



Dr. Shailender Kumar Verma

Assistant Professor

Contact Details:

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Central University of Himachal Pradesh, Shahpur,
Kangra : 176206, Himachal Pradesh

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Academic Qualification:

Ph.D. in Biotechnology from the Indian Institute of
Technology Roorkee.

Supervisor: Prof. H.S. Dhaliwal and Prof. Ramasare
Prasad

Thesis title: Introgression of genes for high grain Fe
and Zn of group 2 chromosome of *Aegilops* into
Wheat

Positions Held:

- **Assistant Professor**, Central University of
Himachal Pradesh, India (Dec 2012 – till date)
- **The Royal Society, Newton International
Fellow** at the John Innes Centre, Norwich,
United Kingdom (Jan 2018-Dec 2019)
- **European Molecular Biology Organization
(EMBO) short term fellow** at Biochimie et
physiologie moleculaire des plantes, French
National Institute for Agricultural Research
(INRA), CNRS, Montpellier, France (Jan-Feb
2017)
- **CSIR-Research fellow** at Indian Institute of
Technology Roorkee. India (Jan 2009-Dec 2012)

Specialisation:

Genetics, Genomics and Bioinformatics

Research Interest:

Plant Genetics and Genomics, Agricultural Bioinformatics, Wheat Biofortification, Role of Metals in Biology and Plant Systems Biology

Publications:

- Sharma A., Sharma D., **Verma S.K.**[#] (2019) Zinc binding proteome of a phytopathogen *Xanthomonas translucens* pv. *undulosa*. *Royal Society Open Science*, The Royal Society Publishing. 6: 190369. **#Corresponding author.**
- Sharma A., Sharma D., Singh B., **Verma S.K.**[#] (2019) Bioinformatic exploration of metal-binding proteome of zoonotic pathogen *Orientia tsutsugamushi*, *Frontiers in Microbiology*, doi: 10.3389/fgene.2019.00797. **#Corresponding author.**
- Sharma A., Sharma D., **Verma S.K.**[#] (2019) *In silico* identification of copper-binding proteins of *Xanthomonas translucens* pv. *undulosa* for their probable role in plant-pathogen interactions. *Physiological and Molecular Plant Pathology*, Elsevier. 106: 187-195. **#Corresponding author.**
- Kumar P., Mishra A., Sharma H., Sharma D., Rahim M.S., Sharma M., Parveen A., Jain P., **Verma S.K.**, Rishi V., Roy R. (2018) Pivotal role of bZIPs in amylose biosynthesis by genome survey and transcriptome analysis in wheat (*Triticum aestivum* L.) mutants. *Scientific Reports*, Nature Publishing Group. 8:17240
- Sharma D., Sharma A., **Verma S.K.**, Singh B. (2018) Targeting metabolic pathways proteins of *Orientia tsutsugamushi* using combined hierarchical approach to combat scrub typhus. *Journal of Molecular Recognition*, Wiley, 32: e2766.
- Sharma A., Sharma D., **Verma S.K.**[#] (2018) *In silico* Study of Iron, Zinc and Copper Binding Proteins of *Pseudomonas syringae* pv. *lapsa*: Emphasis on Secreted Metalloproteins. *Frontiers in Microbiology*, 9: 1838. **#Corresponding author.**
- Sharma P., Sheikh I., Kumar S., **Verma S.K.**, Kumar R., Vyas P., Dhaliwal H.S. (2018) Precise transfers of genes for high grain iron and zinc from wheat-*Aegilops* substitution lines into wheat through pollen irradiation. *Molecular Breeding*, Springer. 38: 81. <https://doi.org/10.1007/s11032-018-0836-8>
- Sheikh I., Sharma P., **Verma S.K.**, Kumar S., Kumar N., Kumar S., Kumar R., Vyas P., Dhaliwal H.S. (2018) Development of intron targeted amplified polymorphic markers of metal homeostasis genes for monitoring their introgression from *Aegilops* species to wheat. *Molecular Breeding*, Springer. 38: 47. <https://doi.org/10.1007/s11032-018-0809-y>
- Sharma P., Sheikh I., Singh D., Kumar S., **Verma S.K.**, Kumar R., Vyas P., Dhaliwal H.S. (2017) Uptake, distribution, and remobilization of iron and zinc among various tissues of

wheat–*Aegilops* substitution lines at different growth stages. *Acta Physiologiae Plantarum*, Springer. 39: 185. <https://doi.org/10.1007/s11738-017-2456-z>

