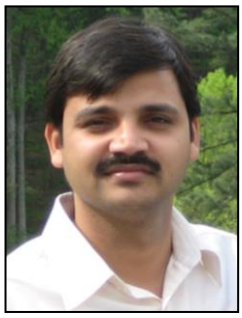
short C. V._Bhupendra



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Academic Training

Ph.D. (Genetics), University of Delhi South Campus, New Delhi, 2006
(***Thesis Supervisor* - Prof. Deepak Pental, UDSC, New Delhi**)

M.Phil. (Botany), University of Delhi, Delhi, 1999

Academic Positions

2023 onwards : Associate Professor, School of Life Sciences
Jawaharlal Nehru University, New Delhi

2009 – 2023 : Assistant Professor of Biotechnology, Gautam Buddha University
Greater Noida, U.P.

2007- 2008 : DBT Visiting Associate, Department of EEOB
Iowa State University, USA

2005 - 2009 : Lecturer of Botany, Visva-Bharati (Central) University
Santiniketan, W.B.

Research Area

- Plant Genomics and Biotechnology

Research Publications

1. Arora, S., Singh, A.K. and **Chaudhary, B.** (2023). Coordination of floral and fiber development in cotton (*Gossypium*) by hormone- and flavonoid-signalling associated regulatory miRNAs. **Plant Molecular Biology** DOI: 10.1007/s11103-023-01341-9.

2. Singh, K., Arora, S., Khuman, A., Aggarwal, A., Kumar, V., **Chaudhary, B.** (2022). Comparative phylogenomic analysis of 5'cis-regulatory elements (CREs) of miR160 gene family in diploid and allopolyploid cotton (*Gossypium*). **Gene Reports 30:**101721

3. **Chaudhary, B.** and Kumar, V. (2022) Emerging technological frameworks for the sustainable agriculture and environmental management. ***Sustainable Horizons* 3**: 100026

4. Aggarwal, A., Arora, S., Khuman, A., Singh, K., Kumar, V., **Chaudhary, B.** (2022) Comparative evolutionary dynamics of the 5'cis-regulatory elements (CREs) of miR167 genes in diploid and allopolyploid cotton species. ***Plant Gene* 32**: 100380

5. Khuman, A., Kumar, V., and **Chaudhary, B.** (2022). Evolutionary expansion and expression dynamics of cytokinin-catabolizing CKX gene family in the modern amphidiploid mustard (*Brassica* sp.). ***3 Biotech*** **12**(9):233. doi: 10.1007/s13205-022-03294-0

6. Pandey, D.K., Kumar, V. and **Chaudhary, B.** (2022). Concomitant expression evolution of cell wall cytoskeletal geneic triad(s) controls floral organ shape and fiber emergence in cotton (*Gossypium*). ***Frontiers in Plant Science*** doi.org/10.3389/fpls.2022.900521

7. Pandey, D.K., **Chaudhary, B.** (2021). Transcriptional loss of domestication-driven cytoskeletal GhPRF1 gene causes defective floral and fiber development in cotton (Gossypium**). *Plant Molecular Biology*** **107**(6):519-532 (*highlighted on Journal's cover page*)

8. Arora, S., and **Chaudhary, B.** (2021). Global expression dynamics and miRNA evolution profile govern foral/fber architecture in the modern cotton (Gossypium). ***Planta*** **254**:62

9. Makkar, H., Arora, S., Khuman A.K., and **Chaudhary, B.** (2021). Target-mimicry based miR167-diminution confers salt stress tolerance during in vitro organogenesis of tobacco (*Nicotiana tabacum* L. cv. Xanthi). ***Journal Plant Growth Regulation*** **41**:1462–1480

10. Pandey D.K. and **Chaudhary, B.** (2020). Evolution of functional diversity among actin-binding profilin genes in land plants. ***Frontiers in Cell and Developmental Biology****,* **8**:588689

11. Arora, S., Singh, A.K. and **Chaudhary, B.** (2020). Target-mimicry based miRNA167-diminution ameliorates cotton somatic embryogenesis *via* transcriptional biases of auxin signaling associated miRNAs and genes. ***Plant Cell, Tissue and Organ Culture*** **141**:511–531

12. Yadav, S.K., Santosh Kumar, V.V., Verma, R.K., Yadav, P., Sariha, A., Wankhede, D.P., **Chaudhary, B.** and Chinnusammy, V. (2020). Genome-wide identification and characterization of ABA receptor PYL gene family in rice. ***BMC Genomics*** **21**: 676.

