




Faculty Details proforma for DU Web-site

Title	Prof	First Name	PARAMJIT	Last Name	KHURANA	Photograph
Designation	Professor					
Address	Department of Plant Molecular Biology University of Delhi South Campus Benito Juarez Road, Dhaula Kuan New Delhi -110021 India					
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Educational Qualifications						
Degree					Year	
Ph.D.	University of Delhi				1983	
M.Phil.	University of Delhi				1978	
PG (M.Sc.)	University of Delhi				1977	
UG (B.Sc.)	University of Delhi				1975	
Any other qualification	--					
Career Profile						
<ul style="list-style-type: none"> ➤ Scientist, University of Delhi (DST Unit); 1983-1984 ➤ Lecturer, SGTB Khalsa College, University of Delhi; 1984-1987 ➤ Post-doctoral Fellow, Michigan State University, USA; 1987-1988 ➤ Assistant Professor, University of Delhi; 1988-1990 ➤ Associate Professor, University of Delhi; 1990-1998 ➤ Professor, University of Delhi, 1998 to date ➤ Head, Department of Delhi, 2004-2007 						
Administrative Assignments						
<ul style="list-style-type: none"> ▪ Head of the Department from 2004-2007. ▪ Served on several committees constituted by the University of Delhi, as member of selection committees, Governing body of different colleges. ▪ Member of various Academic Committees and Selection Committees of various universities. ▪ Member of various Advisory Committees or Task Forces of DST, DBT, ICAR, UGC and CSIR. ▪ Member of the Editorial Board of a few Indian Journals. ▪ Reviewed articles for various International and National peer-reviewed journals of repute and 						

also research proposals for various National and International funding agencies.
Areas of Interest / Specialization
<ul style="list-style-type: none"> • Wheat and Seribiotechnology • Plant Biotechnology, Genomics and Bioinformatics • Molecular Mechanisms of Cellular Differentiation in Plants.
Subjects Taught
<ul style="list-style-type: none"> • Conducted undergraduate courses of Plant Molecular Biology, Plant Genetics, Cell Biology and Plant Physiology at S.G.T.B. Khalsa College, University of Delhi (September 1984 to July 1987). • Presently conducting post-graduate courses in Molecular Cell Biology, Special Aspects of Differentiation, Developmental Biology, and Advanced Molecular Biology since October 1988.
Research Guidance
<p><i>List against each head (If applicable)</i></p> <ol style="list-style-type: none"> 1. <i>Supervision of awarded Doctoral Thesis:</i> 19 2. <i>Supervision of Doctoral Thesis, under progress:</i> 05 3. <i>Supervision of awarded M.Phil dissertations:</i> 04 4. <i>Supervision of M.Phil dissertations, under progress:</i> Nil
Publications Profile
<p><i>List against each head (If applicable) (as Illustrated with examples)</i></p> <ol style="list-style-type: none"> 1. <i>Books/Monographs (Authored/Edited)</i> Nil 2. <i>Research papers published in Refereed/Peer Reviewed Journals</i> 3. GHARYAL, P.K., MAHESHWARI, S.C. 1980. Plantlet formation from callus cultures of a legume, <i>Lathyrus sativus</i> cv. L.S.D.-3. <i>Z. Pflanzenphysiol.</i> 100: 359-362. 4. GHARYAL, P.K., MAHESHWARI, S.C. 1981. <i>In vitro</i> differentiation of somatic embryoids in a leguminous tree - <i>Albizzia lebbeck</i> L. <i>Naturwissenschaften</i> 69: 379-380. 5. GHARYAL, P.K., MAHESHWARI, S.C. 1982. <i>In vitro</i> differentiation of plantlets from tissue cultures of <i>Albizzia lebbeck</i> L. <i>Plant Cell, Tissue and Organ Culture</i> 2: 49-53. 6. GHARYAL, P.K., MAHESHWARI, S.C. 1982. Plantlet formation in tissue cultures of the sensitive plant <i>Mimosa pudica</i> L. <i>Z. Pflanzenphysiol.</i> 105: 179-181. 7. GHARYAL, P.K., MAHESHWARI, S.C. 1983. Genetic and physiological influences on differentiation in tissue cultures of a legume, <i>Lathyrus sativus</i>. <i>Theor. Appl. Genet.</i> 66: 123-126. 8. GHARYAL, P.K., RASHID, A., MAHESHWARI, S.C. 1983. Androgenic response from cultured anthers of a leguminous tree, <i>Cassia siamea</i> Lam. <i>Protoplasma</i> 118: 91-93.