- **Verma S.K.**[#], Sharma A., Sandhu P., Choudhary N., Sharma S., Acharya V., Akhter A.[#]. (2017) Proteome scale identification, classification and structural analysis of iron-binding proteins in bread wheat. *Journal of Inorganic Biochemistry*, Elsevier. 170: 63-74. **#Corresponding author.**
- Sharma A., Sharma D., **Verma S.K.**[#] (2017) Proteome wide identification of iron binding proteins of *Xanthomonas translucens* pv. *undulosa*: Focus on secretory virulent proteins. *Biometals*, Springer. 30(1): 127-141. **#Corresponding author.**
- Singh J., Sheikh I, Sharma P., Kumar S., **Verma S.K.**, Kumar R., Mathpal P., Kumar S., Dhaliwal H.S. (2016) Transfer of HMW glutenin subunits from *Aegilops kotschy* to wheat through radiation hybridization. *Journal of Food Science and Technology*, Springer. 53(9): 3543-3549.
- **Verma S.K.**[#], Kumar S., Sheikh I., Sharma P., Mathpal P., Malik S., Kundu P., Awasthi A., Kumar S., Prasad R., Dhaliwal H.S. (2016) Induced Homoeologous Pairing for Transfer of Useful Variability for High Grain Fe and Zn from *Aegilops kotschy* into Wheat. *Plant Molecular Biology Reporter*, Springer. 34(6): 1083-1094. **#Corresponding author.**
- **Verma S.K.**[#], Kumar S., Sheikh I., Malik S., Mathpal P., Chugh V., Kumar S., Prasad R., Dhaliwal H.S. (2016) Transfer of useful variability of high grain iron and zinc from *Aegilops kotschy* into wheat through seed irradiation approach. *International Journal of Radiation Biology*, Taylor and Francis. 92(2): 132-139. **#Corresponding author.**
- Kumar S., **Verma S.K.**, Kundu P., Awasthi A., Sheikh I., Sangwan K., Prasad R., Dhaliwal H.S. (2016) Transferability and Polymorphism between group 7 chromosome specific SSR Markers of Bread Wheat and its Related Non-progenitor *Aegilops* Species. *Journal of Crop Improvement*, Taylor and Francis. 30(4): 433-446.
- Sheikh I., Sharma P., **Verma S.K.**, Kumar S., Malik S., Mathpal P., Kumar U., Singh D., Kumar S., Chugh V., Dhaliwal H.S. (2016) Characterization of interspecific hybrids of *Triticum aestivum* x *Aegilops* sp. without 5B chromosome for induced homoeologous pairing. *Journal of Plant Biochemistry and Biotechnology*, Springer. 25(1): 117-120.
- Paul P., Awasthi A., Kumar S., **Verma S.K.**, Prasad R., Dhaliwal H.S. (2012) Development of multiple embryos in polyembryonic insertional mutant *OsPE* of Rice. *Plant Cell Reports*, Springer. 31(10):1779-1787.

Research Projects Completed/Ongoing:

- **The Royal Society** funding £66000 from January 2018 to December 2019 to work at the John Innes Centre, Norwich, England, UK. (ongoing)
- **EMBO** Grant worth 3259.7 Euros from January-

February 2017 to work at the Biochimie et physiologie moléculaire des plantes, INRA, CNRS, Montpellier, France. (completed)

- **Department of Biotechnology (DBT)**, Ministry of Science and Technology, Government of India. Research project entitled: “Genome wide identification of metal binding proteins in bread wheat”. July 2016-July, 2019. Funding: Rs 2384600. (ongoing)

MPhil/PhD Supervised/Supervising:

Ph.D. Degree awarded

- **Ankita Sharma** (ICMR-SRF, UGC-NET, ICAR-NET)
PhD thesis title: Studies on iron, zinc and copper binding proteins from bacterial pathogens of wheat. -**Degree awarded- August 2019.** Currently working as ICMR-Research Associate at my research group.

Ph.D. ongoing

- **Dixit Sharma** (ICMR-SRF, UGC-NET)
PhD thesis title (tentative): Studies on metabolic pathway's and metal-binding proteins of scrub typhus pathogen “*Orientia tsutsugamushi*” for potential therapeutic candidates.

