



Dr. Vikas

Associate Professor (Agriculture)

University Institute of Sciences

Expertise: Morpho-molecular Diversity, Cytogenetics, Breeding, Conservation

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Career

- **Associate Professor**, Sant Baba Bhag Singh University Jalandhar (2021-Present)
- **Assistant Professor**, Sant Baba Bhag Singh University Jalandhar (2018-2021)
- **Assistant Professor**, DAV University Jalandhar (2017-2018)
- **DST-SERB National Post Doctoral Fellow (NPDF)** Punjabi University Patiala (2016-2017)
- **UGC-Dr.DSK Post Doctoral Fellow (DSK PDF)** Punjabi University Patiala (2014-2016)
- **Research Associate (RA)** CSK HP Agriculture University Palampur (2012-2014)

Fellowships/ Awards/ Honours/ Professional Recognitions

- **INSA Visiting Scientist Fellowship 2022.**
- Qualified Graduate Aptitude Test in Engineering (**GATE- Life Sciences**) in 2007.
- Qualified **ARS-NET** in Agricultural Biotechnology in 2015.
- Awarded Senior Research Fellowship (**SRF-Direct**) by Council of Scientific and Industrial Research (**CSIR**) in 2009.
- **DST International Travel Support (ITS) Award** to attend “Plant & Animal Genome Conference XXI” held from 12th -16th January 2013 at San Diego, California USA.
- **UGC-Dr. DS Kothari postdoctoral Fellowship**, May 2014. Awarded by University Grant Commission (UGC), Government of India.
- **DST-SERB National-Post-Doctoral Fellowship (N-PDF)**, March 2016.
- Awarded **Summer Research Fellowship for teachers at Indian Institute of Science Bangalore** by INSA, New Delhi in Feb. 2018.
- **Academic Editor** - PLoS One (Journal with impact factor 2.7) from 2020
- **Associate Editor** – Gene (Elsevier Journal with impact factor 3.6) from 2022
- **Associate Editor-Frontiers in Microbiotechnology** from 2022
- **Review Editor- Plant genomics (Frontiers series)** from 2022
- **Editorial Board Member** – Molecular Biology Reports (Springer Journal with impact factor 2.3) from 2022
- **Editorial Board Member** – Journal of Eco Science and Technology from 2022
- **Served as Editorial Board Member** of Current Agriculture Research Journal (NAAS rating 4.71)

Research Area

My research interests revolve around DNA/ gene/ chromosomal polymorphisms in the genome. My group is attempting to determine and capture these polymorphisms in two main domains i.e. a) In perennial medicinal plants for the genetic structure elucidation, population dynamics and possible enhanced beneficial utilization and b) In annual agricultural crops for the identification of key genes and improvement through molecular breeding approaches.

Group members



Mr. Pitamber Dutt Sharma

M.Sc., B.Ed., NET, GATE

Ultrastructural and genetic diversity analysis in *Polygonatum verticillatum*

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Mr. Rakesh Kumar

M.Sc., M.Phil., GATE

DNA Marker Development, Ultrastructural and genetic diversity studies in *Viola* species

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Mrs. Priyanka Thakur

M.Sc., M.Phil., CSIR-JRF

DNA Marker development, genetic diversity & phytochemical analysis in *Bauhinia Variegata*

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Ms. Diksha Chaudhary

M.Sc., ARS-NET, GATE

DNA Marker Development, genetic diversity & phytochemical analysis in *Justicia adhatoda*

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Mrs. Neha

M. Sc. Botany

Ultrastructural, Genetic & phytochemical analysis in *Tribulus terrestris*

Email: neharodmaratha@gmail.com

Publications (Research articles)