9. **GHARYAL, P.K.**, RASHID, A., MAHESHWARI, S.C. 1983. Production of haploid plantlets in anther cultures of *Albizzia lebbeck* L. Plant Cell Reports 2: 308-309.
10. BARON-EPEL., **GHARYAL, P.K.**, SCHINDLER, M. 1988. Pectins as mediators of wall porosity in soybean cells. Planta 175:389-395.
11. **GHARYAL, P.K.**, HO, S.C., WANG, J.L., SCHINDLER, M. 1989. *Bradyrhizobium japonicum* lipopolysaccharide inhibits symplastic communication in soybean (*Glycine max*) cells. J. Biol. Chem. 264:12119-12121.
12. **GHARYAL, P.K.**, MAHESHWARI, S.C. 1989. Differentiation from mature explants in leguminous trees. Plant Cell Reports 8: 550-553.
13. MEINERS, S., **GHARYAL, P.K.**, SCHINDLER, M. 1991. Permeabilization of the plasma membrane and wall of soybean root cells to macromolecules. Planta 184: 443-447.
14. MAHALAKSHMI, A., MAHESHWARI, S.C., **KHURANA, P.** 1993. High frequency divisions in leaf base protoplasts of wheat (*Triticum aestivum* L.). J. Plant. Biochem. Biotech. 2: 61-65.
15. PARIHAR, D.S., MAHESHWARI, S.C., **KHURANA, P.** 1994. Uptake of exogenous DNA by *Brassica napus* dry seed embryos via cellular permeabilization and transient gene expression of NPTII activity. J. Pl. Biochem. Biotech. 3: 107-111.
16. PARIHAR, D.S., MAHESHWARI, S.C., **KHURANA, P.** 1995. High frequency plantlet regeneration via somatic embryogenesis in *Brassica napus*. Plant Cell Tissue and Organ Culture 42: 113-115.
17. BAWEJA, K., KHURANA, J.P., **GHARYAL-KHURANA, P.** 1995. Light regulation of somatic embryogenesis in hypocotyls of *Albizzia lebbeck*. Curr. Sci. 68: 544-546.
18. MAHALAKSHMI, A., **KHURANA, P.** 1995. *Agrobacterium*-mediated transient gene expression in various tissues and genotypes of wheat (*Triticum aestivum* L.). J. Plant Biochem. Biotech. 4: 55-59.
19. MAHALAKSHMI A., **KHURANA, P.** 1997. *Agrobacterium*-mediated Cereal Transformation—A Critical Appraisal. Ind. J. Exp. Biol. 35: 416-426.
20. PARIHAR, D.S., MAHESHWARI, S.C., **KHURANA, P.** 1997. Influence of heat shock and UV irradiation on PEG-mediated DNA uptake and transient expression of *nptII* gene in protoplasts of *Brassica napus*. Ind. J. Exp. Biol. 36: 1002-1006.
21. GANDHI, R., MAHESHWARI, S.C., **KHURANA, P.** 1999. Transient gene expression and influence of promoters on foreign gene expression in *Arabidopsis thaliana*. In Vitro Cell. Develop. Biol. - Plant. 35: 232-237.
22. GANDHI, R., **KHURANA, P.** 1999. Stress-mediated regeneration of mature embryo-derived calli and *Agrobacterium*-mediated gene transfer in *indica* rice. Ind. J. Exp. Biol. 37: 332-339.
23. **KHURANA, P.**, KHURANA, J. 1999. Application of genetic transformation to tree biotechnology. Ind. J. Exp. Biol. 37: 627-638.