Participation in Seminars/Conferences:

- **Verma S.K.** Biofortification of Bread wheat with enhanced grain mineral micro-nutrient content through alien introgression in National Conference on Environmental Challenges, Human Health and Society (NCEHS-2016) at Maharaja College, University of Rajasthan (8th-10th September 2016). (Invited Speaker)
- **Verma S.K., Kumar S., Prasad R., Dhaliwal H.S.** Powdery mildew resistance in wheat-*Aegilops* derivatives In National Seminar on Recent Advances in Fungal Biotechnology at Forest Research Institute, Dehradun, India. (22nd to 23rd September 2011). (Oral presentation)
- **Verma S.K., Kumar S., Khalko N.S., Choudhary H., Prasad R., Dhaliwal H.S.**

Utilization of wild wheat relatives for improvement of nutritional traits in wheat to combat with “Hidden-Hunger” of human beings. In 1st World Congress for Man and Nature (WCMANU) at Gurukula Kangri Vishwavidyalaya Haridwar, India (11th to 13th November 2011). (Oral presentation)

- **Verma S.K.**, Girdharwal N., Prasad R., Dhaliwal H.S. Introgression and analysis of genes responsible for high grain iron and zinc content in wheat-*Aegilops* derivatives. In 6th Uttarakhand State Science and Technology Congress, India (14th to 16 November 2011). (Oral presentation)
- **University of Cambridge**, Cambridge, United Kingdom.
 - Data Manipulation and Visualization in R. 12 March 2019
 - Transcriptome Analysis for Non-Model Organisms. 15-17 March 2019
- **Imperial College Business School, London & the Royal Society**, Buckinghamshire, United Kingdom
 - Leadership Effectiveness Course 13-15 March 2019
 - Royal Society Entrepreneurship Course 6-8 February 2019
 - Science in context 10-11 July 2019
- **The Royal Society**, London, United Kingdom
 - Writing about your research.
 - May 2018
- **The John Innes Centre**, Norwich, United Kingdom
 - Biological Safety Training Course- January 2018
 - Turbo Charge Your Writing- January 2018
 - Chemical Safety for Scientists- January 2018
 - An introduction to Phylogenetics- February 2018
 - Bioinformatics and how we learn it –

Workshops and Trainings attended

- February 2018
- The Principles of Light Microscopy and Camera Technology- March 2018
- Practical Sessions in Light Microscopy for Basic Applications- March 2018
- Introduction to RNA-Seq- March 2018
- An introduction to working with wheat GEN workshop- March 2018
- Wheat Genomics Workshop - "An update on the current state of wheat genomics"- March 2018

- **Jawaharlal Nehru University, New Delhi, India**
 - Human Resource Development Centre, 2nd Refresher Course in Life Sciences and Biotechnology, October 2016
 - Academic Staff College, 94th Orientation Program, February-March 2015
- **European Bioinformatics Institute, Cambridge, United Kingdom**
 - EMBO practical course on Plant Bioinformatics: Going OMICS". ESF-ENSS funded research networking program, June 2011
- **Chaudhary Charan Singh University, Meerut, Uttar-Pradesh, India.** Virus induced gene silencing (VIGS) in bread wheat Trainers: Prof. Kulvinder Singh Gill (Washington State University, USA) and Prof P.K. Gupta (CCSU, India), December 2011
- **CSIR-National Botanical Research Institute, Lucknow, India.** "The Study of dioecious medicinal plant *Tinospora cordifolia*" Supervisor: Dr. Nikhil Kumar, Scientist-E-II, May-August 2008
- **The Royal Society, United Kingdom**
Role: Research Fellow (January 2018-December 2019)
- **Institutional Biosafety Committee (IBSC) of**

**Membership of Learned Societies/
Professional Bodies:**

the Central University of Himachal Pradesh
Role: Member Secretary (October 2015 to
December 2017). Approved by the Department
of Biotechnology, Ministry of Science and
Technology, Government of India.

- **Indian Science Congress Association** (India)
Role: Life Member
- **Society of Biological Chemists** (India)
Role: Life Member
- **The Biochemical Society** (United Kingdom)
Role: Member, March 2017 -till date
- **Newton International Fellow, The Royal Society (London)** to work at the John Innes Centre, Norwich United Kingdom on the topic “Genetic regulation of metal distribution in cereal crops” (January 2018 to December 2019)
- **EMBO Fellow, European Molecular Biology Organization** to work at the Biochimie et physiologie moleculaire des plantes, French National Institute for Agricultural Research (INRA), CNRS, Montpellier, France January-February 2017
- **Young Scientist Award** in Agriculture Sciences from Uttarakhand council for Science and Technology in 6th Uttarakhand State Science and Technology Congress –2011.
- **Young Scientist Award** from International Council for Man and Nature in 1st World Congress for Man and Nature 2011 (WCMANU).
- Qualified **CSIR- Junior Research Fellowship** four times.

Awards & Honours Received: