

## Dr Pankaj Kumar

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## Ongoing Research Projects

- Micropropagation for commercial scale production of quality walnut planting material in Himachal Pradesh funded by RKVY-RAFTAAR from May 2025 to May 2027 (Project Investigator).
- Understanding *in vitro* regeneration recalcitrance and graft interface biology in walnut funded by ANRF-New Delhi from 2026 to 2029 (Project Investigator).
- Empowering the kinnauras schedule tribe community of himachal pradesh through valorization of himalayan medicinal and aromatic plants funded by DST, New Delhi from Jan 2026 to Mar 2029 (Co- project Investigator).
- Development of infectious clone, point-of-care diagnostics and transcriptome profiling for apple (*Malus domestica*) exhibiting mosaic disease associated with apple necrotic mosaic virus in Northwestern Himalayan region of India funded by ICAR- NASF from April 2024 to March 2027 (Co- project Investigator).
- Studies in impact of PGPR strains on field acclimatization of tissue cultured raised walnut plants funded by Univ. funded departmental project from April 2026 to March 2028 (Co- project Investigator).
- Cultivation of Cannabis in Himachal Pradesh funded by HP State Govt. from October 2025 to October 2026 (Co- project Investigator).

## Important Research Publications

- Deepika, Sharma S, Kumar P, Verma P and Vahdati K. 2026. Integrative advances in walnut (*Juglans* spp.) micropropagation: overcoming recalcitrance through physiological, biochemical, and translational innovations. *Plant Cell, Tissue and Organ Culture*. 164(2):47.
- Irfan M, Kumar P, Kumar V, Ahmad I, Ansari S, Ghosh S and Datta A. 2025. N-glycan remodeling by  $\alpha$ -D-mannosidase and  $\beta$ -D-N-acetylhexosaminidase regulates fruit softening, redox balance, and post-harvest pathogen resistance. *The Plant Journal*. 124(5): e70629.
- Sharma S, Sharma S, Kumar P, Verma P, Sharma R and Sharma NC. 2025. Overcoming challenges in walnut (*Juglans regia* L.) micropropagation: A comprehensive approach to optimizing explant selection, sterilization, and nutrient media. *Applied Fruit Science*. 67(1):15.
- Sharma S, Sharma S, and Kumar P. 2025. *In vitro* establishment of walnut (*Juglans regia* L.) from the embryonic axis with customized nutrient media and synergy of growth regulators. *South African Journal of Botany*. 177:598-603.
- Alvey E, Paterlini A, Williams ME, Cerfonteyn ME, Dobbie S, Dodsworth S, Dunbar SD, Headland LR, Kolesnikova A, Kumar P and Manrique S. 2025. A manifesto for plant science education. *Plants, People, Planet*. 8(2):422-32.
- Sharma S, Negi S, Kumar P and Irfan M. 2025. Nitric oxide dynamics in high-altitude medicinal plants: role in stress adaptation, signaling, and

- phytohormonal interactions. *Physiologia Plantarum*. 177(3):e70342.
- Irfan M, Kumar P, Kumar V and Datta A. 2022. Fruit ripening specific expression of  $\beta$ -DN-acetylhexosaminidase ( $\beta$ -Hex) gene in tomato is transcriptionally regulated by ethylene response factor *SIERF. E4*. *Plant Science*. 323:111380
  - Irfan M, Kumar P, Ahmad I and Datta A. 2021. Unraveling the role of tomato Bcl-2-associated athanogene (BAG) proteins during abiotic stress response and fruit ripening. *Scientific Reports* 11(1):1–5
  - Kumar P, Acharya V and Warghat AR. 2021. Comparative transcriptome analysis infers bulb derived *in vitro* cultures as a promising source for sipeimine biosynthesis in *Fritillaria cirrhosa* D. Don (Liliaceae, syn. *Fritillaria roylei* Hook.)-High value Himalayan medicinal herb. *Phytochemistry*. 183:112631
  - Kumar P, Partap M, Rana D, Kumar P and Warghat AR. 2020. Metabolite and expression profiling of steroidal alkaloids in wild tissues compared to bulb derived *in vitro* cultures of *Fritillaria roylei*-high value critically endangered Himalayan medicinal herb. *Industrial Crops and Products*. 145:111945