24. **KHURANA, P.** 1999. Raw material quality upgradation through biotechnology. A.I.B.A. Newsletter. 6: 51-54.
25. TEWARI, A., BHATNAGAR, S., **KHURANA, P.** 1999. *In vitro* response of commercially valuable cultivars of *Morus* species to thidiazuron and activated charcoal. Plant Biotechnology (Japan) 16: 413-417.
26. KHURANA, J., **KHURANA, P.** 2000. Biolistic-mediated DNA delivery into hypocotyls of a leguminous tree - *Albizia lebbek* L: influence of biological and physical parameters. J. Plant. Biochem. Biotech. 9: 31-34.
27. MAHALAKSHMI, A., CHUGH, A., **KHURANA, P.** 2000. Exogenous DNA uptake via cellular permeabilization and expression of a foreign gene in wheat zygotic embryos. Plant Biotechnology 17: 235-240.
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29. KAPUR, A., BHATNAGAR, S., **KHURANA, P.** 2001. Efficient regeneration from mature leaf explants of Indian mulberry *via* organogenesis. Sericologia 42: 207-214.
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32. PATNAIK, D., **KHURANA, P.** 2001. Germins and germin like proteins: an overview. Ind. J. Exp. Biol. 39: 191-200.
33. PATNAIK, D., **KHURANA, P.** 2001. Wheat Biotechnology : A mini review. Electronic J. Biotechnology. (www.ejb.org/content/vol4/issue2/full/4/-).
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35. CHUGH A., **KHURANA, P.** 2002. Gene expression during somatic embryogenesis – recent advances. Current Science 83: 715-730.
36. BHATNAGAR, S., KAPUR, A., **KHURANA, P.** 2002. Evaluation of parameters for high efficiency gene transfer via particle bombardment in Indian mulberry, *Morus indica* cv. K2. Ind. J. Exp. Biol. 40: 1387-1392.
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38. MISHRA, A., **KHURANA, P.** 2003. Genotype dependent somatic embryogenesis and regeneration from leaf base cultures of *Sorghum bicolor*. J. Pl. Biochem. Biotech. 12: 53-56.

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40. CHUGH A., **KHURANA, P.** 2003. Herbicide resistant transgenics of bread wheat (*T. aestivum*) and emmer wheat (*T. dicoccum*) by particle bombardment and *Agrobacterium*-mediated approaches. *Current Science* 84: 78-83.
41. BHATNAGAR, S., **KHURANA, P.** 2003. *Agrobacterium tumefaciens*-mediated transformation of Indian mulberry, *Morus indica* cv. K2: A time-phased screening strategy. *Plant Cell Reports* 21: 669-675.
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43. MAHALAKSHMI, A., KHURANA, J.P., **KHURANA, P.** 2003. Rapid induction of somatic embryogenesis in leaf explants of wheat (*Triticum aestivum*). *Plant Biotechnology* 20: 267-273.
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55. **INTERNATIONAL RICE GENOME SEQUENCING PROJECT**, 2005. The map-based sequence of the rice genome. *Nature* **436**: 793-800.
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60. PATNAIK, D., VISHNUDASAN, D., **KHURANA, P.** 2006. *Agrobacterium*-mediated transformation of mature embryos of *Triticum aestivum* and *T. durum*. *Curr. Science* **91**: 307-317.
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66. VIJ, S., GUPTA, V., KUMAR, D., RAVI, V., RAGHUVANSHI, S., **KHURANA, P.**, KHURANA, J.P., TYAGI, A.K. 2006. Decoding the rice genome. BioEssays 28: 421-432.
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69. CHAUHAN, H., DESAI, S., **KHURANA, P.** 2007. Comparative analysis of the differential regeneration response of various genotypes of *Triticum aestivum*, *Triticum durum* and *Triticum dicoccum*. Plant Cell Tissue & Organ Culture (In Press; DOI 10.1007/s11240-007-9285-5).
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71. SHALINI, L., **KHURANA, P.** 2007. Over-expression of HVA1 gene from barley generates tolerance to salinity and water stress in transgenic mulberry (*Morus indica*). Transgenic Research (In Press; DOI 10.1007/s11248-007-9145-4).
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102. CHAUHAN, H., KHURANA, N., NIJHAWAN, A., KHURANA, J.P., **KHURANA, P.** 2012. The chloroplastic small heat shock protein (sHSP26) is necessary for tolerance to heat stress and takes part from seed maturation to germination and imparts tolerance to heat stress. *Plant, Cell & Environment* (DOI: 10.1111/j.1365-3040.2012.02525.x)
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113. SINGH B, CHAUHAN H, KHURANA JP, KHURANA P, SINGH P. 2013. Evidence for the role of wheat eukaryotic translation initiation factor 3 subunit g (TaeIF3g) in abiotic stress tolerance. Gene 532:177-185.
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133. *Research papers published in Refereed/Peer Reviewed Conferences*
134. *Research papers Published in Conferences/Seminar other than Refereed/Peer Reviewed Conferences*
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160. **KHURANA, P.** 2008. Rita Levi-Montalcini, In: Nobel Laureate Women Scientists, The National Academy of Sciences, India, pp. 28-30.
161. **KHURANA, P.** 2008. Christiane Nusslein-Vollard, In: Nobel Laureate Women Scientists, The National Academy of Sciences, India, pp. 35-37.

