

LIST OF PUBLICATIONS

A. Publications

1. Upadhyay SK, Singh Seema, Chandrashekar K, Tuli Rakesh, Singh PK (2011) Compatibility of garlic (*Allium sativum* L.) leaf agglutinin and CryAc β -endotoxin for gene pyramiding. **Applied Microbiol & Biotechnol**, *Accepted*.
2. Upadhyay SK, Sharad S, Singh R, Rai P, Dubey, NK, Chandashekar, K Negi, KS, Tuli Rakesh and Singh PK (2011), Purification and characterization of a lectin with high hemagglutination property isolated from *Allium altaicum*, **Protein Journal**, DOI 10.1007/s10930-011-9342-0.
3. Madanala Raju, Vijaya Gupta, Farah Deebea, Santhosh Kumar Upadhyay, Vivek Pandey, Pradhyumna Kumar Singh, Rakesh Tuli (2011) A highly stable Cu/Zn superoxide dismutase from *Withania somnifera* plant: gene cloning, expression and characterization of the recombinant protein. **Biotechnology Letters**, In press.
4. Arti Rai, Preeti Tripathi, Sanjay Dwivedi, Sonali Dubey, Manju Shri, Smita Kumar, Pankaj Kumar Tripathi, Richa Dave, Amit Kumar, Ragini Singh, Bijan Adhikari, Manas Bag, Rudra Deo Tripathi, Prabodh K Trivedi, Debasis Chakrabarty, Rakesh Tuli (2011) Arsenic tolerances in rice (*Oryza sativa*) have a predominant role in transcriptional regulation of a set of genes including sulphur assimilation pathway and antioxidant system. **Chemosphere**, 82:986-995
5. Sidhu OP, Annarao Sanjay, Sandeepan Chatterjee, Rakesh Tuli, Raja Roy and CL Khaterpal (2011) Metabolic alterations of *Withania somnifera* (L.) Dunal fruits at different developmental stages by NMR spectroscopy. **Phytochemical Analysis**, DOI 10.1002 /pca.1307
6. Upadhyay SK, Chandrashekar K, Thakur N, Verma PC, Borgia JF, Singh PK and Tuli Rakesh (2011) RNA Interference for the control of whiteflies (*Bemisia tabaci*) by oral route. **Journal of Biosciences**. 36, 153-161
7. Yadav Hemant Kumar, Alok Ranjan, Mehar Hasan Asif, Shrikant Mantri, Samir V Sawant and Rakesh Tuli (2011) EST derived SSR markers in *Jatropha curcas* L.: Development, characterization, polymorphism and across species/genera transferability. **Tree Genetics & Genomics**, 7:207-219
8. Dubey Sonali, Prashant Mishra, Sanjay Dwiwedi, Sandipan Chatterjee, Sumit K Bag, Shrikant Mantri, Mehr H Asif, Arti Rai, Smita Kumar, Manju Shri, Preeti Tripathy, Rudra D Tripathy, Prabodh K Trivedi, Debasis Chakraborty and Rakesh Tuli (2010) Transcriptomic and metabolomics shifts in rice roots in response to Cr(IV) stress. **BMC Genomics**, 11:648
9. Upadhyay SK, Mishra M, Singh H, Ranjan A, Chandrashekar K, Verma PC, Singh PK and Rakesh Tuli (2010) Interaction of *Allium sativum* leaf agglutinin with midgut BBMV proteins and its stability in *Helicoverpa armigera*. **Proteomics**, 10, 1-10.

