

**Chandrashekhar P. Joshi, Ph. D.**  
***Professor of Plant Molecular Genetics &  
Director, Biotechnology Research Center &  
Director of SFRES Graduate Programs***

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**Current Research Interests:**

- **Genomics, Biotechnology, and Bioinformatics of cellulose biosynthesis in trees**
- **Molecular basis and bioinformatics of tree growth and wood development**

**Education:**

Ph. D. (Biochemistry), University of Poona, 1982  
M. Sc. (Botany), First rank, University of Poona, 1977  
B. Sc. (Botany), First rank, University of Poona, 1975

**Professional Experience:**

2008-present Professor, Michigan Tech University, Houghton, MI  
2007-present Director, Biotechnology Research Center, Michigan Tech University  
2004-present Director, SFRES graduate programs, Michigan Tech University  
2004-2008 Associate Professor, Michigan Tech University  
1999-2004 Assistant Professor, Michigan Tech University  
1996-1999 Research Assistant Professor, Michigan Tech University  
1990-1996 Research Scientist, Texas Tech University, Lubbock, TX  
1988-1990 Research Associate, Ohio State University, Columbus, OH  
1985-1988 Senior Scientist, National Chemical Laboratory, Pune, India  
1983-1985 Visiting Scientist, Max Planck Institute for Plant Breeding, Cologne, Germany  
1980-1983 Scientist, National Chemical Laboratory, Pune, India  
1979-1980 Graduate Student, National Chemical Laboratory, Pune, India  
1977-1979 Lecturer in Botany, S.P. College, Pune, India

**Memberships, Fellowships and Honors:**

1. Recipient of National Science Foundation's CAREER award (\$583,833; 2003-2008).
2. Distinguished Teaching Award Finalist, Assistant Professor Category, MTU, 2004.
3. Inductee of Academy of Teaching Excellence, MTU, 2004.
4. Director of Biotechnology Research Center, MTU, 2007-present
5. Director of Graduate Programs, School of Forest Resources and Environmental Science. 2004-present

6. Co-Inventor on two issued US patents and two pending US patents in the field of cellulose biosynthesis in forest trees
7. Currently a major advisor of one Ph. D. student and one MS graduate student. Two new PhD students will join my program soon in Fall 2008.
8. Major advisor/co-advisor of five graduated Ph. D. students (Shiv Thammannagowda, 2007, Priya Ranjan 2005, Anita Samuga 2003, Udaya Kalluri, 2003, and C. Tsao, 1998).
9. Major advisor of four graduated M.S. students (Rajesh Chavli 2001, Zihao Wang 2003, Asha Lakkavaram, 2006; Voo S, 2006)
10. Member of 46 graduate student committees at Michigan Tech University
11. Ad hoc Reviewer of ~30 manuscripts in >15 International Journals in last five years
12. Ad hoc Reviewer for ~90 grant proposals for National and International agencies
13. Served as a member on five proposal review panels: NSF Panel member: Metabolic biochemistry, 2005; DOE Panel member: Energy Biosciences 2006; NSF Panel member: Metabolic Biochemistry, 2006 and 2007. USDA-NRI panel 2008.
14. German Academic Exchange Visiting Scientist Fellowship (DAAD) to Max Planck Institute, Germany, 1983-1985
15. Late (Mrs.) S.S. Patil Prize for obtaining first rank in M.Sc. (Botany) class, 1977
16. Principal S.V. Shevade Prize for obtaining first rank in B.Sc. (Botany) class, 1975
17. Member of American Association for Advancement of Sciences (AAAS)
18. Member of American Society of Plant Biologists (ASPB)
19. Member of Biotechnology Research Center and Ecosystem Science Center, MTU
20. Included in Who's Who in America, Science and Engineering 5th edition, 2000
21. Included in Who's Who in Sciences and Higher Education, 2004
22. Lead PI on a successful Proposal for Ph.D. in Forest Molecular Genetics and Biotechnology program, Michigan Tech University (2001) and helped creating MS in Forest Molecular Genetics and Biotechnology program (2004)
23. Science fair judge for school grades 4-9 (2000-2003, 2005-2008), United Way volunteer (1998-2002), graduate student Poster competition judge at MTU (1999-2001, 2004, 2005, 2007)
24. Faculty advisor to Indian Student Association, MTU (1997-1998)

## **My Contributions to Undergraduate, Graduate and Postgraduate Education**

### **Teaching Experience:**

January 2008 to April 2008: Tools of Bioinformatics, FW4089/5089, Michigan Tech  
 January 2008 to April 2008: Effective Grantsmanship, FW5850, Michigan Tech  
 September 2007 to December 2007: Introduction to Genomics (BL/FW3300), Michigan Tech  
 September 2006 to December 2006: Effective Grantsmanship FW5850, Michigan Tech  
 September 2006 to December 2006: Introduction to Genomics (BL/FW3300) Michigan Tech  
 January 2006 to April 2006: Tools of Bioinformatics, FW5089, Michigan Tech  
 August 2005 to December 2005: Effective Grantsmanship FW5850, Michigan Tech University  
 August 2004 to December 2004: Effective Grantsmanship FW5850, Michigan Tech University  
 August 2004 to December 2004: Introduction to Genomics BL3300, Michigan Tech University  
 January to May 2004: Bioinformatics (FW4089/5089) Michigan Tech University  
 August to December 2003: Introduction to Genomics (BL3300) Michigan Tech University  
 January 2003 to May 2003: Plant Bioinformatics (FW4089) Michigan Tech University  
 August 2002 to December 2002: Introduction to Genomics (BL3300) Michigan Tech University  
 January 2002 to May 2002: Tools of bioinformatics (FW5089) Michigan Tech University

January 2002 to May 2002: Genome (FW5510) Michigan Tech University  
September 2001 to December 2001: Introduction to Genomics (BL3300) Michigan Tech  
January 2001 to May 2001: Plant Molecular Genetics (FW5510) at Michigan Tech University  
January 2001 to May 2001: Plant Bioinformatics (FW4089) at Michigan Tech University  
March 2000 to May 2000: Molecular genetics of trees (FW567) at Michigan Tech University  
March 2000 to May 2000: Molecular Genetic Ecology (FW450A) at Michigan Tech University  
March 2000 to May 2000: Bioinformatics and Biomolecular Modeling (FW450B) at MTU  
March 1999 to May 1999: Molecular genetics of trees (FW567) at Michigan Tech University  
March 1998 to May 1998: "Molecular Genetics of Trees" (FW5510) at MTU  
September 1993 to December 1993: "Advanced Plant Genetics" HORT 5325 at Texas Tech  
June 1987 to May 1988: Plant tissue culture (M.Sc. Biotechnology) University of Poona, Pune.  
June 1977 to December 1979: Lecturer of Botany in S.P. College, Pune.