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164. **KHURANA, P., CHAUHAN, H.** (2011) Doubled Haploid Bread Wheat Engineered for Drought Tolerance. ISB News Report, July 2011, Virginia Tech University, USA.
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166. **KHURANA, P., CHAUHAN, H., KHURANA, N.** 2011. Genomic Approaches for Wheat Productivity under Changing Climatic Conditions. (Eds. Singh SS, Hanchinal RR, Singh G, Sharma RK, Tyagi BS, Saharan MS, Sharma I) Proc. 3rd IGM on Wheat Productivity Enhancement under Changing Climate. Narosa Publ. House, New Delhi, pp. 126-131.
167. **KHURANA, P., CHAUHAN, H.** (2011) Doubled Haploid Bread Wheat Engineered for Drought Tolerance. ISB News Report, July 2011, Virginia Tech University, USA.
168. *Other publications (Edited works, Book reviews, Festschrift volumes, etc.)*

Conference Organization/ Presentations (in the last three years)

List against each head (If applicable)

1. *Organization of a Conference*
2. *Participation as Paper/Poster Presenter*

Participated in several International and National Conferences and workshops and delivered more than 150 lectures, and also Chaired some sessions.

Research Projects (Major Grants/Research Collaboration)

1. **Centre for Plant Molecular Biology** (1996-2001), jointly with 3 other colleagues, funded by the DBT (Rs 4.76 crores).
2. Centre for Plant Molecular Biology—Phase II (October 2001 to March 2007), jointly with three other colleagues, funded by the DBT (ca Rs 2.5 crores).
3. DBT sponsored project in October 1995, on “Developing Regeneration Protocols from Cells/Protoplasts and Standardization of Gene Delivery Methods in Mulberry” (approx. 20 lakhs) (October 1995- March 1999).

4. Department of Biotechnology supported Indo-Tunisian collaborative project on “Establishment of Somatic Embryogenesis and Genetic Transformation of Wheat”, (approx. 35 lakhs) (March 2000-March 2003).
5. **Indian Initiative for Rice Genome Sequencing** (June 2000 to August 2005), jointly with Professor A.K. Tyagi (Coordinator) and Dr JP Khurana, funded by the DBT (ca Rs 24 crores).
6. Department of Biotechnology funded project on “Characterization of abiotic stress/tolerance and genetic manipulation of mulberry” (16.75 lakhs) (March 2003-Aug. 2006).
7. DBT Project : “Development and field evaluation of transgenic mulberry for the abiotic stress” (Dec. 2006-June, 2010).
8. **Indian Initiative on Tomato Genome Sequencing Project** (March 2005 to February 2009; extended for two years, up to March 2011), jointly with Professor Akhilesh K. Tyagi and Dr. A.K. Sharma, and two other collaborating Institutes, NCPGR, JNU Campus, and NRCPB, IARI, funded by DBT (UDSC component ca Rs 6 crores).
9. Centre for Plant Molecular Biology—Phase III (October 2007 to September 2012), jointly with three other colleagues, funded by the DBT (ca Rs 2 crores for entire CPMB).
10. DBT Project : “Developing EST library from mulberry for abiotic stress” (March 2007-March, 2010).
11. DBT funded “Identification and characterization of differently expressed genes during heat stress in wheat” (17.04.2008-16.04.2011).
12. DBT/ISCB (Indo-Swiss Collaboration in Biotechnology) sponsored “Functional genomics of thermal tolerance in wheat” (23.01.2009- 22.01.2012).
13. DBT sponsored “SNP Discovery and Trait Specific Transcriptome Analysis of Indian Mulberry” (17.09.2010 – 16.09.2014).
14. Network Project entitled “**Physical mapping and sample sequencing of wheat chromosome 2A – International Wheat Genome Sequencing Consortium (India)**” (December 2010 to November 2014), jointly with Professor JP Khurana, and two other collaborating Institutes, NRCPB, IARI, and PAU, Ludhiana; funded by DBT (UDSC component, ca Rs 7.5 crores).
15. Network project under the ‘Purse Grant’ from the DST (through Delhi University) sanctioned jointly with Prof. Rup Lal, Dr RajaGopal and Prof. JP Khurana for 3 years (2009-2012); UDSC Component: Rs 71.75 lakhs; total sanction: Rs 173.50 lakhs.

16. Network project entitled “Understanding genome organization and gene expression in response to different hexachlorohexane (HCH) isomers in HCH degrading bacteria and the HCH dumpsite. (March 2012 to March 2015), jointly with University of Delhi (Dept Zoology), IIT-Bombay, and University of Hyderabad (School of Life Sciences); UDSC Component, ca 49 lakhs.
17. *One of the three PIs* in the Int. Wheat Genome Seq. Consortium (IWGSC)-Physical mapping and sample sequencing of wheat chromosome 2A, (Dec. 2010-Dec. 2014).
18. DBT sponsored “Multiplication and field evaluation of transgenic mulberry for abiotic stress tolerance and suitability for silkworm rearing” (1.01.2013-31.12.2017).

Awards and Distinctions

- Best Student Award, 1972
- National Merit Award, 1975
- National Merit Award, 1977

- **Fellow**, Indian National Science Academy, New Delhi, India, 2003.
- **Fellow**, Indian Academy of Sciences, Bangalore, India, 2010.
- **Fellow**, The National Academy of Sciences, Allahabad, India, 2011.
- **Fellow**, National Academy of Agricultural Sciences, New Delhi, 2014.
- **Fellow, The World Academy of Sciences**, Trieste, Italy, 2016.

- **Certificate of Honour**, Gantavaya Sansthan on International Women’s Day, 2011.
- **Prof. Archana Sharma Memorial Award**, Indian Science Congress Association, 2011-2012.
- **Prof. J.C. Bose Fellowship**, Department of Science & Technology, Government of India, for 2012-2017, 2017-2022).
- **Foreign Secretary**, The National Academy of Sciences, Allahabad, India, (2013-2014).
- **Street Memorial Lecture Award** for 2013-14 by the Plant Tissue Culture Association (India).
- **Shri Ranjan Memorial Lecture Award** (2014) by The National Academy of Sciences, India.
- **Bharat Ratna Rajiv Gandhi Mahila Shakti National Award-2013**, conferred by: Academy of Grassroots Studies and Research of India, in collaboration with: Rajiv Rural Development Foundation, Tirupati.
- Nominated NASI member to the **Science Education Panel** of the three National Science Academies (2013-2015).
- Member of the **Inter-Academy Panel on ‘Women in Science’**, 2015.
- Member of the **Apex Committee on Agricultural Biotechnology**, Department of Biotechnology, Government of India, for 2014-2017.
- **Co-Chair of BIOCARE** programme of DBT, Govt of India, (2014-2017).

- **Chairperson, PAC on Plant Sciences of SERB**, Govt. of India (2015-2017).
- **Council member** (NASI representative), Indian National Science Academy, 2016 & 2017.
- **Convenor of Sub-committee on Plant Sciences** Indian National Science Academy, 2017.
- **Birbal Sahani Medal** of the Indian Botanical Society for 2017.

