Curriculum Vitae

Martha Lucia Orozco-Cárdenas
University of California – Riverside
South Campus Dr. Head house no. 2
Riverside, CA 92521-0124

phone: (951) 827-2885
mlorozco@citrus.ucr.edu
http://www.ptrc.ucr.edu/

I. Education

BS (Agronomist Engineer), Universidad Nacional de Colombia, Palmira, Valle, Colombia, South America. 1976–1981
MSc Washington State University, Pullman, WA, USA. 1991–1993
PhD Washington State University, Pullman, WA, USA. 1997–2000

II. Experience

2002–present. Director - Plant Transformation Research Center - Academic Coordinator, Department of Botany and Plant Sciences, University of California, Riverside, CA
2000–2002. Post Doctoral Fellow in Ryan's Laboratory, Institute of Biological Chemistry, Washington State University, Pullman, WA
1997–2000. Research Assistant Fellow. PhD. Candidate in Plant Physiology Institute of Biological Chemistry, Washington State University Pullman, WA
1993–1997. Principal Investigator. Biotechnology National Research Program, (CORPOICA), Bogotá, Colombia
1996 (May-September). Visiting Scientist. Boyce Thompson Institute for Plant Research Inc. Cornell University, Ithaca, NY
1995 (February-May). Visiting Scientist. Laboratory of Tropical Crop Improvement, Catholic University of Leuven, Belgium
1994 (November). Visiting Scientist. International Center for Genetic Engineering and Biotechnology, ICGBE, New Delhi, India
1993 (August-October). Visiting Scientist. Genetic Engineering Center. La Habana, Cuba
1991–1993. Research Assistant, Fellow, MSc Candidate in Horticulture, Institute of Biological Chemistry, Washington State University, Pullman, WA
1988–1991. Research Assistant. Institute of Biological Chemistry, Washington State University, Pullman, WA
1984–1987. Manager and technical Assistant of tropical crops (Sugar cane, soybean, cassava, sorghum, vegetables and tropical fruits. Ukrania-Private Sugarcane, Cali-Colombia
1981–1984. Technical assistance on soil conservation. Corporacion Autonoma Regional del Cauca, Cali, Colombia
1979–1981. Research Assistant. International Rice Program. International Center for Tropical Agriculture, (CIAT). Cali-Colombia

III. Awards and Honors

2017. UCR. Chancellor's Recognition of Staff and Faculty Program - Recognition of 15 years of achievement award
2013. UCR. Environmental Health & Safety. Blue ribbon award for outstanding commitment to lab safety, 2012–2013
2012. UCR. Environmental Health & Safety. Yellow ribbon award for outstanding commitment to lab safety, 2011–2012
2012. UCR. Chancellor's Recognition of Staff and Faculty Program - Recognition of 10 years of achievement award
2009. National University of Colombia. International collaboration UCR and the Graduate School of the National University of Colombia (Palmira-Colombia) – Resolution No. 071, Acta 017, Nov. 6, 2009
2017. UCR. Chancellor's Recognition of Staff and Faculty Program- Recognition of 15 years of achievement award
2005. National Science Foundation (NSF). Travel Fellowship. Third International Conference Ecological Chemistry, Moldova, May 16–21, 2005
1999. WSU. Helen and Loyal H. Davis. Washington State University, Pullman, WA-USA, 1999
1997. UNESCO. Fellowship Program. Visiting Scientist. Boyce Thompson Institute for Plant research Inc. Cornell University, Ithaca, NY
1996. USDA, COCHRAN Fellowship Program. Visiting Scientist. Boyce Thompson Institute for Plant research Inc. Cornell University, Ithaca, NY
1995. EU-European Union. Fellowship Program. Visiting Scientist. Laboratory of Tropical Crop Improvement, Catholic University of Leuven, Belgium
1995. COLCIENCIAS. Beneficiary of the Research Incentive Program. Santa fé de Bogotá, Colombia.
1994. UNESCO. Fellowship Program.Visiting Scientist. International Center for Genetic Engineering and Biotechnology – ICGBE, New Delhi, India
1993. COLCIENCIAS. Beneficiary of the National Return Program of Colombian Researchers, sponsored by the Instituto Colombiano para el Desarrollo de la Ciencia y la Tecnologia,Santa fé de Bogotá, Colombia
1981. UN-Colombia. Meritorious thesis award, National University of Colombia, Palmira Valle, Colombia

