

Curriculum Vitae of Shailendra Sharma

Name: **Shailendra Sharma**

Designation: Professor and Head of the department

Department: Genetics & Plant Breeding

Institute/University: Chaudhary Charan Singh University

Place: Meerut, India



National level exams qualified:

NET-2003; GATE-1999; CSIR-SRF

International honors/awards

- Awarded with Humboldt (Alexander von Humboldt) research fellowship to carry out research in Germany.
- Awarded with JSPS (Japan Society for the Promotion of Science) research fellowship to carry out research in Japan.

Professional Experience and Training relevant to the Project

Shailendra Sharma has over 16 years of experience (post Ph.d) of working with genetics and biotechnology of cereal species including wheat, barley, rice and bio-energy grasses like *Miscanthus* and sugarcane. For last several years, he has been working on the development of molecular markers and disease resistance studies in wheat. He is also involved in QTL mapping studies in wheat, barley and *Miscanthus*.

Research Support

Ongoing Major Research Projects

S. no.	Title of Project	Funding Agency	Designation	Duration
1.	Dissecting resistance to plant parasitic nematodes in wheat using molecular breeding and functional genomics	DBT (Govt. of India)	Principal Investigator	Five years
2.	High resolution QTL mapping for iron (Fe), zinc (Zn), grain protein, and phytate contents and their introgression in high yielding wheat cultivars-	DBT (Govt. of India)	Principal Investigator	Three years
3.	Characterization of Genetic Resources: Germplasm Characterization and Trait Discovery in Wheat using Genomics Approaches and its Integration for Improving Climate Resilience, Productivity and Nutritional quality	DBT (Govt. of India)	Principal Investigator	Five years
4.	Rice based functional characterization of important wheat genes involved in iron uptake translocation and regulation	DBT (Govt. of India)	Mentor	Two years

B. Publications: 60

Peer-reviewed publications in high impact journals

Scientific Reports, The Plant Journal, PLoS One, Theoretical and Applied Genetics, Journal of Cereal Science, BMC Genomics, Molecular Breeding, Molecular Genetics and Genomics, Global Change Biology Bioenergy, Molecular Ecology Notes, Plant Science, Physiology and Molecular Biology of Plants, Scientia Horticulturae, Euphytica, Scientia Horticulturae etc.

Selected peer-reviewed publications (chronological order)

[Parveen Malik](#), [Jitendra Kumar](#), [Shiveta Sharma](#), [Rajiv Sharma](#) & [Shailendra Sharma](#) (2021). Multi-locus genome-wide association mapping for spike-related traits in bread wheat (*Triticum aestivum* L.). **BMC Genomics** 22, 597 (DOI: <https://doi.org/10.1186/s12864-021-07834-5>) (*Corresponding author. Impact Factor: 4.0*)

Parveen Malik, Jitendra Kumar, Sahadev Singh, Shiveta Sharma, Rabina Kumar Meher, Mukesh Kumar Sharma, Joy Kumar Roy, Pradeep Kumar Sharma, Harindra Singh Balyan, Pushpendra Kumar Gupta, **Shailendra Sharma** (2021) Single-trait, multi-locus and multi-trait GWAS using four different models for yield traits in bread wheat. **Molecular Breeding**. 41, 46. (DOI: <https://doi.org/10.1007/s11032-021-01240-1>). (*Corresponding author. Impact Factor: 2.7*)

Singh K, Batra R, Sharma S, Saripalli G, Gautam T, Singh R, Pal S, Malik P, Kumar M, Jan I, Singh S, Kumar D, Pundir S, Chaturvedi D, Verma A, Rani A, Kumar A, Sharma H, Chaudhary J, Kumar K, Kumar S, Singh VK, Singh VP, Kumar S, Kumar R, Gaurav SS, **Sharma S**, Sharma PK, Balyan HS, Gupta PK. WheatQTLdb: a QTL database for wheat. **Molecular Genetics and Genomics**. 2021 Jun 11. doi: 10.1007/s00438-021-01796-9. (*Impact Factor: 3.2*)

