis*) and expression analysis under drought stress. *International Journal of Molecular Sciences* 23(24), 16189 https://doi.org/10.3390/ijms232416189 (**IF 4.9**). ISSN 1422-0067
11. Raturi, G., Sharma, Y., Mandlik, R., Kumawat, S., Rana, N., **Dhar, H.**, Tripathi, D.K., Sonah, H., Sharma, T.R. and Deshmukh, R. (2022) Genomic landscape highlights molecular mechanisms involved in silicate solubilization, stress tolerance, and potential growth-promoting activity of bacterium *Enterobacter* sp. LR6. *Cells* 11, 3622. https://doi.org/10.3390/cells11223622 (**IF 5.1**). ISSN 2073-4409
12. Chaudhary, A., Ketkar, O.A., Irfan, S., Rana, V., Rahi, P., Deshmukh, R., Kaur, J., **Dhar, H.*** (2022) Genomic insights into omega-3 polyunsaturated fatty acid producing *Shewanella* sp. N2AIL from fish gut. *Biology* 11, 632. https://doi.org/10.3390/biology11050632 (**IF 3.6**). ISSN 2079-7737
13. Raturi, G., Sharma, Y., Rana, V., Thakral, V., Myaka, B., Salvi, P., Singh, M., **Dhar, H.*,** Deshmukh, R.* (2021) Exploration of silicate solubilizing bacteria for sustainable agriculture and silicon biogeochemical cycle. *Plant Physiology and Biochemistry* 166: 827-838. https://doi.org/10.1016/j.plaphy.2021.06.039 (**IF 6.1**). ISSN: 0981-9428
14. Kaur, R., Das, S., Bansal, S., Singh, G., Sardar, S., **Dhar, H.,** Ram, H. (2021) Heavy metal stress in rice: Uptake, transport, signaling and tolerance mechanisms. *Physiologia*

Plantarum 173(1): 430-448. https://doi.org/10.1111/ppl.13491 (**IF 5.4**). Online ISSN:1399-3054 Print ISSN: 0031-9317

15. Jakhu, S., Sharma, Y., Sharma, K., Vaid, K., **Dhar, H.**, Kumar, V., Singh, R.P., Shekh, A., Kumar, G. (2021) Production and characterization of microalgal exopolysaccharide as a reducing and stabilizing agent for green synthesis of gold-nanoparticle: a case study with a *Chlorella* sp. from Himalayan high-altitude psychrophilic habitat. *Journal of Applied Phycology* 33: 3899-3914. https://doi.org/10.1007/s10811-021-02580-3 (**IF 2.8**). ISSN: 0921-8971
16. Pal, M., Swarnkar, M.K., **Dhar, H.**, Chhibber, S., Gulati, A. (2017) Genome assembly of *Chryseobacterium* sp. strain IHBB 10212 from glacier top-surface soil in the Indian trans-Himalayas with potential for hydrolytic enzymes. *Genomics data* 13: 46-49. https://doi.org/10.1016/j.gdata.2017.06.003 ISSN: 2213-5960
17. **Dhar, H.**, Swarnkar, M.K., Rana, A., Kaushal, K., Singh, A.K., Kasana, R.C., Gulati, A. (2016) Complete genome sequence of a low-temperature active and alkaline-stable endoglucanase-producing *Paenibacillus* sp. strain IHB B 3084 from the Indian Trans-Himalayas. *Journal of Biotechnology* 230: 1-2. https://doi.org/10.1016/j.jbiotec.2016.04.037 (**IF 4.1**). ISSN: 0168-1656
18. **Dhar, H.**, Kasana, R.C., Dutt, S., Gulati, A. (2015). Cloning and expression of low temperature active endoglucanase EG5C from *Paenibacillus* sp. IHB B 3084. *International Journal of Biological Macromolecules* 81: 259-266. https://doi.org/10.1016/j.ijbiomac.2015.07.060 (**IF 7.7**). ISSN: 0141-8130
19. **Dhar, H.**, Kasana, R.C., Gulati, A. (2015). Heterologous expression and characterization of detergent stable endoglucanase EG5B from *Paenibacillus* sp. IHB B 3084. *Journal of Molecular Catalysis B*: *Enzymatic* (Now Molecular Catalysis) 120: 9-15. https://doi.org/10.1016/j.molcatb.2015.06.009 (**IF 3.9**). ISSN: 1381-1177
20. **Dhar, H.**, Swarnkar, M.K., Gulati, A., Singh, A.K., Kasana, R.C. (2015). Draft genome sequence of a cellulase-producing psychrotrophic *Paenibacillus* strain IHB B 3415, isolated from the cold environment of the Western Himalayas, India. *Genome Announcements* 3(1): e01581-14. https://doi.org/10.1128/genomeA.01581-14 ISSN 2169-8287
21. Kasana, R.C., Salwan, R., **Dhar, H.**, Dutt, S., Gulati, A. (2008). A rapid and easy method for the detection of microbial cellulases on agar plates using Gram's iodine. *Current*