IV. Publications

A. Journal Articles

1. Altpeter F, Springer NM, Bartley L, Blechl AE, Brutnell TP, Citovsky V, Conrad Lj, Gervin SB, Jackson DP, Kausch AP, Lemaux PG, Medford JI, **Orozco-Cárdenas ML**, Tricoli DM, Van Eck J, Voytas DF, Walbot V, Wang K, Zhang ZJ, Stewart N. 2016. Advancing Crop Transformation in the Era of Genome editing. Plant Cell. 28,1510–1520
2. Ceballos N, Lopez W, Morillo Y, Vallejo FA, **Orozco-Cárdenas ML** (2017) Use of microsatellites for evaluation of genetic diversity in cherry tomato. Bragantia, 76(2),

220–228

3. Chetty VJ, Ceballos N, Narváez-Vásquez J, Garcia D, Lopez W, **Orozco-Cárdenas ML (**2013) Evaluation of four *Agrobacterium tumefaciens* strains for the genetic transformation of tomato (*Solanum lycopersicum* L.) cultivar Micro-Tom. Plant Cell Rep. 32, 239–247
4. Narváez-Vásquez J, **Orozco-Cárdenas ML,** Ryan CA (2007) Systemic wound signaling in tomato leaves is cooperatively regulated by multiple plant peptides. Plant Mol. Biol. 65, 711–718
5. **Orozco-Cárdenas ML**, Ryan CA (2003) Polygalacturonase ß-subunit antisense gene expression in tomato plants leads to a progressive enhanced wound responseand necrosis in leaves and abscission of developing flowers. Plant Physiol. 133, 1–9
6. **Orozco-Cárdenas ML**, Ryan CA (2002) Nitric oxide modulates wound signaling in tomato plants. Plant Physiol. 130, 487–493
7. Pineda CR, Toro-Perea N, Narvaez J, **Orozco-Cárdena ML**, Laignelet Cárdenas AH (2002) Genetic transformation by *Agrobacterium tumefaciencs* of embryogenic cell suspension of plantain "Dominico Harton*″ (Musa* AAB Simmonds). InfoMusa. 11(2), 9–13
8. **Orozco-Cárdenas ML,** Narváez-Vásquez J, Ryan CA (2001) Hydrogen peroxide acts as a second messenger for the induction of defense genes in tomato plants in response to wounding, systemin, and methyl Jasmonate. Plant Cell 13, 1–14
9. Hernandez J, Mariño L, **Orozco-Cárdena ML**, Narváez J (2000) Microscopic, biochemical and molecular characterization of native isolates of *Bacillus thuringiensis* from Colombia. Astrolabio (Colombia) 2,13–18
10. **Orozco-Cárdenas ML**, Ryan CA (1999) Hydrogen Peroxide is generated systemically in plant leaves by wounding and systemin via the octadecanoid pathway. Proc. Natl. Acad. Sci. USA 96, 6553–6557
11. Bergey DR, **Orozco-Cárdenas ML**, De Moura D, Ryan CA (1999) A wound- and systemin-inducible polygalacturonase in tomato leaves. Proc. Natl. Acad. Sci. USA 96, 1756–1760
12. Pineda CR, **Orozco-Cárdenas ML (**1996) *Agrobacterium tumefaciens* el mejor ingeniero genetico de la naturaleza. Innovacion y Ciencia. Santa fé de Bogotá, Colombia. ACAC. 5, 26–32
13. Narváez-Vásquez J, Pearce G, **Orozco-Cárdenas ML**, Franceschi VR, Ryan CA (1995) Autoradiographic and biochemical evidence for the systemic translocation of systemin in tomato plants. Planta 195, 593–600
14. McGurl B, **Orozco-Cárdenas ML**, Pearce G, Ryan CA (1994) Over-expression of the prosystemin gene in transgenic tomato plants generates a systemic signal that constitutively induces proteinase inhibitor synthesis. Proc. Natl. Acad. Sci. USA. 91, 9799–9802
15. Ryan CA, McGurl B, Pearce G, Farmer EE, Narváez-Vásquez J, **Orozco-Cárdenas ML** (1994) Oligogalacturonides induce proteinase inhibitor synthesis via the octadecanoid pathway. In: Plant Molecular Biology Molecular Genetic Análisis of Plant Development and Metabolism, Eds. G. Coruzzi and P. Puigdomenech, Springer-Verlag, Berlin Heidelberg, pp. 229–233