Association With Professional Bodies

- Life Member, Third World Organization for Women in Science, Italy.
 - Life Member, International Sericulture Commission, France.
 - Life Member of the Society of Plant Biochemistry and Biotechnology.
 - Life Member of Indian Society of Developmental Biologists
 - Life Member of Indian Science Congress Association
 - Life Member, Association of Plant Tissue Culture (India)
 - Member, National Academy of Sericultural Sciences of India (NASSI), Bangalore.
 - Permanent Member, North Zonal Chapter of NASSI, Dehradun.
- External Expert, Institutional Biosafety Committee, Jawaharlal Nehru University.
 - External Expert, Board of Research Studies, Centre for Biotechnology, Jamia Hamdard, Hamdard University, New Delhi.
 - External Expert, Board of Studies, Amity Institute of Biotechnology, Amity University, NOIDA, UP.,
 - External Expert, Board of Studies, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi.
- Member, Taskforce on Human Resource Development, Department of Biotechnology, Ministry of Science & Technology, Government of India.
 - Member, Taskforce on Silk Biotechnology, Department of Biotechnology, Ministry of Science & Technology, Government of India.
 - Member, Taskforce on BioCARE, Department of Biotechnology, Ministry of Science & Technology, Government of India.
 - Member, Taskforce on 'Value- Added Biomass & Products from Natural Resources', Department of Biotechnology, Government of India.
 - Member, Taskforce on National Bioscience Award for Career Development, 2011, Department of Biotechnology, Government of India.
- Editorial Board, Journal of Seribiodiversity, Central Silk Board, Hosur, India.
 - Editorial Board, Physiology and Molecular Biology of Plants, Springer, India.
 - Editorial Board, Proc. National Academy of Sciences, Section-B- Biological Sciences, India (2012-2016).

- Member, Star College Advisory committee of Maitreyi College sponsored by Department of Biotechnology, Govt. India, at University of Delhi.
- Member, Star College Advisory Committee, Ramjas College, University of Delhi.
- Member, Star College Advisory Committee, Miranda house, University of Delhi.

- UGC Nominee on School Board of Life Sciences, NEHU, Shillong.
- UGC Nominee on SAP advisory committee of Jaipur University.
- Member of the Advisory committee of HRD-DBT program at GB Pant Inst., Pantnagar.
- Member, Academic Council, TERI University, New Delhi-110070.
- Member, Special Committee of the School of Environmental Sciences, Jawaharlal Nehru University, New Delhi.
- Member, Special Committee of the School of Computational Sciences, Jawaharlal Nehru University, New Delhi.

- Member, “Working Group on Enrichment of Knowledgebase” to formulate 12th
- Five Year Plan, Planning Commission, Department of Science and Technology, New Delhi.

Other Activities

1. Sequencing of the COMPLETE CHLOROPLAST SEQUENCE of Indian mulberry, *Morus indica*, and using the information for molecular phylogeny
2. Associated with sequencing of the RICE genome as part of the International effort. Presently associated with sequencing of the TOMATO genome as part of the International SOL genome effort.
3. Genetic transformation and biotic challenge of *T. durum* transgenics for cereal cyst nematode resistance.
4. Development of transgenic wheat and mulberry for abiotic tolerance with the HVA1 gene conferring both salinity and drought tolerance.
5. A systems biology approach to decipher the molecular mechanisms-associated with somatic embryogenesis.
6. Transcriptome profiling for studying heat stress tolerance in wheat and drought stress in mulberry.
6. Genetic transformation system by *Agrobacterium* methods in *Triticum aestivum*, *T. durum*, *T. dicoccum* and *T. monococcum*.
8. Developed a novel technique of direct gene transfer *via* cellular permeabilization.
9. Demonstrated that role of pectins in mediating cell wall porosity in higher plants.
10. Developed a non-invasive method for introduction of impermeant macromolecules in to living cells.
11. Demonstrated the LPS-mediated cellular recognition during legume-*Rhizobium* symbiosis.

Patents Granted:

- **KHURANA, P.**, CHAUHAN, H., KHURANA, J.P. (2009)
“POLYNUCLEOTIDE ENCODING CHLOROPLASTIC SMALL HEAT SHOCK PROTEIN (sHSP26) AND USES THEREOF” *Application No. 1723/DEL/2009*
- **KHURANA, P.**, CHAUHAN, H., KHURANA, J.P., (2009)
“WHEAT CHLOROPLASTIC SMALL HEAT SHOCK PROTEIN (sHSP26) PROMOTER AND USES THEREOF” *Application no. 1724/DEL/2009*
- **KHURANA, P.** , CHAUHAN, H., KHURANA, J.P., (2011)
“WHEAT POLYNUCLEOTIDE RESPONSIBLE FOR ABIOTIC STRESS TOLERANCE IN PLANT” *Application no. 1700/DEL/2011*