## Books

- **Kumar P.** 2026. *Totipotency in Plants: Molecular Signaling and Gene Network Dynamics (1st ed)*. Springer Nature, Singapore. ISBN 9789819216314
- **Kumar P** and Irfan M. 2026. *Plant Stress Memory: Methods and Protocols (1st ed)*. Springer Protocols, Humana New York, NY. P216. ISBN 9781071649800.
- **Kumar P**, Sood H and Chauhan RS. 2026. *Climate Resilience and Molecular Adaptation in Alpine Medicinal Plants: Ecophysiology, Metabolism and Plantomics (1st ed)*. Springer Nature, Singapore. P367. ISBN 9789819569229.
- **Kumar P** and Warghat AR. 2026. *Transforming Medicinal Plant Agriculture: Implementing Soil-less Systems and AI Innovations for Smart Farming (1st ed)*. Springer Nature, Singapore. P336. ISBN 9789819539628.
- Thakur AK, **Kumar P** and Srivastava DK. 2024. *Biotechnological Advances in Horticultural Crops (1st ed)*. CRC Press, Taylor and Francis Group, Boca Raton, London, New York. p234. ISBN 9781032381343.
- Irfan M and **Kumar P.** 2024. *Bioengineered Fruit and Vegetables: Trends in Postharvest Quality Improvement*. CRC Press, Taylor and Francis Group, Boca Raton, London, New York. P346. ISBN 9781774917480.
- Bhargava B, **Kumar P** and Verma V. 2024. *Ornamental Horticulture: Latest Cultivation Practices and Breeding Technologies (1st ed)*. Springer Nature, Singapore. P333. ISBN 9789819740277.
- **Kumar P** and Negi S. 2022. *Agri-Biotech: One Liner Question Bank (1st ed)*. Jaya Publisher, New Delhi, India. p99. ISBN 9789392851551.
- **Kumar P**, Warghat AR, Partap M and Sharma R. 2022. *Plant Biotechnology Research Analysis -A Practical Handbook for Beginners (1st ed)*. Jaya Publisher, New Delhi, India. p151. ISBN 9789392851605.
- **Kumar P** and Thakur AK. 2021. *Crop Improvement: Biotechnological Advances (1st ed)*. CRC Press, Taylor and Francis Group, Boca Raton, London, New York. p254. ISBN 9780367567095.
- Srivastava DK, Thakur AK and **Kumar P.** 2021. *Agricultural Biotechnology: Latest Research and Trends (1st ed)*. Springer Nature, Singapore. p726. ISBN 9789811623387.

## Awards & Recognitions

- Primer Minister Early Career Research Grant (PM-ECRG) 2026, ANRF, New Delhi, GOI
- Young Scientists Fellowship Award-2021, Department of Health Research, ICMR-New Delhi, GOI
- Scientist's Pool Scheme Award-2020, CSIR-HRDG-Senior Research Associateship, CSIR, New Delhi, GOI
- International Fellowship Award-2019, The Volcani Center, Dept. of Ornamental Horticulture Agricultural Biotechnology, State of Israel/Ministry of Agriculture, Agricultural Research Organization, Israel
- SERB-ACS-NPDF Best Poster Award-2022, Poster Competition 2022 in the biological science category, SERB, New Delhi, GOI
- Excellence in Research Award-2019 by Agro-Environmental Development Society, India
- Certificate of Appreciation (2023), in recognition of service as a member of the Editorial Board of *Vegetos: An International Journal of Plant Research & Biotechnology* (Springer)
- University Letter of Appreciation (2023) for developing molecular diagnostic kits for the identification and quantification of *Trichoderma atroviride* and *Trichoderma longibrachiatum* in collaboration with the Department of Plant Pathology and the ICAR-Central Potato Research Institute, Shimla
- Young Scientist Award (Biotechnology)-2018 by Society for Plant Research, India
- Award of DST Young scientist Scheme-2017, SERB-National Post-Doctoral Fellowship, SERB, New Delhi, GOI
- Award of Merit Certificate (2016) for Securing First Rank/position achieving highest OGPA in Ph.D. Molecular Biology and Biotechnology
- Award of ICAR AICE-SRF (PGS)-2014, ICAR, New Delhi, GOI
- ICAR ASRB National Eligibility Test (NET) Award -2013, ASRB, New Delhi
- DST INSPIRE Junior/Senior Research Fellowship Award-2013, DST, GOI
- Award of Merit Certificate (2012) for Overall First in Post-Graduation (Academic Batch, 2010-2012)
- Awarded with Medal and merit certificate (2010) for securing top position in B.Sc. Degree Program
- Best Poster and Oral presentation awards in National and International conferences
- Editorial and Reviewer Recognition Award by Elsevier, CRC Taylor& Francis, Wiley and Springer Publishers