Microbiology 57: 503-507. https://doi.org/10.1007/s00284-008-9276-8 (**IF 2.3**). Print ISSN: 0343-8651 Electronic ISSN: 1432-0991

22. Book Chapter: **Dhar, H.***, Chaudhary, A., Rana V. (2020) Designer microbes for nutraceutical application. In: Sharma, T.R., Deshmukh, R., Sonah, H. (eds) Advances in Agri-Food Biotechnology. Springer, Singapore. pp239-285 https://doi.org/10.1007/978-981-15-2874-3_11 Print ISBN: 978-981-15-2873-6
23. Book Chapter: Yadav, R., Gupta, P., Chhabra, R., Thakur, K., **Dhar, H.*** (2023) Transcriptomics of host-pathogen interaction. In: Singh, K., Kaur, R., Deshmukh, R. (eds) Biotechnological Advances for Disease Tolerance in Plants. Springer Nature. pp377-397 ISBN 978-981-99-8873-0, https://doi.org/10.1007/978-981-99-8874-7_16
24. Book Chapter: Gupta, P., **Dhar, H.**, Sharma, Y.P. and Jaglan, S. (2023) Tomato as a model plant to understand Plant-microbial interactions. In: Singh, K., Kaur, R., Deshmukh, R. (eds) Biotechnological Advances for Disease Tolerance in Plants. Springer Nature. pp317-335 ISBN 978-981-99-8873-0 https://doi.org/10.1007/978-981-99-8874-7_13
25. Popular Article: **Dhar, H.**, Goyal, V., Salvi, P., Sonah, H., Deshmukh, R.* (2022) Silicon for the sustainable agriculture. Scientific India
26. Feature Article: Thakur, R., **Dhar, H.**, Mathew, S. (2024) PGPR Strategies for Climate-Resilient Agriculture. The Microbiologists

Total Publications: 26 **Total Impact Factor: 99.8** **Total Citations: 1411**

Citation source: Google Scholar Citations 13.10.2024

Invited talks:

- Invited talk on ‘Structure and classification of bacteria’ organized by School of Health Sciences (Nursing) at RIMT University, Mandi Gobindgarh, Punjab on 28th November 2023
- Invited talk on ‘Microbes as Industrial Workhorses' in a workshop on ‘Molecular Biology tools and Techniques’ hosted by the Department of Biochemistry, Central University of Haryana on 24th June 2023
- Invited talk on ‘Bacterial Genomics: Assembly and Annotation' in a workshop on ‘Advances in Genomics’ hosted by the Department of Biotechnology, Central University of Haryana on 23rd June 2023

- Invited talk on 'Designer microorganisms for production of value-added biomolecules' in 'Faculty Development Program' at Center of Innovative and Applied Bioprocessing (CIAB), Mohali, Punjab, India on 31st March 2022
- Invited talk on 'Role of microbes in climate change: Mitigation and adaptation' in the 'National webinar on plant biological interventions for climate smart agriculture' hosted by Bihar Agriculture University, Sabour, Bhagalpur, Bihar, India on 30th July 2020.
- Invited talk on 'Genotyping-by-sequencing' in International Workshop on 'Plant Genomics 2020' at CCS Haryana Agriculture University, Hisar, Haryana, India on 27th February 2020.