### **Undergraduate Students supervised by me in their Undergraduate Research Projects: 28**

Sara Blumer, Alisha Pagel, Robin Hawley, Maria Val Martin, Chaitnya Acharya, Steve Githens, Zachary Reusch, Gunjan Hariani, Emily Kenny, Jennifer Chiantello, Melissa Gonsalves, Marie Wilkening, Hwee Chi Tay, James Wee, Katherine Kieckhafer, Laura Kluskens, Katie Kruger, Ellen Brenna, Ashley Sharp, Megan McQuillan, Jill Recla, Kristina Flesher, Eric Koronka, Ayushi Kawatra, Danny Latusek, Ian Bonner, Sandra Orlovski, Nathan Fettinger

### **Graduate Student Education: I have served on a total of 46 graduate student committees**

#### **Current/future Ph. D. Students for whom I am/will be the major advisor: 3**

1. Fuyu Xu, Ph.D. ongoing since Fall 2003, Major advisor **C.P. Joshi**
2. Jacob Ladd, Ph.D., incoming Fall 2008 (accepted), Major advisor, **C.P. Joshi**
3. Aparupa Sengupta, PhD, incoming Fall 2008 (accepted) Major advisor, **C. P. Joshi**

#### **Current Ph. D. Students for whom I am serving as a committee member, major advisors in the parenthesis marked with \*: 8**

4. Prashant Swamy, PhD, Ongoing since 2007, committee member (Dr. Youngs, Biology\*)
5. Rodney Oakley, Ph. D. ongoing since 2001, Committee member (Dr. Tsai\*)
6. Christine Zawaski, Ph. D., ongoing since 2004, Committee member (Dr. Busov\*)
7. Zijun Xu, Ph. D. ongoing since 2004, committee member (Dr. Wusirika, Biology\*)
8. Steve Johnson, Ph. D. ongoing since Fall 2004, committee member (Dr. Murthy\*)
9. Raja S Payyavula, Ph. D. Ongoing since Fall 2006, committee member (Dr. Tsai/Harding\*)
10. Nicholas Krom, Ph. D. ongoing since 2005, committee member (Dr. Wusirika, Biology\*)
11. Mike Campbell, ongoing since Fall 06, committee member (Dr. Shonnard, CE\*)

#### **Current MS Students for whom I am the major advisor: 1**

12. Shaik John Saida; ongoing since Spring 2007, Major advisor: **C. P. Joshi**

**Current MS committees on which I am a committee member, major advisors in parenthesis: 1**

13. Tara Waybrant, MS ongoing since Fall 2007, committee member (Dr. Massey, Biology\*)

**Past Ph. D. Students where I was the major advisor or co-advisor: 5**

14. Shivegowda Thammangowda, Ph.D. graduated 2007, Major advisor **C.P. Joshi**
15. Priya Ranjan, Ph. D., Graduated 2005, **Major advisor C.P. Joshi**, C. Tsai Co-chair
16. Udaya Kalluri, Ph. D., Graduated 2003, **Major advisor C.P. Joshi**
17. Anita Samuga, Ph. D., Graduated 2003, **Major advisor C.P. Joshi**
18. Cheng-Chung Tsao, Ph. D., Graduated, 1998, **Co-advisor C.P. Joshi**, V Chiang: Chair

**Past Ph. D committees where I was a committee member, major advisors in the parenthesis: 9**

19. Sonali Jog, Ph. D. graduated 2005, Committee member (Dr. Murthy)\*
20. Barry Garchow, Ph. D. graduated 2005, Committee member (Dr. Murthy\*)
21. Pengfei Song, Ph. D. Graduated 2005, Committee member (Dr. Leuking)\*
22. Bakul Dhagat, Ph. D., Graduated 2005, Committee member (Dr. Murthy)\*
23. Pooja Sharma, Ph. D., Graduated 2003, Committee member (Dr. Karnosky)\*
24. Ajay Sundaram, Ph. D. Graduated 2003, Committee member (Dr. Bagley, Biology)\*
25. Priit Pechter, Ph. D. Graduated 2001, Committee member (Dr. Tsai, SFWP)\*
26. Leah Vucetich, Ph. D., Graduated 2001, Committee member (Dr. Peterson, SFWP)\*
27. Laigeng Li, Ph. D., Graduated 1997, Committee member (Dr. Chiang, SFWP)\*

**Past MS Students for whom I was a major advisor: 4**

28. Voo Siau, MS, Graduated 2006 (**C.P. Joshi, major advisor**)
29. Asha Lakkavaram, MS, Graduated 2006 (**C.P. Joshi, major advisor**)
30. Zihao Wang, Graduated 2003, **Major advisor C.P. Joshi** (co-advisor Dr. Leuking, Biology)\*
31. Rajesh Chavli, M.S., Graduated 2001, **Major advisor C.P. Joshi**

**Past MS committees for whom I was a committee member, major advisors in the parenthesis: 15**

32. James Wee, MS graduate December 2006, committee member (Dr. Leuking, Biology\*)
33. Jaisudha Purushothaman, MS, graduated 2005, committee member (Dr. Seidel, CS\*)
34. Patience Tenny, MS, Graduated 2005, Committee member (Dr. Wusirika, Biology\*)
35. Jen Taylor, MS, Graduated May 2004, Committee member (Dr. Gale, SFRES)\*
36. Pengfei Song, MS, Graduated April 2004, Committee member (Dr. Campbell, Biology)\*
37. Yanyan Lu, MS. Graduated April 2004, Committee member (Dr. Zhang, Math)\*
38. Mike Jones, M.S., Graduated 2003, Committee member (Dr. Orr, SFRES)\*
39. Hong Li, M.S., Graduated 2003, Committee member (Dr. Zhang, Math)\*
40. Kristina Owens, M.S., Graduated 2003, Committee member (Dr. Orr, SFRES)\*
41. Mahita Kadmiel, M.S., Graduated 2003, Committee member (Dr. Sottile, Biology)\*
42. Phaik Yin Mark, M.S. Graduated 2002, Committee member (Dr. Tsai, SFRES)\*

43. Jun Qian, M.S. Graduated 1999, Committee member (Dr. Huang, CS)\*
44. Srikanth Pangulari, M.S., Graduated, 1999, Committee member (Dr. Van Dam, CE)\*
45. Hao Zhou, M.S. Graduated, 1997, Committee member (Dr. Huang, CS)\*
46. Karla Kinslow, M.S., Graduated, 1997, Committee member (Drs. Podila and Gretz, Biology)\*

### **Supervision of Postdoctoral Research Associates and visiting scientists: 11**

1. Dr. Luguang Wu, Currently at University of Queensland, Australia
2. Dr. Yaw-ching Yang, Currently at Genome Therapeutics, Boston, USA
3. Dr. Laigeng Li, Currently at NCSU, USA
4. Dr. Cheng-Chung Tsao, Currently at National Institute of Environmental Health
5. Dr. Yin Mak, Currently at IKPP, Indonesia
6. Dr. Xiaoe Liang, Currently at Duke University, NC, USA
7. Dr. Suchita Bhandari, Currently working as Scientist, BILT, India
8. Dr. Takeshi Fujino, currently at Virginia Tech
9. Dr. Dongyan Zhang
10. Dr. Yunxia Liu, returned back to her home country
11. Dr. Ramesh Thakur, MTU

### **My Contributions to Research Fields of My Interest**

#### **Highly cited papers:**

I have published several "highly cited" papers regarding transcription regulatory sequence motifs in eukaryotic genes. A total number of citations with me as a lead author or co-author: ~2100. Please refer to Science Citation Index from 1988 onwards.

#### **Patents approved and licensed:**

##### **Cellulose synthase encoding polynucleotides and uses thereof**

Authors: Chiang, Wu and Joshi, Approved USA patent #7,049,481 on May 18, 2006

##### **Cellulose synthase promoter and method for modifying cellulose and lignin biosynthesis in plants**

Authors: Chiang, Wu, Joshi, Approved USA patent #7,232,941 on June 19, 2007

#### **Patents filed:**

Also filed one more patent entitled "Enhanced growth of transgenic plants through genetic engineering of cellulose synthases" and another patent on "cellulose synthase promoters" to US and international patent offices.