Deepak Kumar, Shiveta Sharma, Rajiv Sharma, Saksham Pundir, Vikas Kumar Singh, Deepti Chaturvedi, Bansa Singh, Sundeep Kumar & **Shailendra Sharma** (2021) Genome-wide association study in hexaploid wheat identifies novel genomic regions associated with resistance to root lesion nematode (*Pratylenchus thornei*). **Scientific Reports** 11:572)- (*Corresponding author. Impact Factor: 4.4*)

Gupta PK, Balyan HS, **Sharma S**, Kumar R (2021) Biofortification and bioavailability of Zn, Fe and Se in wheat: Present status and future prospects. **Theoretical and Applied Genetics** 134: 1-35. (*Impact Factor: 5.69*)

Gupta PK, Balyan HS, **Sharma S**, Kumar R (2020) Genetics of yield, abiotic stress tolerance and biofortification in wheat (*Triticum aestivum* L.). **Theoretical and Applied Genetics**. 133(5):1569-1602. DOI: 10.1007/s00122-020-03583-3. (*Impact factor: 5.69*).

Dong H , Liu SY , Clark LV, **Sharma S**, Gifford JM, Juvik JA , Lipka A and Sacks EJ (May 2019) Winter hardiness of *Miscanthus* (II): Genetic mapping for overwintering ability and adaptation traits in three interconnected *Miscanthus*. **Global Change Biology Bioenergy** 11(5): 706-726. (<https://doi.org/10.1111/gcbb.12587>). (*Impact factor: 4.74*).

Kumar M , Rakesh Sharma V, Kumar V, Sirohi U, Chaudhary V, Sharma S, Saripalli G, Naresh RK, Yadav HK, **Sharma Shailendra** (March, 2019) Genetic diversity and population structure analysis of Indian garlic (*Allium sativum* L.) collection using SSR markers. ***Physiology and Molecular Biology of Plants***. 25(2):377-386 (*Corresponding author. Impact Factor: 2.4*)

Dong H , Liu SY , Clark LV, Sharma S, Gifford JM, Juvik JA , Lipka A and Sacks EJ (March, 2018) Genetic mapping of biomass yield in three interconnected *Miscanthus* populations. ***Global Change Biology Bioenergy*** 10:165-185. (*Impact factor: 4.74*).

Chaudhary V, Kumar M, **Sharma S**, Kumar N, Kumar V, Yadav HK, Sharma S, Sirohi U (May, 2018) Assessment of genetic diversity and population structure in gladiolus (*Gladiolus hybridus* Hort.) by ISSR markers. ***Physiology and Molecular Biology of Plants***. 24: 493-501. (*Corresponding author. Impact Factor: 2.4*)

Kumar N, Kumar M, Yadav H, **Sharma S**, Singh S (2017) Genetic diversity and population structure analysis of chrysanthemum (*Dendranthema grandiflora* Tzvelev) germplasm based on RAPD markers. ***Journal of Environmental Biology***. 38: 457-464. (*Impact factor: 0.78*).

Marzin S, Hanemann A, **Sharma S**, Hensel G, Kumlehn J, Knogge W, Schweizer G, Röder MS (2016) Are pectin esterase inhibitor genes involved in mediating resistance to *Rhynchosporium commune* in barley? ***PLoS One*** 11: e0150485. (*Impact factor: 3.24*).

Glowacka K, Ahmed A, **Sharma S**, T Abbott, J Comstock, S Long, EJ Sacks (2016) Can chilling tolerance of C₄ photosynthesis in *Miscanthus* be transferred to sugarcane? ***Global Change Biology Bioenergy*** 8: 407-418. (*Impact factor: 4.74*).