10. Singh SP, Pandey T, Srivastava R, Verma PC, Singh PK, Tuli R and Sawant SV (2010) BECLIN1 from *Arabidopsis thaliana*, under the genetic control of regulated expression system- a strategy for developing male sterile plants. **Plant Biotechnology Journal**, 8, 1005-1022.
11. Misra P, Pandey A, Tiwari M, Chandrasekhar A, Sidhu OP, Asif MH, Chakrabarty D, Singh PK, Trivedi PK, Nath P and Tuli R. (2010). Modulation of transcriptome and metabolome of tobacco by *Arabidopsis* transcription factor, AtMYB12, leads to insect resistance. **Plant Physiology**, 152, 2258-2268.
12. Roy Sribash, Antariksh Tyagi, Virendra Shukla, Anil Kumar, Uma M Singh, Lal Babu Chaudhary, Bhaskar Datt, Sumit K Bag, Pradhyumna K. Singh, Narayanan K Nair, Tariq Husain and Rakesh Tuli(2010) Universal Plant DNA barcode Loci May Not Work in Complex Groups: A Case Study with Indian *Berberis* species. **PLoS ONE**, 5(10).e13674.
13. Kumar J, Kumar A, Roy JK, Tuli R, Khan JA (2010) Identification and molecular characterization of begomovirus and Associated satellite DNA molecules infecting *Cyamopsis tetragonoloba*. **Virus genes**, 41:118-125.
14. Upadhyay SK, Saurabh S, Rai P, Singh R, Chandrashekar K, Verma PC, Singh PK and Tuli R. (2010). SUMO fusion facilitates expression and purification of garlic lectin but modifies some of its properties. **J. of Biotechnology**. 146, 1-8.
15. Sidhu OP, Annarao S, Pathre U, Snehi SK, Raj SK, Roy R, Tuli Rakesh and Khetrpal CL (2010). Metabolic and histopathological alterations of *Jatropha* mosaic begomovirus infected *Jatropha curcas* L. by HR-MAS NMR spectroscopy and Magnetic Resonance Imaging. **Planta**. DOI 10.1007/s00425-010-1159-0; 232(1):85-93.
16. Pandey V, Misra P, Chaturvedi P, Mishra MK, Trivedi PK and Tuli R. (2010). *Agrobacterium tumefaciens*-mediated transformation of *Withania somnifera* (L.) Dunal: an important medicinal plant. **Plant Cell Reports**. 29: 133-141.
17. Dwivedi S, Tripathi RD, Srivastava S, Singh R, Kumar A, Tripathi P, Dave R, Rai UN, Chakrabarty D, Trivedi PK, Tuli R, Adhikari, B and Bag MK (2010) Arsenic affects mineral nutrients in grains of various Indian rice (*Oryza sativa* L.) genotypes grown on arsenic-contaminated soils of West Bengal. **Protoplasma**, 245:113-124.
18. Dwivedi, Sanjay; Tripathi, R. D.; Tripathi, Preeti; Kumar, Amit; Dave, Richa; Mishra, Seema; Singh, Ragini; Sharma, Deepika; Rai, U.; Chakrabarty, Debasis; Trivedi, P.; Adhikari, Bijan; Bag, Manas; Dhankher, Om Parkash; Tuli, Rakesh(2010) Arsenate Exposure Affects Amino Acids, Mineral Nutrient Status and Antioxidants in Rice (*Oryza sativa* L.) Genotypes. **Environmental Science & Technology**. 44, 9542–9549
19. Tyagi A, Bag SK, Shukla V, Roy S, and Tuli R (2010). Oligonucleotide frequencies of barcoding loci can discriminate species across kingdoms. **PLoS ONE**. DOI:10.1371/journal.pone.0012330.

20. Asif MH, Mantri SS, Sharma A, Srivastava A, Trivedi I, Gupta P, Mohanty CS, Sawant SV and Tuli R (2010). Complete sequence and organization of *Jatropha curcas* chloroplast genome. **Tree Genetics and Genomics**. 6:941–952.
21. Chatterjee S, Srivastava S, Sidhu OP, Sangwan RS, Roy R, Khetrpal CL and Tuli R. (2010). Comprehensive metabolic finger printing of *W. somnifera* leaf and root extracts. **Phytochemistry**. DOI :10.1016/j.phytochem.2010.04.001
22. Tiwari S, DK Mishra, K Chandrashekar, PK Singh and Rakesh Tuli (2010). Expression of delta-endotoxin cry1EC from wound inducible promoter confers insect protection in peanut (*Arachis hypogea* L.) plants. **Pest Management Science**. DOI: 10.1002/ps.2041.
23. Tuli R, Chakrabarty D, Trivedi PK and Tripathi RD (2010). Recent advances in arsenic accumulation and metabolism in rice. **Molecular Breeding**. 26:307-323
24. Misra P, Gupta N, Toppo DD, Pandey V, Mishra MK, Tuli Rakesh (2010). Establishment of long-term proliferating shoot cultures of elite *Jatropha curcas* L. by controlling endophytic bacterial contamination. **Plant Cell Tiss. Organ Cult.** 100: 189-197.
25. Behera SK, Srivastava P, Pathre UV and Tuli Rakesh (2010). An indirect method of estimating leaf area index in *Jatropha curcas* L. using LAI-2000 Plant Canopy Analyzer. **Agricultural and Forest Meteorology**. 150 (2): 307-311.
26. Roy S., Tyagi A, Tiwari S, Singh A, Sawant SV, Singh PK and Tuli R (2010). Rabies glycoprotein fused with B subunit of cholera toxin expressed in tobacco plants folds into biologically active pentameric protein. **Protein Expression and Purification**.70, 184-90.
27. Chaurasiya ND, Sangwan RS, Misra LN, Tuli R and Sangwan NS (2010). Metabolic clustering of a core collection of Indian ginseng *Withania somnifera* Dunal through DNA, isoenzyme, polypeptide and withanolide profile diversity. **Fitoterapia**. 80(8):496-505.
28. Chakrabarty D, Trivedi PK, Shri Manju, Misra P, Asif MH, Dubey S, Kumar S, Rai A, Tiwari M, Shukla D, Pandey A, Nigam D, Tripathy RD and Tuli R (2010). Differential transcriptional expression following thidiazuron induced shoot primordial developmental shifts in rice. **Plant Biology**, 12, 46-59.
29. Ranjan A, Ansari SA, Srivastava R, Mantri S, Asif MH, Sawant SV and Tuli R (2009). A T9G mutation in the prototype TATA-box TCACTATATATAG determines nucleosome formation and synergy with upstream activator sequences in plant promoters. **Plant Physiology**. 151: 2174-2186.
30. Sujatha Tiwari S, Mishra DK, Roy S, Singh A, Singh PK and Tuli R (2009). High level expression of a functionally active cholera toxin B – rabies glycoprotein fusion protein in tobacco seeds. **Plant Cell Reports**. 28: 1827-1836.