1. Rakesh Kumar, Sudesh Kumar, **Vikas Sharma** (2021) Traditional uses of Ethnomedicinal trees of Tehsil Lohai Malhar, Jammu and Kashmir Union Territory, India. **Indian Forester**, 147 (7): 627-631
2. Rakesh Kumar, **Vikas Sharma**, Sudesh Kumar (2020) Ethnobotanical study of herbal medicinal plants of Billawar region, Jammu and Kashmir, India. **International Journal of Botany Studies**, 5(5): 3
3. Rahul Kumar, Sumeet Parkash Kaundal, **Vikas Sharma**, Ashutosh Sharma, Gagandeep Singh, Ram Kumar Sharma, Rakesh Kumar Chahota, Tilak Raj Sharma (2020) Development of transcriptome-wide SSR markers for genetic diversity and structure analysis in *Macrotyloma uniflorum* (Lam.) Verdc. **Physiology and Molecular Biology of Plants**
4. Manish Kapoor, Pooja Mawal, **Vikas Sharma**, RC Gupta (2020) Analysis of genetic diversity and population structure in *Asparagus* species using SSR markers. **Journal of Genetic Engineering and Biotechnology**, 18: 50
5. RK Chahota, **Vikas Sharma**, Maneet Rana, R Sharma, S Choudhary, TR Sharma, Shirasawa K, Hirakawa H, Isobe SN (2020) Construction of a framework linkage map and genetic dissection of drought- and yield-related QTLs in horsegram (*Macrotyloma uniflorum*). **Euphytica**, 216, Article number: 61
6. Sharma H, Kumar P, Singh A, Aggarwal K, Roy J, **Sharma V**, Rawat S (2020) Development of polymorphic EST-SSR markers and their applicability in genetic diversity evaluation in *Rhododendron arboreum*. **Molecular Biology Reports**. <http://doi.org/10.1007/s11033-020-05300-1>
7. Abhishek Bhandawat, **Vikas Sharma**, Pradeep Singh, Romit Seth, Akshay Nag, Jagdeep Kaur, Ram Kumar Sharma (2019) Discovery and utilization of EST-SSR marker resource for genetic diversity and population structure analyses of a subtropical bamboo, *Dendrocalamus hamiltonii*. **Biochemical Genetics** (Accepted).
8. Kuldeep Jayaswall, Himanshu Sharma, Bhandawat A, Sagar R, VK Yadav, **Vikas Sharma**, Mahajan V, Rot J, Singh M (2019) Development of intron length polymorphic (ILP) markers in onion (*Allium cepa* L.), and their cross-species transferability in garlic (*A. sativum* L.) and wild relatives. **Genet Resour Crop Evol**, <https://doi.org/10.1007/s10722-019-00808-3>
9. PD Sharma, **Vikas Sharma** (2019) Morphological evaluation of *Polygonatum* species from north-western himalayas. **Int J Scient Res Rev**. 7; 472-476

10. Saleem Wani, R.C. Gupta, A.H. Munshi, **Vikas Sharma*** (2018) Genetic diversity and structure of *Betula utilis* accessions of North-western Himalaya based on RAPD and ISSR markers. *The Nucleus* (Accepted)
11. Vijay Kataria, R.C. Gupta, **Vikas Sharma**, Kusum Sharma, ManjulShjarma, Kuljit Kaur (2018) Male Meiotic Studies in 29 Species of Lamiaceae from Sirmaur District of Himachal Pradesh. *Cytologia* (Accepted)
12. Mohammad SaleemWani, Raghbir Chand Gupta, Abid Husain Munshi, **Vikas Sharma*** (2018). Development and Characterization of SSR markers in Himalayan tree species *Betula utilis* D. Don. *Journal of Forestry Research* (Accepted)
13. Rakesh Kumar Chahota, Divya Shikha, Maneet Rana, **Vikas Sharma**, Akshay Nag, Tilak Raj Sharma, Jai Chand Rana, Hideki Hiakawa, Sachiko Isobe (2017). Development and characterisation of SSR markers to study genetic diversity and population structure of horsegram germplasm (*Macrotyloma uniflorum*). *Plant Molecular Biology Reporter* DOI 10.1007/s11105-017-1045-z
14. Rahul Kaldate, ManeetRana, **Vikas Sharma**, Hideki Hirakawa, Rahul Kumar, Gagandeep Singh, Rakesh Kumar Chahota, Sachiko N Isobe, Tilak Raj Sharma (2017). Development of Genome-wide SSR Markers in Horsegram and Their Utilization for Genetic Diversity and Cross-transferability Analysis. *Molecular Breeding* 37:103, DOI 10.1007/s11032-017-0701-1
15. Raghbir Chand Gupta, Vijay Singh, Santosh Bala, Riyaz Ahmad Malik, **Vikas Sharma**, Kuljit Kaur (2017). Cytomorphological variations and new reports of B-chromosomes in the genus *Plantago* L. (Plantaginaceae) from the Northwest Himalaya. *Flora* <https://doi.org/10.1016/j.flora.2017.06.009>
16. **Vikas Sharma***, Mohammad Saleem Wani, Vijay Singh, Kuljit Kaur, Raghbir Chand Gupta (2017) Development and Characterization of Novel Microsatellite Markers in *Trillium govanianum*- a Threatened Plant Species from North-Western Himalaya. *3Biotech* 7:190
17. Arpana Patial, Satish Paul, **Vikas Sharma*** (2017) Genetic diversity analysis using RAPD and ISSR markers revealed discrete genetic makeup in relation to fiber and oil content in *Linum usitatissimum* L. genotypes. *The Nucleus* DOI:10.1007/s13237-017- 0206-7
18. Rakesh Kumar Chahota, **Vikas Sharma**, Minerva Ghani, Tilak Raj Sharma, Jai Chand Rana, Shyam Kumar Sharma (2017) Genetic and phytochemical diversity analysis in