Galal A, Sharma S, **Sharma S**, S Fatouh Abou-Elwafa, Sharma S, F Kopisch-Obuch, E Laubach, DPerovic, F Ordon, C Jung (2014) Comparative QTL Analysis for Marker-Assisted Breeding of Root Lesion Nematode Resistance in Barley. ***Theoretical and Applied Genetics***. 127: 1399-407. (*Impact Factor: 5.67*)

Balyan D, Sirohi A, Kumar M, Kumar V, Malik S, Sharma, Sharma S, **Sharma S** (2014) Comparative genetic diversity analysis in chrysanthemum: A pilot study based on morpho- agronomic traits and ISSR markers. ***Scientia Horticulturae*** 167: 164–168. (*Corresponding author. Impact Factor: 3.46*)

Sharma S, S Sharma, A Hirabuchi, K Yoshida, K. Fujisaki, A Ito, A Uemura, R Terauchi, S Kamoun, Kee H. Sohn, J D. G. Jones & H Saitoh (2013) Deployment of *Burkholderia glumae* type III secretion system as an efficient tool for translocating pathogen effectors to monocot cells. ***The Plant Journal*** 74: 701-712. (*Impact factor: 6.41*).

Fekih R, H Takagi, M Tamiru, A Abe, S Natsume, HYaegashi, **Sharma S**, S Sharma, H Kanzaki, H Matsumura, H Saitoh, C Mitsuoka, H Utsushi, AUemura, E Kanzaki, S Kosugi, KYoshida, Liliana Cano, S Kamoun, R Terauchi (2013) MutMap+: Genetic Mapping and Mutant Identification without Crossing in Rice. ***PLoS One*** 8: e68529. (*Impact factor: 3.24*).

Matthies Inge E, **Sharma S**, Weise Stephan, Röder Marion S (2012) Sequence variation in the barley genes encoding sucrose synthase I and sucrose phosphate synthase II, and its association with variation in grain traits and malting quality. ***Euphytica*** 184: 73-83. (*Equal first authorship; corresponding author, Impact Factor: 1.89*).

Sharma , **Sharma S**, Keil Tobias, Laubach E berhard, Jung C (2011) QTL analysis of root-lesion nematode resistance in barley: 1. *Pratylenchus neglectus*. ***Theoretical and Applied Genetics***. **122**: 1321-1330. (*Impact Factor: 5.69*).

Nezhad Khalil Zaynali, Weber WE. Roeder MS, **Sharma S**, Lohwasser U, Meyer RC, Saal B, Boerner A (2012) QTL analysis for thousand-grain weight under terminal drought stress in bread wheat (*Triticum aestivum* L.). ***Euphytica*** **186**: 127-138. (*Impact Factor: 1.89*).

Undan JR. Undan, M Tamiru M, Abe A, Yoshida K, Kosugi S, Takagi H, Yoshida K, Kanzaki H, Saitoh H, Fekih R, **Sharma S**, Undan J, Yano M, Terauchi R(2012) Mutation in OsLMS, a gene encoding a protein with two double-stranded RNA binding motifs, causes lesion mimic and early senescence in rice (*Oryza sativa* L.). ***Genes and Genetic System*** **87**: 69-179. (*Impact Factor: 1.29*).

Sharma s, Sharmas S, Keil T, Laubach E, Jung C et al. (2011) Screening of barley germplasm for resistance to root lesion nematodes. ***Plant Genetic Resources*** **9**: 236-239. (*Impact Factor: 1.08*)

Sharma S, Sreenivasulu N, H V Thammegowda, Seiler C, Sharma S, K Nezhad, Akhunov E, Sehgal K S, Röder Marion S (2010) Delineating the structural, functional and evolutionary relationships of sucrose phosphate synthase gene family II in wheat and related grasses. ***BMC Plant Biology*** **10**: 134. (*Impact Factor: 4.21*).

Kumar V, Sharma S, Sharma AK, Sharma S, Bhat KV (2009) Comparative analysis of diversity based on morpho-agronomic traits and microsatellite markers in common bean. ***Euphytica*** **170**: 249-262. (*Impact Factor: 1.89*).