Conferences organized:

- Contributed as a member of organizing committee of National Science Day 'Indigenous Technologies for Viksit Bharat" held at RIMT University, Mandi Gobindgarh, Punjab on 12th and 13th March 2024
- Contributed as Organizing Secretary and participated in the Faculty Development Programme on "Teaching Skills, Research and Innovation" at RIMT University, Mandi Gobindgarh, Punjab 147301, India during July 17-21, 2023
- Contributed as Organizing Secretary in "International Conference on Pulse Research (ICPR-2022)" organized by 'Society of Plant and Agriculture Science (SPAS)'on 10 February 2022 and **chaired poster presentation** session also

Conferences attended:

- "HarGobind Khorana Memorial Symposium on Genes, Genome and Membrane Biology" held at National Agri-Food Biotechnology Institute, Mohali, from 3-5 December, 2017 (attended)

Webinars Organized:

- Contributed as Organizing Secretary in "Dr. HarGobind Khorana International Young Scientists Lecture Series on Plant Genomics" organized by 'Society of Plant and Agriculture Science (SPAS)' on 9-10 January 2023 and **chaired poster presentation** session also
- Contributed as Organizing Secretary "Dr. HarGobind Khorana International Young Scientists Lecture Series on Plant Genomics" organized by 'Society of Plant and Agriculture Science (SPAS)' on 9 January 2022

- Contributed as Program coordinator and attended the Intellectual Property Awareness program under National Intellectual Property Awareness Mission organized by Intellectual Property Office, India on 25th September 2023 at RIMT University, Mandi Gobindgarh, Punjab

Conferences participated:

- **Dhar, H.**, Arya, P. (2018) Insights into biosynthetic genes of long-chain polyunsaturated fatty acid in high-altitude lakes of Indian Himalayas through shotgun metagenomics. International Conference on Microbiome Research-2018 from 19-22 November, 2018 (Participated)
- **Dhar, H.**, Rahi, P., Kasana, R. and Gulati, A. (2008). Diversity analysis of carboxymethyl-cellulose hydrolyzing bacteria from the cold deserts of Himalayas. 49th Annual Conference of AMI on "Microbial Biotechnology: Diversity, Genomics and Metagenomics", held at Department of Zoology, University of Delhi, New Delhi, from 18-20 November, 2008 (Participated)

Workshops attended:

- Attended "NABI Computational Biology Workshop 2018" held at National Agri-Food Biotechnology Institute, Mohali, from 12-14 March, 2018
- Attended "National workshop on Research Methodology" held at RIMT University, Mandi Gobindgar, Punjab, from 6-10 February, 2024

Workshops organized:

- Coordinated hands on training on "Molecular Biology Techniques" held at Sophisticated Instruments Centre (SIC), Punjabi University, Patiala on 2nd May, 2023
- Coordinated workshop on "Basic Molecular Biology Techniques" held at Sophisticated Instruments Centre (SIC), Punjabi University, Patiala on 3rd November, 2023

Faculty Development Program

- Attended NEP 2020 Orientation & Sensitization Programme under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission (UGC) organized by Malaviya Mission Teacher Training Centre, Guru Nana Dev University Amritsar (Punjab) from 22.01.2024 to 31.01.2024.
- Attended the Short Term Course on 'Effective Teaching Learning Using Social Media' from 27.05.2024 to 31.05.2024

Editorial experience:

- Guest Editor of Plant Nano Biology

Reviewer Work for Journals:

- Journal of Plant Biochemistry And Biotechnology
- Journal of Advanced Research
- Bulletin of the National Research Centre
- BMC Plant Biology
- Frontiers in Genome Editing
- Journal of Biotechnology
- PLOS One
- Science of the Total Environment
- Scientific Reports

Memberships:

- Life member of 'Society of Plant and Agriculture Science (SPAS)'
- Life member of 'Association of Microbiologists of India (AMI)' (Life membership ID: 5079-2021)

Personal Details:

Father's Name	Naveen Dhar
Mother's Name	Roop Bala Dhar
Date of Birth	20 October 1984
Civil Status	Female/Indian/Unmarried
Languages Known	Hindi, English
Permanent address	VPO Chachian, Tehsil Palampur, Distt. Kangra (Himachal Pradesh)- 176 059, India

Hena Dhar