**Consultant:** CuraGen Corporation, New Haven, CT (now inactive)

## Service:

### University Committees that I have served on:

Current Director, University-wide Biotechnology Research Center, 2007-present  
Current Director of Graduate Program for SFRES, 2004-present  
Current Chair of University-wide Faculty Review Committee, MTU, 2006-present  
Current Chair of University-Wide Institutional BioSafety committee, MTU, 2002-present,  
Current Chair of Biotechnology Faculty Search Committee (2007-08), SFRES, MTU  
Current member of University-wide Research Advisory Committee, MTU, 2005-present  
Current member of University-wide SFHI faculty search Committee, MTU, 2007-2008  
Current member of Promotion and Tenure Committee, SFRES, MTU, 2005-present  
Current member of Promotion and Tenure Committee, BME, MTU, 2007-2008  
Current member of Biotechnology Research Center and Ecosystem Science Center  
Current member of University-wide Graduate Faculty Council, 2007-present  
Current member of University-wide GA/TA distribution Committee, MTU, 2007-2008  
Past member of University-wide investigation committee, 2007  
Past member of advisory Committee, Biotech Research Center, MTU, 2005-2007  
Past member of Wetlands Faculty search committee (2005), MTU  
Past member of University-wide Graduate Dean Selection committee, 2005, MTU  
Past Member of Biotechnology Faculty Search Committee (2003-04), SFRES, MTU  
Past member of SFRES Dean Evaluation committee (2003-04), SFRES, MTU  
Past Member of plant biotechnology curriculum committee (1998-2000), SFWP, MTU  
Past Chair and Member of graduate studies committee (2000-2003), SFWP, MTU  
Past Chair and member of SFWP computer committee (1999-2002), SFWP, MTU  
Past Member of campus wide computer fees committee (1999-2002), MTU  
Past Member of school portfolio/strategic plan committee (1999-2000), SFWP, MTU  
Past Member of School Council, SFWP, MTU (2001-2002), SFWP, MTU  
Past Member of Ecology Faculty Search Committee (2002), SFWP, MTU

### National Project Review panels that I have served on

National Science Foundation 2005, 2006, 2007  
Department of Energy 2006  
USDA-NRI 2008

### Research Funding Activities (Other investigators specified) total: **\$6.12 million**

#### Current: total with me as a PI or Co-PI: **\$3,290,334**

- 2008-2010: Genetic master switches controlling cellulose biosynthesis in plants; CPBR **\$340,000 (Joshi)**(In negotiation)
- 2006-2008: "Modulation of cellulose crystallinity in transgenic trees" CPBR. **\$200,472 (Joshi)**

- 2004-2008: “Genetic engineering of cellulose biosynthesis hardwood and softwood trees” USDA-Improved Wood Utilization, Collaborator: Shawn Mansfield, UBC, Canada **\$300,000 (Joshi)**
- 2003-2009: “CAREER-Cellulose biosynthesis in aspen trees” National Science Foundation-IBN CAREER program, **\$583,833 (Joshi)**
- 2002-2009: “Molecular Genetics of Cellulose Biosynthesis in Aspen” USDA-McIntire Stennis Program **\$35,000 (Joshi)**
- 2003-2008: Improved wood properties through genetic manipulation. DOE Agenda 2020. **\$1,871,029 (Joshi, Chiang and Li)**

### **Past Successfully Completed Project Grants: \$2,830,157**

- 2003-2007: Simultaneous expression of angiosperm syringyl monolignol genes in gymnosperm to investigate syringyl lignin biosynthesis in trees. **\$190,000 (Joshi, Chiang, Li)**
- 2001-2004: "Functional Genomics of Fast-Growing Transgenic Aspen Trees", Michigan Life Sciences Corridor Fund, **\$2,013,729 (Tsai, Harding, Joshi, and Chiang)**
- 2003: Acquisition of an ABI PRISM 3100 Avant Genetic analyzer, Research Excellence Fund, **\$50,000, (Tsai, Joshi and Harding)**
- 1999-2004: "Genetic engineering of cellulose biosynthesis in trees: A strategy to cellulose augmentation and lignin reduction", USDA Competitive Grants, **\$215,000 (Chiang, Joshi, Wu)**
- 2002: “Enhancement of Research Mentorship” award from Graduate School MTU, **\$1,000 (Joshi)**
- 1996-2000: “Bioinformatics and Biomolecular modeling” MI Research Excellence Fund, **\$284,000 (Pandey, Joshi, Huang, Podila, Brown, Murthy, Hansmann)**
- 2000: Digital photo-documentation system, MTU, **\$1,428 (Joshi)**
- 1998-2001: “Wood Biotechnology” State of Michigan Research Excellence Fund **\$75,000 (Tsai, Joshi, and Chiang)**

### **List of Research Contributions**

**(Total 143 contributions: 45 refereed journal papers; 16 book chapters; 2 approved patents, and 80 presentations)**

#### **Referred Journal Publications: 45**

1. Shanfa Lu, Laigeng Li, Xiaoping Yi, **Chandrashekhara P. Joshi**, and Vincent L. Chiang: Differential expression of three eucalyptus secondary cell wall- related cellulose synthase genes in response to tension stress. **Journal of Experimental Botany** 59: 681-695, 2008
2. **C.P. Joshi** and S.D. Mansfield: The cellulose paradox: simple molecule, complex biosynthesis. **Current Opinion in Plant Biology**. 10: 220-226, 2007.

3. Reginaldo A. Festucci-Buselli, Wagner C. Otoni and **Chandrashekhar P. Joshi**: Structure, organization and functions of cellulose synthase complexes in higher plants. **Brazilian Journal of Plant Physiology** 19(1) 1-17, 2007.
4. Tuskan GA, DiFazio SP, Hellsten U, Jansson S, Rombauts S, Putnam N, Sterck L, Bohlmann J, Schein J, Bhalerao RR, Bhalerao RP, Blaudez D, Boerjan W, Brun A, Brunner A, Busov V, Campbell M, Carlson J, Chalot M, Chapman J, Chen G, Cooper D, Coutinho PM, Couturier J, Covert SF, Cunningham R, Davis J, Degroeve S, dePamphilis C, Detter J, Dirks B, Dubchak I, Duplessis S, Ehlting J, Ellis B, Gendler K, Goodstein D, Gribskov M, Grigoriev I, Groover A, Gunter L, Hamberger B, Heinze B, Helariutta Y, Henrissat B, Holligan D, Islam-Faridi N, Jones-Rhoades M, Jorgensen R, **Joshi C**, Kangasjarvi J, Karlsson J, Kelleher C, Kirkpatrick R, Kirst M, Kohler A, Kalluri U, Larimer F, Leebens-Mack J, Leple JC, Dejardin A, Pilate G, Locascio P, Lucas S, Martin F, Montanini B, Napoli C, Nelson DR, Nelson CD, Nieminen KM, Nilsson O, Peter G, Philippe R, Poliakov A, Ralph S, Richardson P, Rinaldi C, Ritland K, Rouze P, Ryaboy D, Salamov A, Schrader J, Segerman B, Sterky F, Souza C, Tsai C, Unneberg P, Wall K, Wessler S, Yang G, Yin T, Douglas C, Sandberg G, Van de Peer Y, Rokhsar D. The genome of black cottonwood, *Populus trichocarpa* (Torr. & Gray). **Science** 313: 1596 – 1604, 2006
5. Suchita Bhandari, Takeshi Fujino, Shiv Thammanagowda, Dongyan Zhang, Fuyu Xu, and **Chandrashekhar P. Joshi**: Xylem-specific and tension stress-responsive coexpression of KORRIGAN endoglucanase and three cellulose synthase genes in aspen trees. **Planta** 224: 828-837, 2006
6. Udaya Kalluri and **C.P. Joshi**: Differential expression of two cellulose synthase genes associated with primary wall and secondary wall development in aspen trees. **Planta** 220: 47-55, 2004.
7. **C.P. Joshi**, S. Bhandari, P. Ranjan, U. C. Kalluri, X. Liang, T. Fujino, and A. Samuga: Genomics of cellulose biosynthesis in poplars. **New Phytologist** 164: 53-61, 2004
8. Ranjan P, Kao Y, Jiang H, **C.P. Joshi**, S.A. Harding and C.J. Tsai: Suppression Subtractive Hybridization-mediated Transcriptome Analysis from Multiple Tissues of Aspen (*Populus tremuloides*) Trees Altered in Phenylpropanoid Metabolism. **Planta**, 219: 694-704, 2004.
9. Anita Samuga and **C.P. Joshi**: Differential expression patterns of two new primary cell wall-related cellulose synthase cDNAs, PtrCesA6 and PtrCesA7 from aspen trees. **Gene**, 334: 73-82, 2004.
10. Xiaoe Liang and **C.P. Joshi**: Molecular cloning of ten distinct hypervariable regions from cellulose synthase gene superfamily in aspen trees. **Tree Physiology** 24: 543-550, 2004.
11. Anita Samuga and **C.P. Joshi**: Cloning and characterization of cellulose synthase-like gene, PtrCSLD2 from developing xylem of aspen trees. **Physiologia Plantarum** 120: 641-651, 2004.