16. Narváez-Vásquez J, **Orozco-Cárdenas ML**, Ryan CA (1994) A Sulfhydryl Reagent Modulates Systemic Signaling for Wound-Induced and Systemin-Induced Proteinase Inhibitor Synthesis. Plant Physiol. 105, 725–730
17. **Orozco-Cárdenas ML,** McGurl B, Ryan CA (1993) Expression of an antisense prosystemin gene in tomato plants reduces resistance toward *Manduca sexta* larvae. Proc. Natl. Acad. Sci. USA 90, 8273–8276
19. McGurl B, Pearce G, **Orozco-Cárdenas ML**, Ryan CA (1992) Structure, expression, and antisense inhibition of the systemin precursor gene. Science, 225, 1570–1573
20. Narváez-Vásquez J, **Orozco-Cárdenas ML**, Ryan CA (1992) Differential expression of a chimeric CaMV-tomato proteinase inhibitor I gene in transformed nightshade, tobacco and alfalfa plants. Plant Mol. Biol. 20, 1149–1157

B. Chapters and Symposium Proceedings

1. Becerra B, Narváez-Vásquez J, Pillitteri LJ**, Orozco-Cárdenas ML**, Tang L, Lovatt CJ (2017) Identification of cis-Regulatory Elements related to water-deficit and low temperature stress with the promoter of Citrus sinensis APETALA-1. In: Proceedings of the International Society of Citriculture.
Submitted: March 2017–pending publication
2. Chetty VJ, Narváez-Vásquez J, **Orozco-Cárdenas ML** (2015) Potato transformation. Methods in Molecular biology. Third edition. Ed. K. Wang. Humana Press-Springer. pp. 85–96
3. Garcia D, Narváez-Vásquez J, **Orozco-Cárdenas ML** (2015) Tomato transformation. Methods in Molecular biology. Third edition. Ed. K. Wang. Humana Press-Springer. pp 349–361
4. **Orozco-Cárdenas ML**, Pearce G, Narváez-Vásquez J (2012) Hydroxyproline-Rich Systemin Glycopeptides - Signaling Peptides for Plant Defense Localized in Cell Walls. Plant Peptide Signals. Ed. A. Huffaker. Wiley-Blackwell. Annual Plant Reviews.
Submitted: February 15, 2012
5. Narváez-Vásquez J, **Orozco-Cárdenas ML**, Pearce G (2009) Plant peptide signals. In, Amino acids, Peptides, and Proteins in Organic Chemistry. Ed. A.B. Hughes. Wiley-VCH publishers. 2, pp 569–631
6. Narváez-Vásquez, J, **Orozco-Cárdenas ML** (2007) Systemins and AtPeps: Defense-related peptide signals. In: Induced Plant Resistance to Herbivory. Ed. Andreas Schaller, Springer, pp. 313–327
7. Narváez-Vásquez J, **Orozco-Cárdenas ML**, Ryan CA (1996) Expression of proteinase inhibitor genes in plants. In: Proc. Int. Workshop on Transgenic Tech. in plants, Bogota. Eds. O. Acosta and K.D. Webster, Universidad Nacional de Colombia and Scottish Crop Research Institute. pp. 36–42
8. **Orozco-Cárdenas ML,** McGurl B, Pearce G, Narváez-Vásquez J, Ryan CA (1993) Engineering a signaling pathway gene in a crop plant modulates resistance toward an insect pest. In: Proceedings of the International Workshop of the Phaseolus Beans Advance Research Network (BARN), Sept. 7–10, 1993, CIAT, Cali-Colombia, pp 168–174
9. Ryan CA, Pearce G, Jonhson S, McGurl B, **Orozco-Cárdenas ML,** Farmer EE, Ryan