13. Khuman A., Arora S., Makkar H., Patel A. and **Chaudhary B.** (2020) Extensive intragenic divergences amongst ancient WRKY transcription factor gene family is largely associated with their functional diversity in plants. ***Plant Gene*** **22**:100222

14. Upadhyay, A.K., Arora, S., Pandey, D. K. and **Chaudhary, B.** (2019) Interspersed 5'cis-regulatory elements ascertain the spatio-temporal transcription of cytoskeletal profilin gene family in *Arabidopsis*. **Computational Biology and Chemistry** 80:177-186

15. Jain KK, Kumar A, Shankar A, Pandey D, **Chaudhary B**, Sharma KK (2019). De novo transcriptome assembly and protein profiling of copper-induced lignocellulolytic fungus *Ganoderma lucidum* MDU-7 reveals genes involved in lignocellulose degradation and terpenoid biosynthetic pathways. ***Genomics***. 112(1):184-198

16. Pandey, D. K. and **Chaudhary, B.** (2019) Synchronous transcription of cytoskeleton-associated genes is critical to cotton fiber elongation. ***J Plant Growth Regulation*** **38**, pages1037–1061

17. Arora S, Pandey DK, **Chaudhary B.** (2019) Target-mimicry based diminution of miRNA167 reinforced flowering-time phenotypes in tobacco via spatial-transcriptional biases of flowering-associated miRNAs. ***Gene*** 682: 67-80

18. **Chaudhary, B.**, Singh, N., and Pandey, D. K. (2018) Bioengineering of crop plants for improved tetrahydrofolate production. ***Bioengineered*** doi.org/10.1080/21655979.2017

19. Pandey, D. K. and **Chaudhary, B.** (2017) Evolutionary expansion and structural functionalism of the ancient family of profilin proteins. ***Gene*** 626: 70-86

20. Pandey, D. K., Kumar, A., Rathore, J.S., Singh, N., and **Chaudhary, B.** (2017) Recombinant overexpression of dihydroneopterin aldolase catalyst potentially regulates folate-biofortification. ***J Basic Microbiology*** 9999:1-8

21. Pandey, D. K. and **Chaudhary, B.** (2016) A botanist's cognitive view on plant growth: cross-talk between developmental and sensitivity networks. ***American Journal of Plant Sciences*** 7: 2307-2322

22. Pandey, D. K. and **Chaudhary, B.** (2016) Domestication-driven *Gossypium* profilin 1 (*GhPRF1*) gene transduces early flowering phenotype in tobacco by spatial alteration of apical/floral-meristem related gene expression. ***BMC Plant Biology*** 16: 1-21

23. Pandey, D. K. and **Chaudhary, B.** (2014) Role of Plant Somatic Embryogenesis Receptor Kinases (SERKs) in Cell-to-Embryo Transitional Activity: Key at Novel Assorted Structural Subunits. ***American Journal of Plant Sciences*** 5: 3177-3193

24. **Chaudhary, B.**, Chattopadhyay, P. and Banerjee, N. (2014). Modulations in seed micromorphology reveal signature of adaptive species-diversification in *Dendrobium* (Orchidaceae). ***Open Journal of Ecology*** 2:33-42

25. Pandey, D. K. and **Chaudhary, B.** (2014) Oxidative stress responsive SERK1 gene directs the progression of somatic embryogenesis in cotton (*Gossypium hirsutum* L. cv. Coker 310). ***American Journal of Plant Sciences*** 5:80-102

26. **Chaudhary, B.** (2013). Plant Domestication and Resistance to Herbivory. ***International Journal of Plant Genomics*** doi.org/10.1155/2013/572784

27. Pandey, D. K., Singh, A.K. and **Chaudhary, B.** (2012) Boron-mediated Plant Somatic Embryogenesis: A provocative model. ***Journal of Botany*** doi :10.1155/2012/375829

28. **Chaudhary, B.**, Chattopadhyay, P., Verma, N. and Banerjee, N. (2012). Understanding the phylomorphological implications of pollinia from *Dendrobium* (Orchidaceae). ***American Journal of Plant Sciences*** 3: 816-828

29. Chattopadhyay, P., Banerjee, N. and **Chaudhary, B.** (2012). Genetic characterization of selected medicinal *Dendrobium* (Orchidaceae) species using molecular markers. ***Research Journal of Biology*** 2:117-125