12. Udaya Kalluri and **C.P. Joshi**: Isolation and Characterization of a New, Full-Length Cellulose Synthase cDNA from Developing Xylem of Aspen Trees. **Journal of Experimental Botany** 54: 2187-2188, 2003.
13. **C. P. Joshi**: Xylem-Specific and Tension Stress Responsive Expression of Cellulose Synthase Genes from Aspen Trees. **Applied Biochemistry and Biotechnology** 105: 17-26, 2003.
14. Anita Samuga and **C. P. Joshi**: A new cellulose synthase gene (*PtrCesA2*) from aspen xylem is orthologous to *Arabidopsis AtCesA7* (*irx3*) gene associated with secondary cell wall synthesis. **Gene** 296: 37-44, 2002.
15. L. Vucetich, J.A. Vucetich, **C.P. Joshi**, T.A. Waite, R.O. Peterson: Genetic (RAPD) diversity in *Peromyscus maniculatus* populations in a naturally fragmented landscape. **Molecular Ecology** 10: 35-40, 2001.
16. L. Wu, **C.P. Joshi**, V.L. Chiang: A xylem-specific cellulose synthase gene from aspen (*Populus tremuloides*) is responsive to mechanical stress. **Plant Journal** 22(6): 495-502, 2000
17. N. Klueva, R.C. Joshi, **C.P. Joshi**, D.B. Wester, R.E. Zartman, R.G. Cantrell, H.T. Nguyen: Genetic variability and molecular responses of root penetration in cotton. **Plant Science** 155 (1): 41-47, 2000
18. K. Osakabe, C-C. Tsao, L. Li, J. L. Popko, T. Umezawa, D. T. Carraway, R. H. Smeltzer, **C. P. Joshi**, V. L. Chiang: Coniferyl aldehyde 5-hydroxylation and methylation direct syringyl lignin biosynthesis in angiosperms. **Proceedings of National Academy of Sciences, USA**, 96 (16): 8955-8960, 1999.
19. L. Li, Y. Osakabe, **C. P. Joshi**, V. L. Chiang: Secondary xylem-specific expression of Caffeoyl Coenzyme A-3-O-methyltransferase plays an important role in the methylation pathway associated with lignin biosynthesis in loblolly pine. **Plant Molecular Biology** 40 (4): 555-565, 1999.
20. **C. P. Joshi**, V.L. Chiang: Conserved sequence motifs in plant S-Adenosyl-L-Methionine dependent methyltransferases. **Plant Molecular Biology**, 37: 663-674, 1998
21. L. Wu, **C. P. Joshi**, V. L. Chiang: AraxCelA, A new member of Cellulose Synthase gene family from *Arabidopsis thaliana* (Accession No. AF062485). **Plant Physiology** 117: 1125, 1998 (Plant Gene Register) (#PGR 114)
22. L. Li, X-H. Zhang, **C. P. Joshi**, V L. Chiang: Compression Stress Responsive Expression of ferritin (Accession No. AF028072) and peroxidase Genes (Accession No. AF028073) in the developing xylem of loblolly pine (*Pinus taeda*). **Plant Physiology** 116:1604, 1998 (Plant Gene Register) (PGR # 64)
23. L. Li, J.L. Popko, X-H. Zhang, K. Osakabe, C. Tsai, **C.P. Joshi**, V. Chiang: A novel multifunctional O-methyltransferase implicated in a dual methylation pathway associated with lignin biosynthesis in loblolly pine. **Proceedings of National Academy of Sciences, USA**, 94: 5461-5466, 1997.

24. **C.P. Joshi**, H. Zhou, X. Huang, V. Chiang: Context sequences of translation initiation codon in plants. **Plant Molecular Biology**, 35: 993-1001, 1997.
25. **C.P. Joshi**, N. Klueva, K. Morrow, H.T. Nguyen: Expression of a unique plastid-localized heat shock protein is genetically linked to acquired thermotolerance in wheat. **Theoretical and Applied Genetics**, 95: 834-841, 1997.
26. **C. P. Joshi**, H.T. Nguyen: Differential display mediated rapid identification of different members of a multigene family, HSP16.9 in wheat. **Plant Molecular Biology** 31, 575-584, 1996.
27. **C.P. Joshi**, S. Kumar, H.T. Nguyen: Application of modified differential display technique for the cloning and sequencing of the 3' regions from three putative members of wheat two members of HSP70 gene family. **Plant Molecular Biology**, 30, 641-646, 1996.
28. **C. P. Joshi**, H.T. Nguyen: 5' Untranslated leader sequences from eukaryotic mRNAs encoding heat shock proteins. **Nucleic Acids Research** 23, 541-549, 1995.
29. R.A. Vierling, Z. Xiang, **C.P. Joshi**, M. Gilbert, H.T. Nguyen: Genetic diversity among elite sorghum lines revealed by RFLPs and RAPDs. **Theoretical and Applied Genetics** 87, 816-820, 1994.
30. H.T. Nguyen, **C.P. Joshi**, N. Klueva, J. Weng, K. Hendershot, A. Blum: The heat shock response and expression of heat shock proteins in wheat under diurnal heat stress and field conditions. **Australian Journal of Plant Physiology** 21, 857-867, 1994.
31. **C. P. Joshi**, H.T. Nguyen: Application of RAPD technique for the detection of polymorphism among wild and cultivated tetraploid wheats. **Genome** 36: 602-609, 1993.
32. Y. Z. Cheng, J. Weng, **C. P. Joshi**, H. T. Nguyen: Dehydration stress induced changes in translatable RNAs in sorghum. **Crop Science** 33, 1397-1400, 1993.
33. **C. P. Joshi**, H.T. Nguyen: RAPD (Random Amplified polymorphic DNA) analysis based intervarietal relationships among hexaploid wheat. **Plant Science**, 93: 95-103, 1993.
34. H.T. Nguyen, J. Weng, **C.P. Joshi**: A wheat cDNA clone encoding a plastid-localized heat shock protein. **Plant Physiology** 103, 675-676, 1993.
35. S.W. King, **C. P. Joshi**, H.T. Nguyen: DNA sequence of an ABA responsive gene (RAB15) from water stressed wheat roots. **Plant Molecular Biology** 18, 199-201, 1992.
36. **C.P. Joshi**, S.W. King, H. T. Nguyen: Molecular cloning and characterization of a cDNA encoding a water-stress protein (WSP23) from wheat root. **Plant Science** 86: 71-82, 1992.
37. **C. P. Joshi**, J. Weng, H.T. Nguyen: Wheat ubiquitin gene exhibits conserved protein coding region and a diverged 3' non-coding region. **Plant Molecular Biology** 16, 907-908, 1991.