Bunium persicum populations of northwestern Himalaya. *Physiology and Molecular Biology of Plants* DOI: 10.1007/s122298-017-0428-9

19. Priyanka Mohan Koul, **Vikas Sharma**, Maneet Rana, Rakesh K Chahota, Shiv Kumar, Tilak Raj Sharma (2017) Genetic Structure and Interrelationships in Lentil Species Using Morphological and SSR Markers. *3Biotech* 7:83
20. JC Rana, ManeetRana, **Vikas Sharma**, Akshay Nag, RK Chahota, TR Sharma (2016) Genetic Diversity and Structure of Pea (*Pisum sativum* L.) Germplasm Based on Morphological and SSR Markers. *Plant Molecular Biology Reporter* DOI: 10.1007/s11105-016-1006-y
21. ShagoonTabin, AzraNahaidKamili, Showkat Ahmad Ganie, OvaisZargar, **Vikas Sharma***, Raghbir Chand Gupta (2016) Genetic diversity and populationstructure of Rheum species in Kashmir Himalayas based on ISSR markers. *Flora* 223: 121-128.
22. Kuljit Kaur, **Vikas Sharma***, Vijay Singh, Mohammad SaleemWani, Raghbir Chand Gupta (2016) Development of novel SSR markers for evaluation of genetic diversity and population structure in *Tribulusterrestris* L. (Zygophyllaceae). *3Biotech* 6:156
23. Mamta Gupta, **Vikas Sharma**, Sunil K Singh, RK Chahota, TR Sharma (2016) Analysis of genetic diversity and structure in a genebank collection of red clover(*Trifolium pretense* L.) using SSR markers. *Plant Genetic Resources: Characterization and Utilization*
24. **Vikas Sharma**, ManeetRana, MeghaKatoch, Pawan K Sharma, Minerva Ghani,Jai C Rana,Tilak R Sharma, Rakesh K Chahota (2015) Development of SSR and ILP markers in horsegram (*Macrotyloma uniflorum*), their characterization, cross- transferability and relevance for mapping. *Molecular Breeding* (DOI 10.1007/s11032- 015-0297-2)
25. **Vikas Sharma**, Tilak R Sharma, Jai C Rana and Rakesh K Chahota (2015)Analysis of genetic diversity and population structure in horsegram (*Macrotyloma uniflorum*) usingRAPD and ISSR markers. *AgriculturalResearch* 4(3): 221-230
26. Jai C Rana, Rakesh K Chahota, **Vikas Sharma**, ManeetRana, NidhiVerma, BhawnaVerma, Tilak R Sharma (2015) Genetic diversity and structure of Pyrus accessions of Indian Himalayan region based on morphological and SSR markers. *TreeGenetics & Genomes*. Article ID 821
27. Shilpa Sharma, **Vikas Sharma**, MeenuChhabra, Rajeev Rathour, Kamal D Sharma, Rakesh K Kapila (2014) Characterization of novel polymorphic microsatellite markers in *Dactylorhizahatagirea*: a critically endangered orchid species from western Himalayas. *Conservation Genetics Resources*. DOI 10.1007/s12686-014-0361-y