CA (1992) Systemin, a polypeptide signal for proteinase inhibitor gene expression in plants. In: Mechanisms of plant defense responses. Proc. of the 2nd conference of the European Foundation for Plant Pathology, Strasbourg-France, August 24–27, 1992. Ed.B. Fritig and M. Legrand. Kluwer academic publishers, pp. 196–201

C. Abstracts

1. Aguilar C, Yen JJ, **Orozco-Cárdenas ML** (2016) Bacterial Expression of cell wall methyltransferase genes from Moss. LC summer research. The John and Elizabeth Leonard Family Fundation. August 24, UCR, Riverside
2. Master HM, Theodory BG, Orozco-Cárdenas ML, Nothnagel, EA (2016) Testing for Heterodimerization of Moss Methyltransferases Through Genetic Crossing of Transgenic Tobacco Plants. 10th Annual undergraduate research, scholarship, creative Active Symposium. April 19–20, UCR, Riverside
3. Cid Allison, **Orozco-Cárdenas ML,** Nothnagel G. (2015) Effect of 3-*O*-Methylation of cell wall galactosyl residues on desiccation tolerance of leaves from transgenic tobacco plants. 9th Annual undergraduate research, scholarship, creative Active Symposium. April 28–29, UCR, Riverside
4. Ghobadi R, Sasaninia B, Cryder Z, Wube S, Juloya G, Weston B, Seo S, Lee J, Padro A, **Orozco-Cárdenas ML,** Nothnagel G. (2015) Expression of a Moss Methyltransferase that produces 3-*O*-Methyl-Galactosyl residues in transgenic tobacco. 9th Annual undergraduate research, scholarship, creative Active Symposium. April 28–29, UCR, Riverside
5. Ghobadi R, Cryder Z, Wube S, Juloya G, Weston B, Seo S, Lee J, Padro A, **Orozco-Cárdenas ML,** Nothnagel G. Organ localization of a Methylated cell wall sugar in transgenic tobacco expressing a Moss methyltransferase gene. 9th Annual Undergraduate Research, Scholarship, Creative Active Symposium. April 28–29, UCR, Riverside
6. Ghobadi R, Sasaninia B, Juloya G, Gallagher P, Weston B, Yue C**, Orozco-Cárdenas ML,** Nothnagel G. (2014) Biosynthesis of Methylated Sugars in Moss Arabinogalactan Proteins. 2014 Summer RISE PROGRAM. UCR, Riverside
7. Sasaninia B, Ghobadi R, Juloya G, Gallagher P, Weston B, Yue C**, Orozco - Cárdenas ML,** Nothnagel G (2014). Analysis of transgenic tobacco (*Nicotiana tabacum* cv Xanthi) plants expressing candidate methyl transferase genes from moss *Physcomitrella patents*. 2014 Summer RISE PROGRAM. UCR, Riverside
8. Chetty VJ, Garcia D, Akhari K, Saleh R and **Orozco-Cárdenas ML** (2013) Effect of the PARP inhibitor 3-Methoxybenzamide on in vitro plant growth, microtuberization and transformation efficiency of blue potato. *In vitro* Cellular and Developmental Biology, June 15–19, Providence, Rhode Island, USA
9. Garcia DJ, Castillo F, Ortega E, Escamilla E, **Orozco-Cárdenas ML** (2013). *In vitro* propagation of Macadamia (*Macadamia integrifolia* L.). *In vitro* Cellular and Developmental Biology, June 15–19, Providence, Rhode Island, USA
10. D García, AH Alegría, J Narváez, **ML Orozco-Cárdenas** (2012) Genetic Transformation of Soursop (*Annona muricata*) via *Agrobacterium tumefaciens.* In vitro Cellular & Dev. Biol. 48(4): 434–435