38. S.A. Bapat, **C.P. Joshi**, A.F. Mascarenhas: Occurrence and frequency of precocious germination of somatic embryos is a genotype dependent phenomenon in wheat. **Plant Cell Reports** 7, 538-541, 1988.
39. **C.P. Joshi**: An inspection of the domain between putative TATA box and translation start site in seventy-nine plant genes. **Nucleic Acids Research** 15, 6643-6653, 1987.
40. **C.P. Joshi**: Putative polyadenylation signals in nuclear genes of higher plants: a compilation and analysis. **Nucleic Acids Research** 15, 9627-9640, 1987.
41. S. Patankar, **C.P. Joshi**, S.A. Ranade, M. Bhave, and P.K. Ranjekar: Interphase nuclear organization in plants. **Proceedings of Indian Academy of Sciences (plant Science)** 94, 539-551, 1985.
42. **C.P. Joshi** and P.K. Ranjekar: Mechanism of HCl-Giemsa banding technique. **The Nucleus** 26, 35-48, 1983.
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44. **C.P. Joshi** and P.K. Ranjekar: A simple technique for visualization of telomeric heterochromatin in *Allium cepa*. **Cell and Chromosome Newsletter** 4, 60-61, 1981.
45. **C.P. Joshi** and P.K. Ranjekar : Technique for heterochromatin visualization and chromosome banding in plants. **The Nucleus** 23, 169-176, 1980.

### Book Editing

Currently editing a book on “Genomics of Industrial crops: Poplars” with Steve DiFazio of West Virginia University. To be published by Science Publisher, USA in 2009.

### Refereed Book Chapters: 16

1. **C. P. Joshi**, Brunner A, Busov V, Meilan R, Thammanagowda S, Tsai C.: Poplars. In: *The Transgenics: A Reference Compendium on Plants*. C. Kole and T. Hall (Eds). Blackwell Publishing, Malden, USA. In Press, **2008**
2. **C. P. Joshi**: Genomics of Wood development. In Aluizio Borém (Ed) *Forest Biotechnology*. Universidade Vicosa, Brazil, **PP 273-295. 2007 (in Portuguese)**
3. **C.P. Joshi**: Molecular genetics of cellulose biosynthesis in trees. In Kumar S. and Fladung M. (Eds.) *Molecular genetics and breeding of forest trees*. Haworth Press, Binghamton, NY, **PP 141-165, 2004**.
4. **C.P. Joshi**: Molecular biology of cellulose biosynthesis in plants. In “Recent Research Development in Plant Molecular Biology” (S. Pandalai, Ed) Volume 1, Research Signpost, Kerala, India. **PP 19-38, 2003**.
5. Podila G.K., **C.P. Joshi** and P. B. Kaufman: Functional Genomics and DNA Microarray Technology. In *Handbook of Molecular and Cellular Methods in Biology and Medicine*,

Second Edition, (Cseke LJ , Kaufman PB, Podila GK, Tsai CJ. eds) CRC Press, NY. **PP 319-346, 2003.**

6. L. Wu, T. Fujino, S. Kimura, **C. P. Joshi**, V. Chiang: A xylem-specific cellulose synthase gene from aspen (*Populus tremuloides*) is responsive to mechanical stress. In "Frontiers in Cellulose Science" (T. Itoh, ed), **PP 2-7, 2000.**
7. **C.P. Joshi**, H.T. Nguyen: Cloning of the 3' non-coding regions from several members of heat shock protein gene families by differential display. In: A. Pardee and P. Liang (eds) Differential display: Methods and Applications, Humana Press, **PP 107-121, 1997.**
8. Boerjan W., Baucher M., Chabbert, B., Petit-Conil M, Leple J.C., Pilate G., Cornu D., Monties B., Van Montagu M., Van Doorselaere J., Inze D., Jouanin L, Tsai C.J., Podila G.K., **Joshi C.P.**, Chiang V.L.: Genetic modification of lignin biosynthesis in quaking aspen and poplar. In : Klofenstein N.B., Chun YW, Kim MS and Ahuja MR (eds.), Micropropagation and Genetic Engineering and Molecular Biology of Populus. **PP 193-205, 1997.**
9. H. T. Nguyen, **C.P. Joshi**: Molecular genetic approaches to improving heat and drought stress tolerance in crop plants. In: J. Cherry, ed., NATO Advanced Research Workshop " Role of biotechnology in the improvement of stress tolerance in crop plants", Maratea, Italy, Springer-Verlag, Berlin, P. **279-289, 1994.**
10. H. T. Nguyen, **C. P. Joshi**: RAPD analysis in tetraploid and hexaploid wheats. In: Progress in genome mapping of wheat and related species: Proceedings of the Third public workshop of the International Triticeae Mapping Initiative, (Hoisington D, and A. McNab, eds.), El Batan, Mexico, D.F.: CIMMYT, P. **47-50, 1993.**
11. H.T. Nguyen, C.P. **Joshi**: Molecular and genetic analysis of heat tolerance in plants. In: Mabry TJ, Nguyen HT, Dixon RA, eds., Proceedings of Applications and prospects of Biotechnology for arid and semi-arid lands. Lubbock. IC<sup>2</sup> Institute, Austin, USA, **PP 93-106, 1993.**
12. H. T. Nguyen, K. L. Hendershot, **C.P. Joshi**: Molecular genetics of stress breeding: Heat Shock Proteins. In: International Crop Science Congress I (D. Buxton et al., ed.), Crop Science Society Of America, Madison, USA, **PP 541-547, 1993.**
13. H. T. Nguyen, **C. P. Joshi**: Molecular strategies for the genetic dissection of water and heat stress adaptation in cereal crops. In: Adaptation of Food Crops to Temperature and Water Stress, (G. Kuo, ed.), Asian Vegetable Research and Development Center, Taipei, Taiwan, **PP 3-19, 1993.**
14. D.P.S. Verma, G.H. Miao, **C.P. Joshi**, C.I. Cheon, A. Delauney: Internalization of Rhizobium by plant cells: targeting and role of peribacteroid membrane nodulins. In: Plant Molecular Biology II (R. G. Herrmann and B.A. Larkins, eds.) P. **121-130, Plenum Press, New York, NY, 1990.**
15. **C.P. Joshi**, E. Muller-Gensert, A. Steffen, H. Lorz and O. Schieder: Interclassical protoplast fusion between orchard-grass and Petunia. In: Genetic manipulation and plant breeding. (Horn, Jensen, Odenbach, and Schieder, eds.) Walter de Grueter and Co. Berlin. P. **689-691, 1986.**

16. **C.P. Joshi** and O. Schieder: Isolation, culture and regeneration of legume protoplasts. In "Proceedings of Recent advances in plant cell and tissue culture of economically important plants", p. 1-4, 1986.