Kumar V, Sharma S, Sharma AK, Kumar M, Sharma S, Malik S, Singh KP, Sanger RS, Bhat KV (2009) Assessment of genetic diversity in common bean (*Phaseolus vulgaris* L.) germplasm using RAPD. ***Physiology and Molecular Biology of Plants*** **14**: 383-387. (*Impact Factor: 2.4*).

Keil T, Laubach E, **Sharma S** and Jung **S** (2009) Screening for resistance in the primary and secondary gene pool of barley against the root-lesion nematode *Pratylenchus neglectus*. ***Plant Breeding***. **128**: 436-44 (*Impact Factor: 1.83*).

Bansal S, Mishra A, Tomar A, **Sharma S**, Khanna VK, Garg GK (2008) Isolation and temporal endospermal expression of g-kafirin gene of grain sorghum (*Sorghum bicolor* L. moench) var. M 35-1 for introgression analysis of transgene. ***Journal of Cereal Science*** **48**: 808–815. (*Impact Factor: 3.61*).

Mir R, Rustgi S, **Sharma S**, Singh R, Goyal A, Kumar J, Gaur A, Tyagi AK Khan H, Sinha MK, Balyan H S and Gupta P Ket al. (2008) A preliminary genetic analysis of fibre traits and the use of new genomic SSRs for genetic diversity in jute. ***Euphytica*** **161**: 413-427. (*Impact Factor: 1.89*).

Sharma S, **Sharma S**, Singh RK, Vaishampaya **A** (2008) Endophytic colonization pattern of *B. cepacia* visualized using green fluorescent protein (gfp) marker. ***World journal of Microbiology and Biotechnology***. **24**: 1169-1175. (*Impact Factor: 3.31*).

Kumar V, **Sharma S**, Kero S, Sharma S, Sharma AK, Kumar M, Bhat KV (2008) Assessment of genetic diversity in common bean (*Phaseolus vulgaris* L.) germplasm using amplified fragment length polymorphism (AFLP). ***Scientia Horticulturae*** **116**: 138-143. (*Impact Factor: 3.46*)

Singh R, N Kumar, R Bandopadhyay, S Rustgi, **Sharma S**, Balyan HS, Gupta PK (2006) Development and

use of anchored-SSRs to study DNA polymorphism in bread wheat (*Triticum aestivum* L.). **Molecular Ecology (Resources)** 6: 296-299. (*Impact Factor: 7.09*).

Sharma S, Balyan HS, Gupta PK (2005) Adaptive methylation pattern of ribosomal DNA in wild barley from Israel. **Barley Genetics Newsletter** 35: 25-32.

Balyan H S, Gupta P.K., Rustgi S, Bandopadhyay R., Goyal A, Singh R., Kumar A., Kumar N, Sharma S (2005) Development and Use of SSRs of Bread Wheat for Genetic and Physical mapping and Transferability to the Species of *Triticum-Aegilops* Complex. **Czech Journal of Genetics and Plant Breeding** 41: 1-4. (*Impact Factor: 0.86*).

Sharma S, Beharav A, Balyan HS, Nevo E, Gupta PK (2004) Ribosomal DNA polymorphism and its association with geographical and climatic variables in 27 wild barley populations from Jordan. **Plant Science** 166: 467-477. (*Impact Factor: 4.72*).

Sharma S, Kumar S, Balyan HS, Gupta PK (2004) Interlocus homogenizations of ribosomal DNA repeat units in barley. **Current Science** 86: 384-386. (*Impact Factor: 1.10*).

Gupta PK, **Sharma S**, Kumar S, Balyan HS, Nevo E (2004) Adaptive Ribosomal DNA polymorphism at a mosaic microsite Neve Ya'ar in Israel. **Plant Science** 166: 1555-1563. (*Impact Factor: 4.72*).

Bandopadhyay R, **Sharma S**, Rustgi S, Singh R, Gupta A, Balyan HS, Gupta PK et al. (2004) DNA polymorphism among 18 species of *Triticum-Aegilops* complex using wheat EST-SSRs. **Plant Science** 166: 349-356. (*Impact Factor: 4.72*).