11. Ceballos N, Chetty VJ, Lopez W, Narváez-Vásquez J, Garcia D, **Orozco-Cárdenas ML** Evaluation of four *Agrobacterium tumefaciens* strains for the genetic transformation of Tomato (*Solanum lycopersicum* L. cultivar Micro-Tom. 2012 World Congress on In vitro Cellular & Cellular Developmental Biology-Seattle, WA. Abstract No. 15215030
12. MI Garrido-Gutierrez, CM Cerda Garcia-Rojas, **ML Orozco-Cárdenas,** Ana Carmela Ramos Valdivia (2009) Transformación genética de *Uncaria tomentosa* para la produccción de alcaloides monoterpénicos. XIII Congreso Nacional de Biotecnología y Bioiongeniería y VII Simposium Internacional de producción de alcoholes y levaduras. Acapulco, Guerrero, México
13. Mathews DM, **Orozco-Cárdenas ML,** Giles JE, Dodds, JA (2008) Optimizing Tissue Culture of Verbena for Virus Exclusion and Detection. In: Proceedings of the 12th International Symposium on Virus Diseases of Ornamental Plants, Haarlem, The Netherlands, April 20–28. 65p
14. Ngo XT, Lynn JP, Giles J, Lovatt C, Narváez-Vásquez J, **Orozco-Cárdenas ML** (2008) Tissue-specific and developmental regulation of floral genes from citrus. In: Proceedings of the World Congress on In Vitro Biology. Tucson, Arizona. June 14–18
15. Narváez-Vásquez J, **Orozco-Cárdenas ML,** Ryan CA (2008) Systemic wound signaling in tomato leaves is cooperatively regulated by multiple plant peptides. In: Proceedings of the ASPB – Plant biology. Merida, Mexico. June 26–July 1
16. Becerra B, Narváez-Vásquez J, **Orozco-Cárdenas ML**, Lovatt CJ (2008) Regulation of flowering in citrus: preliminary results on the role of water-deficit stress and abscisic acid. 11th International Citrus Congress. Wuhan, China. Oct 26–30
17. Garrido-Gutiérrez MI, Cerda-García-Rojas CM, **Orozco-Cárdenas ML,** Ramos-Valdivia AC (2008) *Agrobacterium rhizogenes* – mediate transformation of *Uncaria tomentosa* root cultures for monoterpenoid oxindole alkaloid production. 7th Joint Meeting of AFERP, ASP, GA, PSE and SIF. Natural Products with pharmaceutical, nutraceutical, cosmetic and Agrochemical Interest. Athens, Greece
18. Garrido-Gutiérrez MI, Cerda-García-Rojas CM, **Orozco-Cárdenas ML,** Ramos-Valdivia AC (2008) *Agrobacterium rhizogenes* – mediate transformation of *Uncaria* leaf explants for monoterpenoid alkaloid production. Proceeding ICBB First international Congress on Biotechnology and Bioengineering. Mexico, D.F
19. Luna-Palencia GR, Cerda-Garcia-Rojas CM, **Orozco-Cárdenas ML,** Ramos Valdivia AC (2007) Biosynthesis of oxindole alkaloid in plantlets and roots cultures of *Uncaria tomentosa*. In: Proceedings of the PSE conference for human health in the post-genome era. Helsinki, Finland. August 26–28.
18. Ye X, **Orozco-Cárdenas ML** (2006) Plant transformation technologies for crop improvement and gene function studies in citrus. In: Proceedings of the Centennial Symposium – "Agricultural sustainability and new technologies the next 100 years". Riverside, CA
20. Port A, Giles J, Pilliteri LJ, Lovatt CJ, **Orozco-Cárdenas ML** (2005) Expression of a Citrus Leafy Gene in Tobacco plants results in early flowering and shoot-flower conversion. In: Proceedings of the America Society of Plant Physiologists. Seattle, WA.
21. **Orozco-Cárdenas ML** (2005) Hydrogen Peroxide and Nitric Oxide play different roles in plant defense responses. In: Proceedings of the third International Conference