28. Ram K Sharma, Anil Chaudhary, Himanshu Sharma, Pankaj Bhardwaj, **Vikas Sharma**, Rahul Kumar, Paramveer S Ahuja (2014) Identification and cross-species amplification of microsatellite markers derived from expressed sequence data of rose species. *Journal of Plant Biochemistry and Biotechnology*. DOI 10.1007/s13562-014-0287-1
29. Abhishek Bhandawat, **Vikas Sharma**, Himanshu Sharma, Anil Sood, Ram Kumar Sharma (2014) Development and cross transferability of functionally relevant microsatellite markers in *D. latiflorus* and related bamboo species *Journal of Genetics*. DOI 10.1007/s12041-014-0377-9
30. Akshay Nag, Priyanka Gupta, **Vikas Sharma**, Anil Sood, Paramvir Singh Ahuja, and Ram Kumar Sharma (2013) AFLP and RAPD based genetic diversity assessment of industrially important reed bamboo (*Ochlandra travancorica* Benth). *Journal of Plant Biochemistry and Biotechnology*. DOI 10.1007/s 13562-012-0114-5
31. SN Raina, PS Ahuja, RK Sharma, SC Das, P Bhardwaj, R Negi, **Vikas Sharma** et al. (2012) Genetic structure and diversity of India hybrid tea *Genetic Resources and Crop Evolution*. DOI 10.1007/s10722-011-9782-6
32. Rupali Mehta, **Vikas Sharma**, Anil Sood, Madhu Sharma, Ram Kumar Sharma (2011) Induction of somatic embryogenesis and analysis of genetic fidelity of in vitro-derived plantlets of *Bambusa nutans* Wall., using AFLP markers. *European Journal of Forest Research* 130:729–736
33. Himanshu Sharma, Rahul Kumar, **Vikas Sharma**, Vishal Kumar, Pankaj Bhardwaj, Paramvir Singh Ahuja, and Ram Kumar Sharma (2011) Identification and cross-species transferability of 112 novel unigene-derived microsatellite markers in tea (*Camellia sinensis*) *American Journal of Botany*. 98:e133-e138
34. Samson Machohi Kamunya, Francis Nyamu Wachira, Ram S. Pathak, Robert Korir, **Vikas Sharma**, Rahul Kumar, Pankaj Bhardwaj, Rechar Chalo, Paramvir Singh Ahuja, Ram Kumar Sharma (2010) Genomic mapping and testing for quantitative trait loci in Tea (*Camellia sinensis* (L.) O. Kuntze). *Tree Genetics & Genomes*. 6:915–929
35. **Vikas Sharma**, Pankaj Bhardwaj, Rahul Kumar, Ram Kumar Sharma, Anil Sood, Paramvir Singh Ahuja (2009) Identification and cross-species amplification of EST derived SSR markers in different bamboo species. *Conservation Genetics*. 10; 3: 721- 724
36. SM Kamunya, FN Wachira, RS Pathak, RK Sharma, R Korir, T Kinyangi, J Kiplang'at, **V Sharma**, R Chalo and PS Ahuja (2009) Genetic mapping and

identification of quantitative trait loci for yield and drought tolerance in tea (*Camellia sinensis* (L.) O. Kuntze). *Tea* 30(1):19-41

37. Ram Kumar Sharma, Priyanka Gupta, **Vikas Sharma**, Anil Sood, Trilochan Mohapatra, Paramvir Singh Ahuja (2008) Evaluation of rice and sugarcane SSR markers for phylogenetic and genetic diversity analyses in bamboo. *Genome* 51:91–103

Publications (Book Chapters)