Gupta PK, Rustgi S, **Sharma S**, Singh, Kumar R, Balyan HS (2003) Transferable EST-SSR markers for the study of polymorphism and genetic diversity in bread wheat. **Molecular Genetics and Genomics** 270: 315-323. (*Impact Factor: 3.2*).

Gupta PK, Sharma PK, Balyan HS, Roy JK, Sharma S, Beharav A, Nevo E (2002) Polymorphism at rDNA loci in barley and its relation with climatic variables. **Theoretical and Applied Genetics** 104: 473-481. (*Impact Factor: 5.69*).

Sharma S, Rustgi S, Balyan HS, Gupta PK (2002) Internal transcribed spacer (ITS) sequences of ribosomal DNA of wild barley and their comparison with ITS sequences in common wheat. **Barley Genetics News letter** 32: 38-45.

Sharma S, Balyan HS, Kulwal PK, Kumar N, Varshney RK, Prasad M and Gupta PK (2002) Study of interspecific SSR polymorphism among 14 species from *Triticum-Aegilops* group. **Wheat Information Service** 95: 23-28.

Book Chapters:

Kumar R., Kumar S., **Sharma S.**, Kumar R. (2021) Genetics and Breeding of Fe and Zn Improvement in Wheat. In: Wani S.H., Mohan A., Singh G.P. (eds) Physiological, Molecular, and Genetic Perspectives of Wheat Improvement. Springer, Cham. https://doi.org/10.1007/978-3-030-59577-7_5. ISBN 978-3-030-59577-7

Windham J., **Sharma S.**, Kashyap M.K., Rustgi S. (2021) CRISPR-Cas12a (Cpf1) and Its Role in Plant Genome Editing. In: Tang G., Teotia S., Tang X., Singh D. (eds) RNA-Based Technologies for Functional Genomics in Plants. Concepts and Strategies in Plant Sciences. Springer, Cham. https://doi.org/10.1007/978-3-030-64994-4_13. ISBN: 978-3-030-64994-4

Sharma S, Sharma R (2010) Biotechnology and sustainable agriculture, marker assisted selection chapter 18 (p570) in: Stable Food Production and Sustainable Agriculture : A Challenge Ahead in 21st Century. R S Sengar and A K. Sharma (Eds) ISBN : 938001214.

Shiveta Sharma, **Shailendra Sharma** and Akhouri Vaishampayan (2015) Dissection of molecular and physiological mechanism governing the interaction of root lesion nematodes and *Burkholderia* species group of bacteria to host cereals and non- cereal energy plants. Plant-Microbe Interaction by K.Ramasamy and K.Kumar (eds). Second Chapter.New India publishing Agency. ISBN 10: 9383305835, ISBN 13: 9789383305834

Conferences

Dr. Sharma has participated in numerous national and international conferences /symposia.

Contribution to Administrative duties:

Head of the department

Member of Academic council

BoS convenor I for B.Sc. (Ag.)

RDC/DRC convenor

BoS convenor I for M.Sc (AG.) GPB for affiliating colleges

Phd programme coordinator

University's Nodal officer to verify documents of ST students for national fellowship.

Entrance examination Observer for different exams

Member for various committee at University level

Evaluation center deputy superintendent

External subject expert for recruitment of research fellows in various institutes across India.

External subject expert for recruitment of Faculty members

External expert for various exams/viva voce

Member of University panel regarding affiliation

University committee member for various cases

Nodal Officer from University for teacher's felicitation (of Saharanpur district) on 5.9.2021.

Teaching subjects (M.Sc. and Pre Ph.D. courses)

General genetics, molecular genetics, plant biotechnology, genomics, genetic resources, breeding for biotic Stress, breeding for abiotic Stress, topics for research in genetics & plant Breeding, advanced genetics, Plant Physiology. plant genetic resources: conservation and sustainable use.