Dr Nitin Sharma
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Completed Research Projects

- Determination of seasonal chilling requirement for endodormancy release in Apple (*Malus* X *domestica* Borkh.) cultivars funded by in house Research and Development Grant for ₹ 07.50 lakh from 2023 to 2024 (Principal Investigator).
- Updation of Peoples Biodiversity Registers (PBRs) in Himachal Pradesh funded by Himachal Pradesh State Biodiversity Board for ₹ 15.52 lakh from 2024 to 2025 at Dr. Yashwant Singh Parmar University of Horticulture and Forestry (Co-Principal Investigator).

Important Research Publications

- Khatri S, Sharma DP, Sharma N, Kumar P, Rana R, Gupta V, Dilta KS and Sharma R. 2026. Synergistic melatonin and myo-inositol application reinforces antioxidant defence, osmotic homeostasis, and membrane stability in Western Himalayan apple rootstocks under drought stress. BMC Plant Biology. https://doi.org/10.1186/s12870-026-08111-x
- Khatri S, Sharma DP, Sharma N, Kumar P, Rana R and Sharma R. 2026. Metabolite-mediated enhancement of drought resilience in north-western Himalayan apple rootstocks through synergistic modulation of physiological performance. Scientific Reports. https://doi.org/10.1038/s41598-026-50604-0
- Thakur A, Bharat NK, Sharma P, Thakur I, Jyoti A, Chauhan S and Sharma N. 2026. Harnessing natural farming practices for ecofriendly and sustainable plant disease management. Discover Plants **3**(1): 103.
- Rajendran P, Saravanan K, Jagadhesan B, Ramesh R, Bharathi D, Suryakumar P, Sharma N, Yele Y, Marate A, Prasad N and Vinay ND. 2026. Stress resilience in tuber crops: a closer view on genome editing and molecular approaches. Journal of Plant Growth Regulation **45**(2): 876-899.
- Divte PR, Sharma N, Parveen S, Sellathdurai D and Anand A. 2025. Interactive effects of post-anthesis foliar nitrogen management and elevated night temperatures on wheat grain nitrogen metabolism. Plant Physiology Reports **30**(3): 616-627.
- Ananthakrishnan S, Sharma JC, Sharma N, Kumar S, Shankar SV, Ranjha R, Lalkhumliana F, Sharma K and Aravinthkumar A. 2025. Mulching and irrigation strategies for climate resilient apple cultivation in high-density orchards. Scientific Reports **15**(1): 17125.
- Sharma N, Saini DK, Pushkar S, Somayanda I, Jagadish SK and Anand A. 2025. Reprogramming assimilate partitioning in the second half of the night supports grain filling in inferior spikelets under high night temperature stress in rice. Plant Stress **15**: 100773.
- Sharma N, Singh B, Krishnan SG, Bollinedi H, Mandal PK, Lal MK, Jha PK, Prasad PV and Anand A. 2024. Higher grain-filling rate in inferior spikelets of tolerant rice genotype offset grain yield loss under post-anthesis high night temperatures. Rice Science **31**(5): 572-586.
- Altaf MA, Sharma N, Srivastava D, Mandal S, Adavi S, Jena R, Bairwa RK, Gopalakrishnan AV, Kumar A, Dey A and Lal MK. 2023. Deciphering the melatonin-mediated response and signalling in the regulation of heavy metal stress in plants. Planta 257(6): p.115.
- Sharma N, Nagar S, Thakur M, Suriyakumar P, Kataria S, Shanker AK, Landi M and Anand A.

2023. Photosystems under high light stress: throwing light on mechanism and adaptation. *Photosynthetica* **61**: 247-260.

- Altaf MA, Sharma N, Singh J, Samota MK, Sankhyan P, Singh B, and Kumar R. 2023. Mechanistic insights on melatonin-mediated plant growth regulation and hormonal cross-talk process in solanaceous vegetables. *Scientia Horticulturae* **308**: 111570.
- Altaf MA, Sharma N, Srivastava D, Mandal S, Adavi S, Jena R and Ahmed P. 2023. Deciphering the melatonin – mediated response and signalling in the regulation of heavy metal stress in plants. *Planta* **257**(6): 115
- Sharma N, Thakur M, Suryakumar P, Mukherjee P, Raza A, Prakash CS and Anand A. 2022. 'Breathing Out under heat stress—respiratory control of crop yield under high temperature. *Agronomy* **12**(4):806.
- Lal MK, Sharma N, Adavi SB, Sharma E, Altaf MA, Tiwari RK and Singh, M. P. (2022). From source to sink: mechanistic insight of photoassimilates synthesis and partitioning under high temperature and elevated [CO_2]. *Plant Molecular Biology* 1-20.
- Sharma N, Yadav A, Khetarpal S, Anand A, Sathee L, Kumar RR, and Pushkar, S. 2017. High day–night transition temperature alters nocturnal starch metabolism in rice (*Oryza sativa* L.). *Acta Physiologiae Plantarum* **39**: 1-9.
- Sharma N, Yadav A, Anand A, Khetarpal S, Kumar D, and Trivedi SM. 2017. Adverse effect of increase in minimum temperature during early grain filling period on grain growth and quality in indica rice (*Oryza sativa*) cultivars. *Indian Journal of Agricultural Sciences* **87**: 883-888.

Books

- Pandurang RD, Sharma N, Shamima P, Devika S and Anand A. 2021. Cereal grain composition under climate change. In Book: Climate Change and Crop Stress: Molecules to Ecosystem. Elsevier Academic Press.
- Chauhan S, Sharma N, Ghabru A, Sankhyan N. 2022. Drinking Water Contaminants: Types and Health Risks. Science of Environment volume III pg. 30-49. Edited by Dr. Wasudeo B. Gurnule. Scieng publications. Tamil Nadu-604303 (INDIA).

Awards & Recognitions

- All India Rank -11; ICAR JRF Agricultural Biotechnology – 2013
- All India Rank -03; ICAR JRF Agricultural Biotechnology – 2014
- All India Rank -01; IARI PhD Entrance Examination – 2016
- 1st position in M.Sc. Plant Physiology and in School of Basic Sciences, IARI, New Delhi
- Awarded ICAR's Junior Research Fellowship, IARI Junior Fellowship and IARI Senior Fellowship
- IARI Merit Medal (Gold Medal) for outstanding academic performance in Master of Science degree programme
- Awarded DST-Inspire fellowship for pursuing doctoral degree programme
- Qualified ASRB NET(I)-2016 and NET(I)-2017