#### **Conference Proceedings: Invited seminars and Presented Posters: 80**

1. (Invited seminar) **C. P. Joshi**: Biotechnological Improvement of Cellulose Biosynthesis in Poplar Trees for Better Bioenergy Production. Seminar to be presented at "Plant and Bioenergy" Symposium of ASPB during June 21-26, 2008 at Merida, Mexico.
2. (Invited seminar) **Chandrashekhara P. Joshi**, Yunxia Liu, Shivegowda Thammannagowda, Takeshi Fujino, Utku Avci, Lisa M. McDonnell, Robert Sykes, Mark F. Davis, Candace H. Haigler, Rama Joshi, and Shawn D. Mansfield: Metamorphosis of trees to creepers: Perturbation of wood cellulose biosynthesis produces pleiotropic effects in transgenic aspen trees. To be presented at the Third meeting on plant cell wall biosynthesis during June 5-8, 2008 at the Asilomar Conference Center, CA.
3. (Invited seminar) **C. P. Joshi**: Towards Genetic Enhancement of Cellulose Biosynthesis in Trees. Presented at the Hanover Forest Science seminar Series on November 6<sup>th</sup>, 2007 at Department of Forestry, Michigan State University, East Lansing, MI.
4. (Invited seminar) **C. P. Joshi**: Building better trees for tomorrow. Presented at the 3rd annual banquet meeting of Sustainable Future Institute on October 10, 2007 at Michigan Technological University, Houghton, MI.
5. (Invited seminar) **C. P. Joshi**: Functional genomics based genetic improvement of cellulose biosynthesis in poplars. Presented at the 10th International Congress for Biotechnology in the Pulp and Paper Industry (ICBPPI 2007) during June 10-14, 2007 at Madison, WI.
6. S. Thammannagowda, Z. Fei, O. Crasta and **C. P. Joshi**: Use of Affymetrix poplar whole genome arrays for global transcriptome analysis of tension wood formation in aspen trees. Presented at the Annual meeting of American Society of Plant Physiologists during July 7-11, 2007 at Chicago, IL.
7. Yunxia Liu, Takeshi Fujino, Shivegowda Thammannagowda, Fuyu Xu, and **Chandrashekhara P. Joshi**: Spatiotemporal regulation of three coordinately expressed poplar cellulose synthase genes involved in xylem development and tension wood formation. Presented at the Annual meeting of American Society of Plant Physiologists during July 7-11, 2007 at Chicago, IL.
8. Xu Fuyu and **C. P. Joshi**: Genome-wide expression analysis of Sucrose Synthase Genes in the Poplar Trees. Presented at the Annual meeting of American Society of Plant Physiologists during July 7-11, 2007 at Chicago, IL.
9. (Invited seminar) **Chandrashekhara P. Joshi**, Yunxia Liu, Fuyu Xu, Shivegowda Thammannagowda, Rama C. Joshi, Chung-Jui Tsai, Zhangjun Fei, Oswald R. Crasta, Mark F. Davis: Efficacy of poplar genome information in unraveling mystery of cellulose

biosynthesis. Presented at the IUFRO Tree Biotechnology meeting, Azores, Portugal during June 3-8, 2007.

10. Lisa M McDonnell, K-Y Kang, P. Brar, **C. P. Joshi** and S.D. Mansfield: Genetic engineering of cellulose biosynthesis in hardwood and softwood trees. Presented at the Second USDA grantee meeting at the Marriott Hotel, Washington, DC during March 12-14, 2007.
11. (poster) F. Xu and **C. P. Joshi**: Structure, Expression and Evolution of Sucrose Synthase Genes in *Populus* Genome. Presented at The Third Annual ESC/BRC Graduate Research Forum on Friday, February 23rd, 2007 in the Hesterberg Hall Atrium of the School of Forest Resources and Environmental Sciences on the Michigan Tech campus.
12. (poster) S. Thammangowda, Z. Fei, O. R. Crasta and **C. P. Joshi**: Global transcriptome analysis during tension wood formation in aspen trees. Presented at The Third Annual ESC/BRC Graduate Research Forum on Friday, February 23rd, 2007 in the Hesterberg Hall Atrium of the School of Forest Resources and Environmental Sciences on the Michigan Tech campus. (Grand prize winner, BRC 2007)
13. (Invited seminar) **C. P. Joshi**: Applications of Nanoscale Sciences to Cell Wall Biotechnology in Trees. Presented at the International Symposium on "Frontiers in Nanoscale Science, Technology and Education", Cochin, India during August 15-19, 2006.
14. (Poster) Xu F and **C. P. Joshi**: Protein-Protein Interactions among Cellulose Synthases from Aspen and Arabidopsis. Presented at the "Plant Biology 2006" Annual meeting of Plant Biologists at Boston, MA during August 5-9, 2006. (Travel grant winner from ASPB and BRC)
15. (Poster) Thammangowda S, Fujino T and **C. P. Joshi**: Perturbation of cellulose biosynthesis in transgenic aspen trees. Presented at "Plant Biology 2006" Annual meeting of Plant Biologists at Boston, MA during August 5-9, 2006.(Travel grant winner, BRC)
16. (Invited seminar) **Chandrashekar P. Joshi**: Power of Genetic engineering for sustainable future. Presented at the Sustainable Futures Colloquium, MTU on April 12, 2006.
17. (Invited seminar) **Chandrashekar P. Joshi**, Takeshi Fujino, Shivegowda S.T., Suchita Bhandari, Dongyan Zhang, Pushpinder Brar, Rama C. Joshi, and Fuyu Xu: The ways and means of boosting cellulose production in transgenic trees. Presented at the IUFRO Tree Biotechnology meeting, University of Pretoria, South Africa, Nov 5-11, 2005.
18. (Invited seminar) **Chandrashekar P. Joshi**: Genetic engineering of cellulose biosynthesis in hardwood and softwood trees. Presented at the First USDA grantee meeting at the Airlie Center, Warrenton, VA on February 27, 2006.
19. Shivegowda, S.T, Takeshi Fujino, and **Chandrashekar P. Joshi**: Cellulose-deficient wood: A novel phenomenon of cellulose synthesis perturbation via PtrCesA1 overexpression in transgenic aspen trees. Poster presented at The Second Annual

ESC/BRC Graduate Research Forum on Friday, February 24<sup>th</sup>, 2006 in the Hesterberg Hall Atrium of the School of Forest Resources and Environmental Sciences on the Michigan Tech campus. (Merit prize winner, BRC 2006)

20. Fuyu Xu and **Chandrashekhar P. Joshi**: Discovery of Protein-Protein Interactions among Secondary Cellulose Synthases in Aspen. Poster presented at The Second Annual ESC/BRC Graduate Research Forum on Friday, February 24<sup>th</sup>, 2006 in the Hesterberg Hall Atrium of the School of Forest Resources and Environmental Sciences on the Michigan Tech campus.
21. Pushpinder Brar, Ashalatha Lakkavaram and **Chandrashekhar P. Joshi**: Genomic organization and expression profile of sucrose synthase genes in aspen trees. Poster presented at The Second Annual ESC/BRC Graduate Research Forum on Friday, February 24<sup>th</sup>, 2006 in the Hesterberg Hall Atrium of the School of Forest Resources and Environmental Sciences on the Michigan Tech campus.
22. (invited seminar) **Chandrashekhar P. Joshi**, Takeshi Fujino, Shivegowda S.T., Suchita Bhandari, Dongyan Zhang, and Fuyu Xu: Transgenic Approaches toward Elucidating Cellulose Biosynthetic Processes in Trees. Presented at the second meeting on plant cell wall biosynthesis during August 4-7, 2005 at the Asilomar Conference Center, CA.
23. (poster) **Chandrashekhar P. Joshi**, Takeshi Fujino, Suchita Bhandari, Fuyu Xu, Shivegowda Thammangowda, Dongyan Zhang, Anita Samuga, and Udaya Kalluri: Xylem-specific and tension stress-responsive expression of three secondary wall-associated cellulose synthases and a membrane-anchored korrigan cellulase from aspen trees. Presented at American Society of Plant Biologists meeting at Seattle, WA during July 17-20, 2005
24. (Poster) Takeshi Fujino, Suchita Bhandari, and **Chandrashekhar P. Joshi**: Coordinated Expression of Secondary Wall-Associated Cellulose Synthase and *Korrigan* Cellulase Genes during Tension Wood Formation in Aspen Trees Presented at the second meeting on plant cell wall biosynthesis during August 4-7, 2005 at the Asilomar Conference Center, CA (BRC Travel grant winner).
25. (invited seminar) **C. P. Joshi**: Cellulose biosynthesis in poplars: a progress report. Invited seminar given at University of British Columbia (UBC), Vancouver, Canada on July 14, 2005.
26. (Poster) P. Brar and **C.P. Joshi**: Impact of Overexpression of Cellulose Biosynthesis-Related Genes on Aspen Trees. 1<sup>st</sup> annual ESC/BRC research Forum, Michigan Technological University, Houghton, MI on February 25, 2005.
27. (Poster) P. Ranjan, **C.P. Joshi** and C.J. Tsai: Diversity, Distribution and Features of LTR Retrotransposons in Selected Plant Genomes. 1<sup>st</sup> annual ESC/BRC research Forum, Michigan Technological University, Houghton, MI on February 25, 2005.
28. (Poster) S. Thammangowda and **C.P. Joshi**: Transgenic Approaches to Unravel the Cellulose Biosynthetic Process in Aspen. 1<sup>st</sup> annual ESC/BRC research Forum, Michigan Technological University, Houghton, MI on February 25, 2005 (BRC Merit award winner 2006).