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32. Tiwari S, Verma PC, Singh PK and Tuli R (2009). Plants as bioreactors for the production of vaccine antigens. **Biotechnology Advances**, 27 (4): 449-467.
33. Chakrabarty D, Trivedi PK, Misra P, Tiwari M, Shri Manju, Shukla D, Kumar S, Rai A, Pandey A, Nigam D, Tripathi RD and Tuli R (2009). Comparative transcriptome analysis of arsenate and arsenite stresses in rice seedlings. **Chemosphere**, 74: 688-702.
34. Kumar M, Shukla AK, Singh H, Tuli R (2009). Development of insect resistant transgenic cotton lines expressing cry1EC gene from an insect bite and wound inducible promoter. **J. of Biotechnology**. 140: 143-148.
35. Shri Manju, Kumar S, Chakrabarty D, Trivedi PK, Mallick S, Misra P, Shukla D, Mishra S, Srivastava S, Tripathi RD and Tuli R (2009). Effect of arsenic on growth, oxidative stress, and antioxidant system in rice seedlings. **Ecotoxicology & Environmental Safety**, 72:1102-1110.
36. Tiwari S, Tuli R (2009). Multiple shoot regeneration in seed derived immature leaflet explants of peanut (*Arachis hypogea* L.). **Scientia Horticulturae**. 121: 223-227.
37. Tuli R, Sawant SV, Trivedi PK, Singh PK and Nath P. (2009). Agricultural Biotechnology in India: Prospects and Challenges. **Biotechnology Journal**. 4: 319-328.
38. Verma PC, Chakrabarty D, Jena SN, Mishra DK, Singh PK, Sawant SV and Tuli R (2009). The extent of genetic diversity among *Vanilla* species: Comparative results for RAPD and ISSR. **Industrial Crops & Products**. 29: 581-589.
39. Malhotra S, Suri S and Tuli R (2009). Antioxidant Activity of Citrus Cultivars and Chemical Composition of Citrus karna Essential Oil. **Planta Med**. 75: 62-64.
40. Annarao Sanjay, Sidhu OP, Roy Raja, Tuli R, Khetrapal CL (2008). Lipid profiling of developing *Jatropha curcas* L. seeds using ¹H-NMR Spectroscopy. **Bioresource Technology**. 99 : 9032- 9035.
41. Beena MR, Tuli R, Gupta AD and Kirti PB (2008). Transgenic Peanut (*Arachis hypogaea* L.) plants expressing cry1EC and Rice Chitinase cDNA (Chi 11) exhibit resistance against insect pest *Spodoptera litura* and fungal pathogen *Phaeoisariopsis personata*. **Trangenic Plant Journal**. 2: 157-164.
42. Lodhi N, Ranjan AR, Singh M, Srivastava R, Singh SP, Chaturvedi CP, Ansari SA, Sawant SV and Tuli R (2008). Interactions between upstream and core promoter sequences determine gene expression and nucleosome positioning in tobacco PR-1 promoter. **Biochimica et Biophysica Acta**, 1779 : 634-644.