Ecological Chemistry, Chisinau, Moldova
22. **Orozco-Cárdenas ML**, Ryan CA (2003) Polygalacturonase β-subunit antisense gene expression in tomato plants leads to a progressive enhanced wound response and necrosis in leaves and abscission of developing flowers. In: Proceedings of the American Society of Plant Physiologists. Honolulu, Hawaii
23. **Orozco-Cárdenas ML,** Ryan CA (2002) Nitric oxide modulates wound signaling in tomato plants. Plant Physiol. In: Proceedings of the American Society of Plant Physiologists. Denver, Colorado
25. **Orozco-Cárdenas ML,** Narváez-Vásquez J, Ryan CA (2000) Role of hydrogen peroxide as a second messenger in the induction of defense genes in tomato plants in response to wounding, elicitors and methyl jasmonate. In: Proceedings of the American Society of Plant Physiologists. San Diego, California
26. **Orozco-Cárdenas ML,** Bergey D, Ryan CA (1999) Polygalacturonase activity and hydrogen peroxide are generated systemically in plant leaves by wounding and systemin via the octadecanoid pathway. In: Proceedings of the American Society of Plant Physiologists. Baltimore, Maryland
27. **Orozco-Cárdenas ML,** Bergey D, Ryan CA (1998) A novel wound- inducible polygalacturonase in tomato plants. In: Phytochemical Society of North America conference: Phytochemicals in human health protection, nutrition and plant defense. Pullman, Washington
28. Hernandez JF, Marino L, **Orozco-Cárdenas ML,** Nárvaez-Vásquez J (1995) Caracterization biologica y molecular de cepas nativas de Bacillus thuringiensis y perspectivas para el mejoramiento. In: Proceedings of the Second Meeting of the Latin-American Network for Plant Biotechnology/REDBIO'95
29. **Orozco-Cárdenas ML**, Schoofs, H., Swennen R, Narváez-Vásquez J (1995) Celulas embriogenicas en suspension como una alternativa para el mejoramiento de banano. In: Proceedings of the Second Meeting of the Latin-American Network for Plant Biotechnology/REDBIO'95, and The Third National meeting on Plant Biotechnology, Puerto Iguazu-Argentina
30. Schaller A, Pearce G, Narváez-Vásquez J, **Orozco-Cárdenas ML,** Ryan CA (1994) Systemin: Analyses of early signaling events. In: The 4th international Congress of Plant Molecular Biology, Amsterdam-Netherlands
31. Narváez-Vásquez J, **Orozco-Cárdenas ML,** Franceschi VR, Ryan CA (1992) Expression of proteinase inhibitor genes in transgenic plants. In: Sixth International Symposium on Molecular Plant-Microbe Interactions. University of Washington-Seattle, Washington, USA

D. Theses

1. **Orozco-Cárdenas ML** (2000) The role of a wound-inducible polygalacturonase and hydrogen peroxidase in the activation of plant defensive genes. Ph.D. thesis, Washington State University, Pullman, WA
2. **Orozco-Cárdenas ML** (1993) Transformation of tomato plants with an antisense prosystemin gene: Effects on plant resistance towards a Lepidopteran larvae. M.Sc. thesis, Washington State University, Pullman, WA

3. **Orozco-Cárdenas ML** (1981) Behaviour of six varieties of rice (*Oryza sativa* L.) under different systems of sowing in a saline-sodic soil. B.Sc. Thesis. Universidad Nacional de Colombia, Palmira-Valle, Colombia-South America.

V. Miscellaneous

A. Patents

1. Ryan CA, **Orozco-Cárdenas ML**. Methods for enhancing plant defense. Canadian Patents database, CIPO Patent # 2370584. PCT filing date: April 6, 2000. PCT filing number: PCT/US2000/009465. International publication date: October 26, 2000. International publication number: W02000/063347.
2. Ryan CA, **Orozco-Cárdenas ML**, McGurl B, Pearce G. WSURF Case No. 504. Methods for enhancing plant defense. Status: Application No. 09/937,980. Date issued: September 13, 2000
3. Ryan CA, **Orozco-Cárdenas ML**, Bergey DR. WSURF Case No. 386. A tomato Line with unregulated natural defense against herbivores and pathogens. Status: Application No. 06/325,402. Date issued: June 29, 1998

C. DNA accessions

1. Bergey DR, Orozco-Cárdenas ML, De Moura D, Ryan CA. GenBank database accession AF118567. *Lycorpersicon esculentum* cv. Castlemart. A wound and systemin-inducible gene encoding polygalacturonase protein in tomato leaves. February, 1999
2. Jaganatha Chetty V, Orozco-Cárdenas ML. GenBank database accession KF170836 Role of *Solanum tuberosum* subsp. *andigenum* (blue potato) gene in abiotic stress. May, 2013