30. Rawat, P., Singh, A.K., Ray, K., **Chaudhary, B.**, Kumar, S., Gautam, T., Kanoria, S.,Kaur, G., Kumar, P., Pental, D. and Burma, P.K. (2011). Detrimental effect of expression of *Bt* endotoxin Cry1Ac on *in vitro* regeneration, *in vivo* growth and development of tobacco and cotton transgenics. ***Journal of Biosciences*** 36(2): 363–376

31. Chattopadhyay, P., Banerjee, N. and **Chaudhary, B.** (2010). Precise seed micromorphometric markers as a tool for comparative phylogeny of *Dendrobium* (Orchidaceae). ***Floriculture and Ornamental Biotechnology*** 4:36-44

32. **Chaudhary, B.**, Hovav, R., Flagel, L., Mittler, R. and Wendel, J.F. (2009). Parallel evolution of oxidative stress-related genes in fiber from wild and domesticated diploid and polyploid cotton (*Gossypium*). ***BMC Genomics*** 10:378

33. **Chaudhary,B.**, Flagel, L., Stupar M. R., Udall, J.A., Verma, N., Springer, N.M. and Wendel, J.F. (2009). Reciprocal silencing, transcriptional bias and functional divergence of homoeologs in polyploid cotton (*Gossypium*). ***Genetics*** *182:503-517*

34. Flagel L., Liping C., **Chaudhary B.** and Wendel J.F. (2009). Coordinated and fine-scale control of homoeologous gene expression in allotetraploid cotton. ***Journal of Heredity*** 100(4) :487-490

35. **Chaudhary, B.**, Hovav, R., Rapp, R., Verma, N., Udall, J.A. and Wendel, J.F. (2008). Global analysis of gene expression in cotton fibers from wild and domesticated *Gossypium barbadense.* ***Evolution and Development*** 10(5) :567-582

36. Hovav*, R., **Chaudhary*, B.**, Udall, J.A., Flagel, L. and Wendel, J.F. (2008). Parallel domestication, convergent evolution and duplicated gene recruitment in allopolyploid cotton. ***Genetics*** 179:1725-1733 (***equal contribution**)

37. Hovav, R., Udall, J. A., **Chaudhary, B.**, Rapp,R., Flagel, L. and Wendel, J.F. (2008). Partitioned expression of duplicated genes during development and evolution of a single cell in a polyploid plant. ***Proc. Natl. Acad. Sci. USA*** 105:6191-6195

38. Hovav, R., Udall, J. A., **Chaudhary, B.**, Hovav, E., Flagel, L., Hu, G. and Wendel, J. F. (2008). The evolution of spinable cotton fiber entailed natural selection for prolonged development and a novel metabolism. ***PLoS* Genetics** 7:e25

39. Kumar S., Birah A., **Chaudhary B.**, Burma P.K., Gupta G.P. and Pental D. (2005). Plant codon optimized cry genes of *Bacillus thuringiensis* can be expressed as soluble proteins in E. coli BL21 Codon Plus strain as NusA-Cry protein fusions. ***Journal Invertebrate Pathology*** 88: 83-86

40. **Chaudhary B.**, Kumar S., Prasad K.V.S.K., Oinam G.S., Burma P.K. and Pental D. (2003). Slow desiccation leads to high frequency shoot recovery from transformed somatic embryos of cotton (*Gossypium hirsutum* L. cv. Coker 310 FR). ***Plant Cell Reports*** 21: 955-960

Book Chapters

1. Pandey, D. K. and **Chaudhary, B.** (2015). Genes and Trans Factors Underlying Embryogenic Transition in Plant Soma Cell, *In* **Advances in the Understanding of Biological Sciences Using Next Generation Sequencing (NGS) Approaches**. (Eds.) Sablok, G., Kumar, S., Ueno, S., Kuo, J., Varotto, C. (Eds.) (155-178), Publisher: Springer International Publishing, Print ISBN:978-3-319-17156-2

2. Verma, N. and **Chaudhary, B.** (2012) Natural History of Modern Cotton Fiber: Elongated Single Fiber Cell with Double Genome Size, *In* **Current Trends in Biotechnology** (Eds.) Tiwari, S.K. & Singh, B. (152-158), Publisher: LAP LAMBERT Academic Publishing; ISBN:978-3-659-15773-8

3. **Chaudhary B.** (2006) Proteomics: Basic Concepts and Application, *In* **Biodiversity and Biotechnology** (Eds.) S. Ray and A.K. Ray Publisher: New Central Book Agency (P) Ltd, Kolkatta, India, ISBN: 81-7381-505-4

Patents (filed & published)

1. **Chaudhary, B.,** and Arora S. (2022) Method of Phenotypic Regulation of Somatic Embryogenesis and Plant Development In Cotton. India Patent Application No. 202211026119, 5th May 2022

2. **Chaudhary, B.,** Arora S. and Pandey, D. K. (2018) Method of plant phenotype alteration via target-mimicry based diminution of miRNA167. India Patent Application No. 201811032478 A, 30 August 2018 (Page-33427; Date of Publication- 07/09/2018; https://search.ipindia.gov.in/IPOJournal/Journal/Patent).

