

Current Position

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Professional Experience

Job category	Period	Institution	Topic
Pre-doctoral Fellow (FPI)	May 2003/Apr 2007	Plant Physiology Department, University of Granada, Spain	Contribution of symbionts to salt stress adaptation in the rhizobium-legume symbiosis.
Post-doctoral Research Associate	Jan-Jul. 2008	Plant Physiology Department, University of Granada, Spain	Rhizobium-legume symbiosis adaptation to salt stress
Post-doctoral Training Fellow	Aug 2008/ Mar 2009	Molecular Microbiology Department, John Innes Centre, Norwich, England	Energisation of nitrogen fixation in the rhizobium-legume symbiosis
Post-doctoral Fellow	Apr 2009/ Jul 2011	Botanical Institute, University of Basel, Switzerland	Discrimination between symbiotic and pathogenic microorganism in legumes
Post-doctoral Research Associate	Jan 2012/Jan 2017	Plant Physiology Department, University of Granada, Spain	Hormonal regulation of the response to salt stress in the rhizobium-legume symbiosis

Education/Training

Studies of Biology. 2001. University of Granada, Spain.

Pre-graduate fellowship. 2000/2001. Biochemistry Department, University of Granada, Spain.

Diploma (MSc). 2005. Biología Agraria y Acuicultura. University of Granada, Spain.

PhD Thesis. 2007. University of Granada, Spain.

Supervised by Dra. Carmen Lluch Plá.

Title: Nodular carbon metabolism in the symbiosis *Medicago truncatula*-*Sinorhizobium meliloti*, *Lotus japonicus*-*Mesorhizobium loti* under salt stress: role of trehalose.

Visits to other Institutions (Short stays)

Institute: Institute of Forest Genetics, Universidad Veracruzana

City: Xalapa, Mexico

Work performed: Mycropropagation of *Pinus* species

Date: 3-9-2001/29-10-2001

Institute: Ohio Agricultural and Development Center (OARDC), Ohio State University

City: Wooster (Ohio), USA

Work performed: Trehalose metabolism in *Sinorhizobium meliloti* and *Mesorhizobium loti* under salt stress conditions

Date: 15-9-2005/15-12-2005

Institute: Ohio Agricultural and Development Center (OARDC), Ohio State University

City: Wooster (Ohio), USA

Work performed: Trehalose metabolism in *Bradyrhizobium japonicum* and soybean nodules under salt stress conditions

Date: 15-6-2006/15-9-2006

Institute: Instituto Potosino de Investigación Científica y Tecnológica (IPICYT)

City: San Luis Potosí (SLP), México

Work performed: Root transformation of *Phaseolus vulgaris* plants to modify polyamines metabolism

Date: 16-6-2013/29-7-2013

Institute: Institute of Biology, Unit of Soil Ecology, RWTH Aachen

City: Aachen, Germany

Work performed: Construction of mutant strains of *Rhizobium tropici* and *Mesorhizobium loti* impaired in the synthesis of homospermidine.

Date: 16-6-2014/31-7-2014

Institute: Research Institute of Organic Agriculture (FiBL)

City: Frick, Switzerland

Work performed: Aplicación de técnicas moleculares al análisis del microbioma radicular de especies de interés agrícola para la mejora de la resistencia al cambio climático.

Date: 10-7-2020/10-12-2020

Publications

Articles:

- 1 N.A. Tejera*, C. Iribarne, **M. López**, J. Herrera-Cervera y C. Lluch
Physiological implications of trehalase from Phaseolus vulgaris root nodules: partial purification and characterization
Plant Physiology and Biochemistry 43, 355-361, **2005**
- 2 J.G. Streeter*, **M. L. Gómez**
Three enzymes fo2 r trehalose synthesis in Bradyrhizobium cultured bacteria and bacteroids from soybean nodules
Applied and Environmental Microbiology 72, 4250-4255, **2006**
- 3 **M. López**, J.A. Herrera-Cervera, C. Lluch and N.A. Tejera*
Trehalose metabolism in root nodules of the model legume Lotus japonicus in response to salt stress
Physiologia Plantarum 128 (4), 701–709, **2006**
- 4 **Miguel López***, José A. Herrera-Cervera, Carmen Iribarne, Noel A. Tejera, Carmen Lluch
Growth and nitrogen fixation in Lotus japonicus and Medicago truncatula under NaCl: Nodule carbon metabolism
Journal of Plant Physiology 165, 641-650, **2008**
- 5 **Miguel López***, **Carmen Lluch**
Nitrogen fixation is synchronized with carbon metabolism in Lotus japonicus and Medicago truncatula nodules under salt stress
Journal of Plant Interactions 3 (3), 137-144, **2008**
- 6 **Miguel López***, Noel A. Tejera and Carmen Lluch
Differential strategies of the Model Legumes Lotus japonicus and Medicago truncatula in the Adaptation to Salt Stress: Photosynthetic and Nutritional Responses
American Journal of Plant Physiology 3 (3), 121-130, **2008**
- 7 **Miguel López***, Noel A. Tejera, Carmen Iribarne, Carmen Lluch and José A. Herrera-Cervera
Trehalose and trehalase in root nodules of Medicago truncatula and Phaseolus vulgaris in response to salt stress
Physiologia Plantarum 134, 575-582, **2008**

- 8 **Miguel López***, Noel A. Tejera, Carmen Lluch
Validamycin A improves the response to salt stress of Medicago truncatula by inducing trehalose accumulation in the root nodules
Journal of Plant Physiology 166, 1218-1222, **2009**
- 9 Jurgen Prell, Alexandre Bourdès, Ramakrishnan Karunakaran, **Miguel Lopez-Gomez**, Philip Poole*
Pathway of γ -aminobutyrate (GABA) metabolism in Rhizobium leguminosarum 3841 and its role in symbiosis
Journal of Bacteriology 191 (7), 2177-2186, **2009**
- 10 Geraldine Mulley, **Miguel Lopez-Gomez**, Ye Zhang, Jason Terpolilli, Jurgen Prell, Turlough Finan and Philip Poole*
Pyruvate is formed by two pathways in pea bacteroids with different efficiencies for nitrogen fixation
Journal of Bacteriology. 192 (19), 4944-4953, **2010**
- 11 **Miguel Lopez-Gomez***, Noel A. Tejera, Carmen Iribarne, Jose A. Herrera-Cervera and Carmen Lluch
Different strategies for salt tolerance in determined and Indeterminate nodules of Lotus japonicus and Medicago truncatula
Archives of Agronomy and Soil Science. 58 (9), 1061-1073, **2012**
- 12 **Miguel Lopez-Gomez***, Niels Sandal, Jens Stougaard and Thomas Boller
Interplay of flg22-induced defence responses and nodulation in Lotus japonicus
Journal of Experimental Botany. 63 (1), 393-401, **2012**
- 13 Francisco Palma, **Miguel Lopez Gomez***, Noel A. Tejera, Carmen Lluch.
Salicylic acid improves the salinity tolerance of Medicago sativa in symbiosis with Sinorhizobium meliloti by preventing nitrogen fixation inhibition.
Plant Science. 208, 75–82, **2013**
- 14 **Miguel López Gómez***, Javier Hidalgo Castellanos, Carmen Iribarne, Carmen Lluch.
Proline accumulation has prevalence over polyamines in nodules in nodules of Medicago sativa in symbiosis with Sinorhizobium meliloti during the initial response to salinity.
Plant and Soil. 374, 149-159, **2014**
- 15 Francisco Palma, **Miguel López Gómez***, Noel A. Tejera, Carmen Lluch.
Involvement of abscisic acid in the response of Medicago sativa plants in symbiosis with Sinorhizobium meliloti to salinity.
Plant Science 223, 16-24, **2014**
- 16 **Miguel López-Gómez***, Libertad Cobos-Porras, Javier Hidalgo-Castellanos, Carmen Lluch
Occurrence of polyamines in root nodules of Phaseolus vulgaris in symbiosis with Rhizobium tropici in response to salt stress.
Phytochemistry 107, 32-41, **2014**
- 17 Fatima Berenice Salazar-Badillo, Diana Sanchez-Rangel, Alicia Becerra-Flora, **Miguel Lopez-Gomez**, Fernanda Nieto-Jacobo, Artemio Mendoza-Mendoza, Juan Francisco Jimenez-Bremont*.
Arabidopsis thaliana polyamine content is modified by the interaction with different Trichoderma species.
Plant Physiology and Biochemistry 95, 45-56, **2015**
- 18 **Miguel López-Gómez***, Libertad Cobos-Porras, Jürgen Prell, Carmen Lluch
Homospermidine synthase contributes to salt tolerance in free living Rhizobium tropici and in its symbiotic interaction with Phaseolus vulgaris.
Plant and Soil 404(1): 413-425, **2016**
- 19 **Miguel López-Gómez***, Javier Hidalgo-Castellanos, Carmen Lluch, José A. Herrera-Cervera.
24-epibrassinolide ameliorates salt stress effects in the symbiosis Medicago truncatula-Sinorhizobium meliloti and regulates the nodulation in cross-talk with polyamines.
Plant Physiology and Biochemistry 108: 212-221, **2016**