43. Misra L, Lal Payare, Chaurasia ND, Sangwan RS, Sinha Sudhir and Tuli R (2008). Selective Reactivity of 2-mercaptoethanol with 5 β ,6 β -epoxide in steroids from *Withania somnifera*. **Steroids**, 73: 245-251.
44. Misra L, Mishra P, Pandey A, Sangwan RS, Sangwan NS and Tuli R (2008). Withanolides from *Withania somnifera* roots. **Phytochemistry**, 69 : 1000-1004.
45. Ranade SA, Srivastava AP, Rana TS, Srivastava Jyoti and Tuli R (2008). Easy assessment of diversity in *Jatropha curcas* L. plants using two single-primer amplification reaction (SPAR) methods. **Biomass & Bioenergy**, 32:533-540.
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47. Tiwari S and Tuli R (2008). Factors promoting efficient in vitro regeneration from de-embryonated cotyledon explants of *Arachis hypogaea* L. **Plant Cell Tiss Organ Cult**, 92: 15 – 24.
48. Tiwari S, Mishra DK, Singh Ankit, Singh PK and Tuli R (2008). Expression of a synthetic Cry1EC gene for resistance against *Spodoptera litura* in transgenic peanut (*Arachis hypogaea* L.). **Plant Cell Reports**, 27: 1017-1025.
49. Madina BR, Sharma LK, Chaturvedi P, Sangwan RS and Tuli R (2007). Purification and physico kinetic characterization of 3 β -OH sterol glucosyltransferase from *Withania somnifera* and its stress response. **Biochimica et Biophysica Acta (BBA) – Proteins & Proteomics**, 1774: 392-402.
50. Chaturvedi CP, Lodhi Niraj, Ansari SA, Tiwari S, Srivastava R, Sawant SV and Tuli R (2007). Mutated TATA box / TBP complementation system for regulated transgene expression in tobacco. **The Plant Journal**, 50: 917-925.
51. Chaurasiya ND, Uniyal GC, Lal Payare, Misra L, Sangwan NS, Tuli R and Sangwan RS (2007). Analysis of Withanolides in Root and Leaf of *Withania somnifera* by HPLC with Photodiode Array – and Evaporative Light Scattering Detection. **Phytochemical Analysis**, 19(2) 148-154.
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53. Madina BR, Sharma LK, Chaturvedi P, Sangwan RS and Tuli R (2007). Purification and characterization of a novel glucosyltransferase specific to 27 α -hydroxy steroidal lactones from *Withania somnifera* and its role in stress responses. *Biochimica et Biophysica Acta (BBA) – Proteins & Proteomics*, 1774: 1199 - 1207.
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55. Sangwan RS, Chaurasiya ND, Lal Payare, Misra L, Uniyal GC, Tuli R and Sangwan NS (2007). Withanolide A Biogenesis in In Vitro Shoot Cultures of Ashwagandha (*Withania somnifera* Dunal) – A Main Medicinal Plant in Ayurveda. **Chem. Pharm. Bull.**, 55 (9) 1371 – 1375.
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57. Tripathi RD, Srivastava S, Mishra S, Singh N, Tuli R, Gupta DK and Maathuis FJM (2007). Arsenic hazards: strategies for tolerance and remediation by plants. **Trends in Biotechnology**, 25: 158-165.
58. Chaturvedi CP, Sawant SV, Kiran K, Mehrotra R, Lodhi N, Ansari SA and Tuli R (2006). Analysis of polarity in the expression from a multifactorial bi-directional promoter designed for high-level expression of transgenes in plants. **J. of Biotechnology**, 123: 1-12.
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63. Ashraf S, Singh PK, Yadav DK, Shahnawaz Md, Mishra S, Sawant SV and Tuli R (2005) High level expression of surface glycoprotein of rabies virus in tobacco leaves and its immunoprotective activity in mice. **J. of Biotechnology**, 119: 1-14.
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the transcription complex formed on basal promoter. **Journal of Experimental Botany**, 56: 2345-2353.

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71. Sangwan RS, Chaurasiya ND, Misra LN, Lal P, Uniyal GC, Sharma R, Sangwan NS, Suri KA, Qazi GN and Tuli R (2003) Phytochemical variability in commercial herbal products and preparations of *Withania somnifera* (Ashwagandha). **Current Science**, 86: 461-465.
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76. Gupta SK, Singh PK, Sawant SV, Chaturvedi R and Tuli R (2000) Effect of light intensity on in vitro multiple shoot induction and regeneration of cotton. **Indian J. Expl. Biology**, 38: 399-401.
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B. Chapters in Books/Books

1. Haselkorn., R., Curtis, S.E., Fisher, R., Mazur., B.J., Mevarech, M., Rice, D., Nagaraja, R., Robinson, S.J. and Tuli, R. (1982) Cloning and physical characterization of *Anabaena* genes that code for important functions in heterocyst differentiation: nitrogenase, glutamine synthetase and RuBP carboxylase in blue green algae. In: **Cyanobacteria: cell differentiation and function**. ed. Papageorgiou and L. Packer, pp 315-331.
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C. Internationally Patentable Innovations

i. Patents Awarded/Under Examination:

1. United State Patent: 5898001 (April 27, 1999)
Tissue culture process for producing a large number of viable mint plants *in vitro* from internodal segments.
2. United States Patent : 6242257 (June 5, 2001), China Patent: ZL97103003.0
(Aug. 25, 2004)
Tissue culture process for producing a large number of viable cotton plants *in vitro*.
3. United States Patent : 6323394 (November 27, 2001)
Tissue culture process for producing a large number of viable mint plants *in vitro*.
4. United States Patent : 6406852 (June 18, 2002)
European Patent: 00113541.7 (Dec 18, 2000)
Method for preparation of microprojectiles for efficient delivery of biologicals using a particle gun.
5. United States Patent : 6639065 (October 23, 2003), 7459545 (December 2, 2008), EP1002869.
Chemically synthesized artificial promoter for high level expression of transgenes.
6. United States Patent : 7053266 (May 30, 2006), Indonesia Patent: 0017603 (Aug. 2, 2007), Europe Patent: 1487868 (August 22, 2007), AU2002249560 (January 21, 2008).
Chimeric Cry 1E δ -endotoxin and methods of controlling insects.
7. United States Patent : 7108870 (September 19, 2006)
An improved process for isolation of withaferin-A from plant materials and products therefrom.

8. South Africa Patent : 2006/04703 (April 25, 2007), Korean Patent: 803631 (Feb. 5, 2008), AU2003300707 (April 24, 2008)

A method for inducing synchronization during somatic embryogenesis in plant tissue culture.

9. United States Patent: 7235652 (June 26, 2007), Australian Patent: 2003304662 (Nov. 15, 2007), Korean Patent: 801103 (Jan. 29, 2008), US 7390661 (June 24, 2008), ZA2006/4701 (November 28, 2007).

Artificial bidirectional promoter for activation of gene expression.

10. Indian Patent: 192829 (Nov. 14, 2007)

A method for chemical synthesis of an artificial promoter of high level expression of transgenes in different organisms.

11. International Patent : PCT/IB2009/007561 Pub No WO/2010/061276

Method for producing male sterile plants.

Sawant SV, Tuli R and Singh SP

ii. Patent applications in process

1. **Method for preparation of microprojectiles for efficient delivery of biologicals using a particle gun.**

European Patent Application: EP 1170374 A1

2. **Chimeric δ -endotoxin protein with extraordinarily high insecticidal activity.**

Filed for PCT, NF 0165 NF 2002 dated 28-3-2002

3. **An artificially designed DNA sequence for activation of gene expression and regulation of transcription in both the directions.**

Filed for PCT (0250 NF 2003; US, 10/814858 dt. 30-6-2003).

4. **A method for inducing synchronization during somatic embryogenesis in plant tissue culture**

Filed for PCT on 7-4-2003 (0237 NF 2003/US; 10/815108 dt. 30-6-2003)

5. **An improved process for analytical and quantitative isolation of withaferin A from plant materials and products therefrom.**

Filed for PCT NF/01418/03.

6. **Recombinant chimeric G-protein of rabies virus produced in transgenic plants and a synthetic gene for development of vaccine.**

Filed for PCT (0218 NF 2004/dated 28-4-2004).

7. **Withaferin – A lacking but withanone accumulating chemotype of Ashwagandha (Withania somnifera) named “NMITLI – 108”.**, PCT & USA Plant Protection Patent.

8. **A novel chemotype of Ashwagandha (Withania somnifera) named “NMITLI – 135” that lacks withaferin – A and withanone and hyper-accumulates withanolide D and glyco-withanolide withanoside-VI in leaf.**, PCT & USA Plant Protection Patent.

9. **Very high Withaferin – A and no Withanone in leaf and High withanolide A in root and red berry chemotype of Ashwagandha (Withania somnifera) “NMITLI – 118”,**
PCT & USA Plant Protection Patent.
10. **A high root and seed yielder, and withaferin-A, withanone and withanolide A rich chemo-morphotype of Ashwagandha (Withania somnifera) named “NMITLI – 002”,**
PCT & USA Plant Protection Patent.
11. **Regeneration of elite Indian cotton cultivar via somatic embryogenesis.**
Indian Patent Application
12. **A gene for inducing male sterility in plants.**
0075NF08, India (2697DEL08)
13. **A two component plants expression module for tightly regulated and high level anther specific expression in plants.**
0006NF 2009, India (0626DEL09).