1. *Swertia Chirayita* (2021) Singh V, Jrayan V, Sharma V, Sharma H, Sharma I, Sharma V Himalayan medicinal Plants, Advances in Botany, Production & research Academic Press Edited by Nikhil Malhotra and Mohar Singh.
2. *Trillium govanianum* (2021) Kumar V, Singh P, Singh PK, Rahim MS, Sharma V, Roy JK, Sharma H Himalayan medicinal Plants, Advances in Botany, Production & research Academic Press Edited by Nikhil Malhotra and Mohar Singh.
3. Mishra A, Singh PK, Bhandawat A, Sharma V, Sharma V, Singh P, Roy J, Sharma H, *Analysis of SSR and SNP markers*, Bioinformatics: Methods and Applications (2022). Academic Press UK.
4. Sharma A, Sharma P, Chaudhary R, Sharma V, Bhardwaj R, Sharma I (2021) Role of reactive oxygen species in the regulation of abiotic stress in legumes. Abiotic Stress and Legumes edition by Singh V, Singh S, Tripathi D, Prasad s, Bhardwaj R, Chauhan D. Academic Press.

Served as Reviwer for Journals

1. **Genomics** (Elsevier)
2. **Pharmacological Research** (Elsevier)
3. **Frontiers in Pharmacology**
4. **Frontiers in Microbiology**
5. **Scientific Reports** (Nature Publishing Group)
6. **BMC Plant Biology**
7. BMC Genomics
8. **PLoS ONE**
9. **Plant Cell Reports** (Springer)
10. **Journal of Ethnopharmacology** (Elsevier)
11. **Chemico-Biological Interactions** (Elsevier)
12. **Gene** (Elsevier)
13. **Chemical and Biological Technologies in Agriculture** (Springer)
14. **Regulatory Toxicology and Pharmacology** (Elsevier)
15. **Molecular Biology Reports** (Springer)
16. **Heliyon** (Cell press)
17. **Genetic Resources and Crop Evolution** (Springer)
18. **3Biotech** (Springer)

19. **Plant Genetic Resources** (Cambridge Publishing House)
20. **Journal of Hydrology: Regional Studies** (Elsevier)
21. **Journal of Herbs Spices & Medicinal Plants** (Taylor & Francis)
22. **Crop Breeding and Applied Biotechnology** (Brazilian Association of Plant Breeding)
23. **Journal of Horticultural Science & Biotechnology** (Taylor & Francis)
24. **Journal of Integrative Agriculture** (Elsevier)
25. **Evidence-Based Complementary and Alternative Medicine** (Hindawi)
26. **Journal of chromatographic science** (Oxford University Press)
27. **Cytologia** (The Japan Mendel Society)
28. **JPC - Journal of Planar Chromatography - Modern TLC** (Springer)
29. **Journal of Genetic Engineering and Biotechnology** (Springer)
30. **Journal of Genetics & Genomic Sciences** (Herald ScholarlyOpen Access)
31. **Molecular Plant Breeding** (BioPublisher, British Columbia of Canada)
32. **Australian Journal of Crop Science** (Southern Cross Publishing- Australia)
33. **African Journal of Biotechnology** (Academic Journals)
34. **Agronomy Journal** (Wiley Online Library)
35. **Current Agriculture Research Journal** (PAU Ludhiana, India)
36. **Advances in Traditional Medicine** (Springer)
37. **World Journal of Pharmaceutical Sciences**
38. **Agronomy Research** (Estonian University of Life Sciences, Estonia)
39. **Plant Omics** (Southern Cross Publishing Australia)
40. **Open Journal of Animal Sciences** (Scientific Rsearch Publishing)
41. **Asian Journal of Pharmacy and Pharmacognosy**
42. **Indian Journal Of Traditional Knowledge** (NISCAIR, India)
43. **Journal of Taibah University for Science** (Taylor & Francis)
44. **Current Pharmaceutical Biotechnology** (Bentham Science Publishing)
45. **Plant Science Today** (Horizon e-Publishing Group)
46. **The Nucleus** (Springer)
47. **Ecological Genetics and Genomics** (Elsevier)

Google Scholar profile

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<u>Citations</u>	699	484
<u>h-index</u>	15	15
<u>i10-index</u>	21	21

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Research gate profile link:

<https://www.researchgate.net/profile/Vikas-Sharma-55>