- 20 Duque AS*, **López-Gómez M**, Kráčmarová J, Gomes CN, Araújo SS, Lluch C, Fevereiro P
*Physiological responses toward water deficit of *M. truncatula* T2 plants expressing the oat *Adc* (arginine decarboxylase) gene under the control of CaMV 35S.*
Plant Cell Tissue and Organ Culture DOI 10.1007/s11240-016-1107-1, **2016**
- 21 **Miguel López-Gómez***, Javier Hidalgo-Castellanos, J. Rubén Muñoz-Sánchez, Agustín J. Marín-Peña, Carmen Lluch, José A. Herrera-Cervera
*Polyamines contribute to salinity tolerance in the symbiosis *Medicago truncatula*-*Sinorhizobium meliloti* by preventing oxidative damage.*
Plant Physiology and Biochemistry (<https://doi.org/10.1016/j.plaphy.2017.04.024>), 116: 9-17, **2017**
- 22 Adriana B. Cesari, Natalia S. Paulucci, **Miguel Lopez-Gomez**, Javier Hidalgo-Castellanos, Carmen Lluch Plá, Marta S. Dardanelli
*Performance of *Bradyrhizobium* and *Bradyrhizobium*-*Azospirillum* Alleviating the Effects of Water-Restrictive Conditions During the Early Stages of *Arachis hypogaea* Growth.*
Journal of Plant Growth Regulation (<https://doi.org/10.1007/s00344-019-09939-4>), **2019**
- 23 Javier Hidalgo-Castellanos, Agustín Marín-Peña, Sara Jimenez-Jimenez, José A. Herrera-Cervera, **Miguel Lopez-Gomez**
*Polyamines oxidation is required in the symbiotic interaction *Medicago truncatula*-*Sinorhizobium meliloti* but does not participate in the regulation of polyamines level under salinity.*
Plant Growth Regulation, (<https://doi.org/10.1007/s10725-019-00508-z>), 88: 297-307, **2019**
- 24 Adriana B. Cesari, Natalia S. Paulucci, **Miguel Lopez-Gomez**, Javier Hidalgo-Castellanos, Carmen Lluch Plá, Marta S. Dardanelli
Restrictive water condition modifies the root exudates composition during peanut-PGPR interaction and conditions early events, reversing the negative effects on plant growth
Plant Physiology and Biochemistry (<https://doi.org/10.1016/j.plaphy.2019.08.015>) 142: 519–527, **2019**
- 25 Javier Hidalgo-Castellanos, Ana Sofia Duque, Alvaro Burgueño, José A. Herrera-Cervera, Pedro Fevereiro, **Miguel López-Gómez***
*Overexpression of the arginine decarboxylase gene promotes the symbiotic interaction *Medicago truncatula*-*Sinorhizobium meliloti* and induces the accumulation of proline and spermine in nodules under salt stress conditions.*
Journal of Plant Physiology (<https://doi.org/10.1016/j.jplph.2019.153034>) 241: 153034, **2019**
- 26 Ortiz José Sanhueza Carolina, Romero-Munar Antònia, Hidalgo-Castellanos Javier, Castro Catalina Bascuñán-Godoy Luisa, Coba De La Peña Teodoro, **López-Gómez Miguel**, Florez-Sarasa Igor, Fernández Del-Saz Néstor
In Vivo Metabolic Regulation of Alternative Oxidase under Nutrient Deficiency-Interaction with Arbuscular Mycorrhizal Fungi and Rhizobium Bacteria
International Journal of Molecular Sciences (<https://doi.org/10.3390/ijms21124201>) 21, 4201; **2020**
- 27 Batnini, **M. Lopez-Gomez**, M. Palma, F. Haddoudi, I. Kallala, N. Zribi, K. Mrabet, M. Mhadhbi, H.
**Sinorhizobium* spp inoculation alleviates the effect of *Fusarium oxysporum* on *Medicago truncatula* plants by increasing antioxidant capacity and sucrose accumulation*
Applied Soil Ecology (DOI: 10.1016/j.apsoil.2019.103458) 150, **2020**
- 28 Amini, Saeed Maali-Amiri, Reza Kazemi-Shahandashti, Seyyedeh-Sanam **López-Gómez, Miguel** Sadeghzadeh, Behzad Sobhani-Najafabadi, Ahmad Kariman, Khalil
Effect of cold stress on polyamine metabolism and antioxidant responses in chickpea
Journal of Plant Physiology (DOI: 10.1016/j.jplph.2021.153387) 258-259, **2021**
- 29 Aguilera, Paula Romero, Juan Karlo Becerra, Ninozhka Martínez, Oscar Vilela, Rafael Borie, Fernando Cornejo, Pablo Alvear, Marysol **López-Gómez, Miguel**
Phenological Stages and Aluminum Presence Influences Arbuscular Mycorrhizal Fungi Communities in Roots of Plant Cereals
Journal of Soil Science and Plant Nutrition (DOI: 10.1007/s42729-021-00453-9), **2021**
- 30 Hidalgo-Castellanos, Javier Marín-Peña, Agustín J. Herrera-Cervera, José A. **López-Gómez, Miguel***
Polyamines: Key elements in the rhizobia-legume symbiosis?
Phytochemistry Reviews (DOI: 10.1007/s11101-021-09751-7), **2021**