29. (Poster) F. Xu and **C.P. Joshi**: Discovery of Protein-Protein Interactions among Secondary Cellulose Synthases in Aspen. 1<sup>st</sup> annual ESC/BRC research Forum, Michigan Technological University, Houghton, MI on February 25, 2005 (BRC Merit award winner 2006).
30. (Invited participant) **Chandrashekhar P. Joshi**: Populus genome annotation jamboree. December 6-10, 2004 at Joint Genome Institute, Walnut Creek, CA.
31. (Invited Seminar) **Chandrashekhar P. Joshi**: Biotechnology of cellulose biosynthesis in poplars. Presented at Nanotechnology workshop for the forest product industries during October 17-19, 2004 at Washington, D.C.
32. (Invited seminar) **Chandrashekhar P. Joshi**: Cellulose biosynthesis in Plants. Seminar given at Thapar Institute of Engineering and Technology, Patiala, Punjab, India on August 12, 2004.
33. (Poster) Bhandari S., T. Fujino, **C.P. Joshi**: Expression studies of a membrane anchored endo-1,4  $\beta$  glucanase, Korrigan (Kor) gene from aspen. Presented at "Functional genomics of environmental adaptation in Populus" at Gatlinburg, TN during October 11<sup>th</sup> to 13<sup>th</sup>, 2004.
34. (Invited seminar) **Chandrashekhar P. Joshi**: Wonderful world of cellulose synthases. Seminar presented at Kansas State University, Manhattan, KS on May 13, 2004.
35. (Invited seminar) **Chandrashekhar P. Joshi**, T. Fujino, X. Liang, F. Xu, S. Thammanagowda, A. Samuga, and U. Kalluri: Differential expression patterns of several cellulose biosynthesis related genes in aspen trees. Symposium honoring Professor Debby Delmer on "Biosynthesis of cellulose and other cell wall polymers" by American Chemical Society. Presented during March 29-March 30, 2004 at Anaheim, CA.
36. (Invited seminar) **Chandrashekhar P. Joshi**: Three amigos: Coordinate expression of three cellulose synthase genes in aspen trees. Chemical Sciences Colloquium, Michigan Technological University, Houghton, MI presented on October 31, 2003.
37. **Chandrashekhar P. Joshi**, Xiaoe Liang, Anita Samuga, and Udaya C. Kalluri: Coordinate expression of three cellulose synthase genes implicated in the cellulose biosynthesis of xylem secondary cell walls in aspen trees. Poster presented at the Gordon Research Conference on "Plant Cell walls" during August 10-15, 2003, Meriden, NH.
38. (Invited seminar) **Chandrashekhar P. Joshi**, Xiaoe Liang, Anita Samuga, and Udaya C. Kalluri: Coordinate expression of three cellulose synthase genes may orchestrate cellulose biosynthesis during the wood formation in aspen trees. Annual American Society of Plant Biologists meeting during July 24-30, 2003 at Honolulu, Hawaii.
39. (Invited seminar) **Chandrashekhar P. Joshi**, Xiaoe Liang, Anita Samuga, and Udaya C. Kalluri: Three distinct Cellulose Synthases may help building the xylem secondary walls in aspen. Presented at Tree Biotechnology meeting during June 7-12, 2003 at Umea, Sweden

40. (Invited seminar) Chung-Jui Tsai, Darren Touchell, Mijeong Jeong, Hongyang Jiang, Yu-Ying Kao, Maria Hernandez, Tae-Jin Lee, Priya Ranjan, **Chandrashekar Joshi**, and Scott Harding. Populus Cell Culture as A Component For Functional Genomic Research. Presented by Dr. Tsai at the Tree Biotechnology meeting during June 7-12, 2003 at Umea, Sweden.
41. (Invited seminar) **C.P. Joshi**, X. Liang, A. Samuga and U. Kalluri: Elucidation of cellulose biosynthesis towards modulation of wood composition. Presented at California Institute of Food and Agriculture Conference on "Adding value to Plant Polysaccharides and Polyphenolics, on October 28, 2002 at University of California, Davis, CA.
42. Ranjan P., Kao Y.Y., Harding S., Jiang H., Chiang V., **Joshi C.P.** and Tsai C.: Comparison of metabolic changes in control and transgenic aspen trees by functional evaluation of expressed sequence tags. Poster presented by Ranjan at the First Annual Great Lakes Bioinformatics Retreat, August 27 and 28, 2002 at Waldenwoods Resort, MI.
43. Lu S., Li L., **Joshi C.P.**, Zhou Y., Sun J., Zhang Y., Hinchee M., Chiang V.: Molecular cloning and characterization of three cellulose synthases associated with xylem development in Eucalyptus grandis. Poster presented by Lu at American Society of Plant Biologists annual meeting at Denver, CO during August 2-7, 2002.
44. Zhou Y., Li L., **Joshi C.P.**, Lu S., Sun J., Zhang Y., Hinchee M., and Chiang V.: Molecular cloning of cellulose synthase genes from loblolly pine. Poster presented by Zhou at American Society of Plant Biologists annual meeting at Denver, CO during August 2-7, 2002.
45. Samuga A., Chavli, R., Kalluri U., Liang X., **Joshi C.P.**: Isolation of hypervariable II regions from 8 new members of Cesa gene superfamily in aspen (Populus tremuloides). Poster presented by Samuga at American Society of Plant Biologists annual meeting at Denver, CO during August 2-7, 2002.
46. Kalluri U., Samuga A., and **Joshi C.P.**: Isolation and characterization of five new full-length cDNAs from cellulose synthase gene superfamily in aspen (Populus tremuloides). Poster presented by Kalluri at American Society of Plant Biologists annual meeting at Denver, CO during August 2-7, 2002.
47. (Invited seminar) **C.P. Joshi**: Xylem-specific and tension stress responsive cellulose synthase genes in aspen trees. Invited seminar given at 24<sup>th</sup> Biotechnology symposium for fuels and Chemicals, Gatlinburg, TN during April 28-May 1, 2002.
48. (Invited seminar) **C.P. Joshi**, L. Wu, R. Chavli, A. Samuga, V. Chiang: Molecular genetics of cellulose biosynthesis in trees. Invited seminar given at 23<sup>rd</sup> Biotechnology symposium for fuels and Chemicals, Brackenridge, CO. May 6-9, 2001.
49. (Invited seminar) **C.P. Joshi**, L. Wu, R. Chavli, A. Samuga, V. Chiang: Extent of cellulose synthase gene family from aspen. Invited seminar at the Tree Biotechnology in the next millennium, Stevenson, Washington, July 22-27, 2001.