3. **Chaudhary, B.** and Pandey, D. K. (2017) Bioengineering of Cotton for Increased Floral Inception and Fiber Initiation. India Patent Application No. 201711026325 A, 04 August 2017 (Page- 25580; Date of Publication- 04/08/2017; https://search.ipindia.gov.in/IPOJournal/Journal/Patent).

4. **Chaudhary, B.** and Pandey, D. K. (2017) Method for enhanced tetrahydrofolate production by deregulation of allosteric inhibition of dihydroneopterin aldolase (DHNA). India Patent Application No.201711000033 A, 05 January 2017 (Page-610; Date of Publication- 13/01/2017; https://search.ipindia.gov.in/IPOJournal/Journal/Patent).

5. **Chaudhary, B.** and Pandey, D. K. (2016) Methods of Producing Early Flowering and Enhanced Agronomic Traits in Plants. India Patent Application No.201611036458 A, 28 October 2016 (Page-71959; Date of Publication- 28/10/2016; https://search.ipindia.gov.in/IPOJournal/Journal/Patent)

Sanctioned Extramural Research Grants (as PI)

1. CSIR sponsored research project titled "**Development of Pure Lines of Indian Cotton Cultivar(s) for the Trait of *In Vitro* Regeneration**" (2018-2021)

2. SERB-DST sponsored research project titled "**Root-Specific Reduction of Cytokinin for Enhanced Root Growth and Drought Tolerance in oilseed mustard (*Brassica juncea* L. cv. Varuna)"** (2017-2020)

3. DBT sponsored research project titled "**Target Mimicry-Based Silencing of microRNA167 Gene Family Targeting Auxin Response Factors (ARFs)' Gene Expression During Cotton Fiber Development"** (2015-2018)

4. CSIR sponsored research project titled "**Introgression of Regeneration Character into Elite Indian Cotton Cultivars**" (2012-2016)

5. DBT sponsored research project titled "**Spatiotemporal Manipulation of Profilin Gene Family in Cotton Fiber Cells for Increased Yield and Quality"** (2012-2015)

6. DST sponsored research project on "**Genetics of *In vitro* regeneration through somatic embryogenesis in cotton (*Gossypium hirsutum* L. cv. Coker 310)**" under Fast Track Scheme for Young Scientist. (2010-2013)

7. CSIR sponsored research project titled "**Assessment of genetic diversity at inter- and intra-specific levels of the genus *Dendrobium* (Orchidaceae) through micro- morphological characters and molecular markers**". (2007-2010)

Other Sponsored Projects at GBU

1. Program Coordinator : ***PG-Teaching Programme (M.Sc. Biotechnology) through "Graduate Aptitude Test of Biotechnology (GAT-B)***" by Department of Biotechnology, Government of India

2. Program Coordinator : ***Funds for Improvement of S&T infrastructure in Universities & higher educational institutions (FIST)*** by the Department of Science and Technology, Government of India.

Overseas Research Fellowship

Associateship for Specialized Training of Young Scientist in Niche Areas of Biotechnology: 2005-06

Awarded by the Department of Biotechnology, Government of India Award No.BT/IN/BTOA/Niche/2006 Availed during 26th Jan. 2007 - 30th Aug. 2008, Iowa State University USA

Research Supervision

At Doctoral Level :

- Ph.D. Degree awarded – 03 (Dhananjay Pandey, Sakshi Arora, Shashank Kumar)
- Ph.D. in progress – 01 (Anirudh Khuman)

Administrative Responsibilities/Attainments

- **Head of the Department**, School of Biotechnology, Gautam Buddha University, 2016 - 2021
- University Coordinator, Examination, Gautam Buddha University, 2014-2015
- Member, Board of Studies (BoS), School of Biotechnology, Gautam Buddha University
- Member, NAAC Steering Committee, Gautam Buddha University
- Member, IQAC, Gautam Buddha University
- Member, NIRF Committee, Gautam Buddha University
- Member, DSIR Certification Committee, Gautam Buddha University