Book chapters:

- 1 **Miguel López** and Carmen Lluch
Trehalose in plant-microorganism symbiotic interactions
Book title: Biochemical responses of plants to invaders
Editors: M.E. Legaz, C.V. Córdoba
Edited by Research Signpost, Kerala, India. **2008**
ISBN 978-81-308-0306-7
- 2 **Miguel López** y Carmen Lluch
Solutos compatibles nitrogenados vs. carbonados en la adaptación al estrés salino de Lotus japonicus en simbiosis con Mesorhizobium loti
Book title: Avances en el metabolismo del nitrógeno. De la genómica y la proteómica a las aplicaciones agronómicas, industriales y medioambientales
Editors: María José Bonete, Rosa M^a Martínez Espinosa
Edited by Editorial Club Universitario, pg 311-318, **2009**
ISBN 978-84-8454-8065
- 3 **Miguel López** and Carmen Lluch
Trehalose and abiotic stress tolerance
Book title: Abiotic stress responses in plants - Metabolism to productivity
Editors: Dr. Parvaiz Ahmad Springer Science+Business Media, LLC
Edited by Springer New York, pg 253-265, **2012**
ISBN 978-1-4614-0634-1
- 4 **Miguel López Gómez;** Francisco Palma Martín; Carmen Lluch Plá.
Strategies of Salt Tolerance in the Rhizobia-Legume Symbiosis.
Book title: Beneficial Plant-microbial Interactions: Ecology and Applications.
Editors: Belén Rodelas, Jesús González
Edited by CRC Press, **2013**.
ISBN 978-14-665-8717-5
- 5 **Miguel López-Gómez,** Javier Hidalgo-Castellanos, Agustín J. Marín-Peña, and J. Antonio Herrera-Cervera
Relationship Between Polyamines and Osmoprotectants in the Response to Salinity of the Legume-Rhizobia Symbiosis.
Book title: Osmoprotectant-Mediated Abiotic Stress Tolerance in Plants.
Editors: M. A. Hossain et al.
Edited by Springer Nature Switzerland **2019**.
ISBN 978-3-030-27423-8.