50. (Invited seminar) **C.P. Joshi**, L. Wu, R.V. Chavli, V.L. Chiang: "Exciting World of Plant Cellulose" presented invited seminar at "In Vitro Biology" meeting, San Diego, CA during June 11-15, 2000
51. L. Wu, T. Fujino, S. Kimura, **C. P. Joshi**, V. Chiang: A xylem-specific cellulose synthase gene from aspen (*Populus tremuloides*) is responsive to mechanical stress. In "Frontiers in Cellulose Science" meeting presented by Chiang, Nov 10-11, 2000 at Kyoto, Japan.
52. (Invited seminar) **C.P. Joshi**: Plant Biotechnology: Are we playing GOD? In Xi Sigma Pi symposium on "GMOs in Forestry" April 8, 2000, Michigan Technological University, Houghton, MI.
53. (Invited seminar) **C.P. Joshi**: "How do plants make cellulose?" Biology Seminar series, May 1999, Michigan Tech University, Houghton, MI
54. (Invited seminar) **C. P. Joshi**, L. Wu, V. Chiang: A novel xylem-specific and tension stress responsive cellulose synthase gene from quaking aspen. Seminar presented at "Forest Biotechnology 99" meeting, Oxford, UK, July 11-16, 1999 pp. 19.
55. L. Li, K. Osakabe, C. C. Tsao, J. L. Popko, T. Umezawa, D. T. Carraway, R. H. Smeltzer, **C. P. Joshi**, V L. Chiang: A clarification of syringyl monolignol biosynthesis. Presented at "Forest Biotechnology 99" meeting by Chiang, Oxford, UK, July 11-16, 1999 pp. 27.
56. **C.P. Joshi**, H. Zhou, X. Huang, V. Chiang: Consensus sequences flanking the translation initiation codon may be useful in genome sequencing of plants. Presented at "Plant and Animal Genome VI" meeting, San Diego, CA, USA, 1998 pp. 77.
57. **C.P. Joshi**, V. Chiang: SAM-dependent Methyltransferase-specific amino acid signatures in plants. Annual American Society of Plant Physiology meeting held in Madison, WI, during June 27-July 1, 1998.
58. Li, L., **C.P. Joshi**, V. Chiang: Molecular cloning and characterization of two O-methyltransferases involved in lignin biosynthesis in loblolly pine (*Pinus taeda*) Annual American Society of Plant Physiology meeting held in Madison, WI, 1998.
59. Yang Y-C., **C.P. Joshi**, V. Chiang: Fast growth of aspen plants in extremely low frequency electromagnetic fields. Annual American Society of Plant Physiology meeting held in Madison, WI, during June 27-July 1, 1998.
60. (Invited seminar) Li, L., **C.P. Joshi**, V. Chiang: Existence of two multifunctional o-methyltransferases in loblolly pine questions the concept of monofunctional o-methyltransferase in gymnosperms. Invited presentation at IEG-40 workshop on " Wood and Wood Fibers: Properties and Genetic Improvement" held in Atlanta, GA during July 19-22, 1998.
61. (Invited seminar) Hao L., Li L., Yang Y., **C.P. Joshi** and Chiang V.: Application of Differential display in Wood Biotechnology. Invited oral presentation at the Second International Wood Biotechnology Symposium. Canberra, Australia, 1997.

62. Li L, X. Zhang, **C.P. Joshi** and V.L. Chiang: Differential display mediated identification of compression stress induced cDNAs in loblolly pine. American Society of Plant Physiology meeting at Vancouver, BC, Canada, 1997.
63. (Invited seminar) **C.P. Joshi**, Kumar S., Klueva, N, Joshi R., Nguyen H.T., Hao L., Zhang X, Tsao C., Chiang V: Modified Differential display for the cloning of multigene family members in plants. Invited talk at "Differential display and related techniques for gene discovery" meeting, Cold Spring Harbor Laboratory, New York, 1996.
64. (Invited seminar) **C.P. Joshi**, H.T. Nguyen: Differential display mediated rapid cloning and sequencing of the 3' region of several cDNAs from a large heat shock protein gene family. Gordon Research Conference on 'temperature stresses in plants' presented at Oxnard, California, 1995.
65. N. Klueva, **C.P. Joshi**, H.T. Nguyen: A member of HSP26 gene family is associated with thermotolerance in wheat. Keystone Symposium, Stress proteins in biology and medicine. Santa Fe, New Mexico, 1995.
66. **C.P. Joshi**, H.T. Nguyen: Understanding the roles of heat shock proteins in acquired thermotolerance of wheat plants through molecular genetic analysis. Keystone Symp. on 'Improved Crop and Plant Products Through Biotechnology', Keystone, 1994.
67. H.T. Nguyen, K.L. Hendershot, **C.P. Joshi**: Molecular genetics of stress breeding: Heat shock proteins. First International Congress of Crop Sciences, Ames, Iowa, 1992.
68. H.T. Nguyen, **C.P. Joshi** : Molecular strategies for the genetic dissection of water and high temperature stress adaptation in cereal crops. International Symposium on adaptation of Vegetable and other food crops to temperature and water stress, Taipei, Taiwan, 1992.
69. H.T. Nguyen, **C. P. Joshi**: RAPD analysis in tetraploid and hexaploid wheat. International Triticeae Mapping Initiative, CYMMYT, Mexico, 1992.
70. H.T. Nguyen, **C.P. Joshi**: Molecular and genetic analysis of heat tolerance in plants. International symposium on "Applications and prospects of Biotechnology for arid and semi-arid lands" Lubbock, 1992.
71. **C.P. Joshi**, J. Weng, H. T. Nguyen: Molecular cloning and sequencing of wheat ubiquitin gene. Third International Congress of Plant Molecular Biology, Tucson, Arizona, 1991.
72. S. W. King, **C.P. Joshi**, H. T. Nguyen: Analysis of ABA responsive genes in wheat during drought stress. Third International Congress of Plant Molecular Biology, Tucson, Arizona, 1991.
73. Verma D.P.S., G.H. Miao, **C.P. Joshi**, C.I Cheon., A. Delauney: Internalization of *Rhizobium* by plant cell: targeting and role of peribacteroid membrane nodulins. Presented at the VI th NATO/FEBS advanced study Institute on plant molecular Biology, Schloss Elmau, Germany, 1990.

74. **C.P. Joshi** and O. Schieder.: Isolation, culture and regeneration of legume protoplasts. Presented at the National Symposium on "Recent advances in plant cell and tissue culture of economically important plants" held at Hyderabad, India, 1986.
75. **C.P. Joshi**, E.Muller-Gensert, A. Steffen, H. Lorz, O.Schieder.: Interclassical protoplast fusion between orchard grass and petunia . Presented at International Symposium on "Genetic manipulation in plant breeding" held at West Berlin, Germany, 1985.
76. **C.P. Joshi** and O. Schieder: Isolation and culture of mesophyll protoplasts from *Vigna radiata* and *Coronilla varia*. The 41st conference in the Easter School Series in Agricultural Sciences held at Nottingham, UK, 1984.
77. S.M. Patankar, **C.P. Joshi** and P.K. Ranjekar: Condensed chromatin in higher plants. The 7th All India Cell Biology Conference held at Hyderabad, India, 1984.
78. **C.P. Joshi**, S.M. Patankar and P.K. Ranjekar: Centromeric heterochromatin in *Allium cepa*. The 15th International Congress of Genetics held at New Delhi, India, 1983.
79. **C.P. Joshi**, S.M. Patankar and P.K. Ranjekar: Cytomolecular determinants of interphase nuclear structure in plants. The 51st annual meeting of SBC held at Chandigarh, 1982.
80. **C.P. Joshi** and P.K. Ranjekar: A cytochemical technique for heterochromatin visualization. The second FAOB and 49th annual meeting of Society of Biological Chemists (India) held at Bangalore, India, 1980.

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