

Currículum Vitae

RANDY ORTIZ CASTRO

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1. General information.

Name: Randy Ortiz Castro.

Birthdate: June 30, 1981.

Birthplace: Lázaro Cárdenas, Michoacán, Mexico.

Nacionality: Mexican.

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Membership in the SNI: Nivel SNI I.

2. Current Position.

CONACyT Research Fellow - Network of Advanced Molecular Studies
Institute of Ecology, A. C (INECOL) Xalapa, Veracruz, México

3. Studies.

2000 – 2005 B. Sc.: Biologist, Facultad de Biología, Universidad Michoacana de San Nicolás de Hidalgo. Thesis: "Modificación en la arquitectura de la raíz de *Arabidopsis thaliana* L., por efecto del cromosoma". Honorífic mention.

2006 – 2008 M. Sc.: Master in Science in Experimental Biology, Instituto de Investigaciones Químico Biológicas, Universidad Michoacana de San Nicolás de Hidalgo. Thesis: "Regulación del desarrollo post-embrionario de la raíz de *Arabidopsis thaliana* por N-acil-L-homoserina lactonas, una clase de componentes moduladores de la proliferación celular en bacterias."

2009 – 2013 PhD: Doctor in Science in Experimental Biology, Instituto de Investigaciones Químico-Biológicas, Universidad Michoacana de San Nicolás de Hidalgo. Thesis: "Estudio de la participación de las N-acil homoserina lactonas y ciclodipeptidos en la regulación del desarrollo vegetal por bacterias del género *Pseudomonas*" Fecha de titulación: 15 agosto del 2013. Honorífic mention

4. Publications

a) Peer reviewed articles

1.- Ortiz-Castro R., Martínez-Trujillo M., López-Bucio J., Cervántes C. (2007) Effects of dichromate on growth and root system architecture of *Arabidopsis thaliana* seedlings. *Plant Science* 172:684-691.

- 2.- **Ortiz-Castro R.**, Martínez-Trujillo M., López-Bucio J., Cervantes C., Carreón-Abud Y. (2008) Restauración del crecimiento radical por nutrientes inorgánicos en *Arabidopsis thaliana* L. Expuesta a Cromo. Terra Latinoamericana 27:97-103.
- 3.- Campos-Cuevas J.C., Pelagio-Flores R., Raya-González J., Méndez-Bravo A., **Ortiz-Castro R.**, López-Bucio J. (2008) Tissue culture of *Arabidopsis thaliana* explants reveals a stimulatory effect of alkamides on adventitious root formation and nitric oxide accumulation. *Plant Science* 174:165-173.
- 4.- **Ortiz-Castro R.**, Valencia-Cantero E., López-Bucio J. (2008) Plant growth promotion by *Bacillus megaterium* involves cytokinin signaling. *Plant Signaling & Behavior* 3:263-265.
- 5.- **Ortiz-Castro R.**, Martínez-Trujillo M., López-Bucio J. (2008) *N*-acyl-L-homoserine lactones, a class of bacterial quórum-sensing signals alter post-embryonic root development in *Arabidopsis thaliana*. *Plant Cell & Environment* 31:1497-1509.
- 6.- **Ortiz-Castro R.**, Contreras-Cornejo H.A., Macías-Rodríguez L., López-Bucio J. (2009) The role of microbial signals in plant growth and development. *Plant Signaling and Behavior* 4: 1-12.
- 7.- Morquecho-Contreras A., Méndez-Bravo A., Pelagio-Flores R., Raya-González J., **Ortiz-Castro R.**, López-Bucio J. (2010) Characterization of *drr1*, an alkamide resistant mutant of *Arabidopsis*, reveals an important role for small lipid amides in lateral root development and plant senescence. *Plant Physiology* 152:1659-1673.
- 8.- Pelagio-Flores R., **Ortiz-Castro R.**, Méndez-Bravo A., Macías-Rodríguez L., López-Bucio J.(2011). Serotonin, a tryptophan-derived signal conserved in plants and animals, regulates root system architecture probably acting as a natural auxin inhibitor in *Arabidopsis thaliana*. *Plant Cell Physiology* 52(3):490-508.
- 9.- **Ortiz-Castro R.**, Díaz-Pérez C., Martínez-Trujillo M., del Río R., Campos-García J., López-Bucio J. (2011) **Trans-kingdom signaling based on bacterial cyclodipeptides with auxin activity in plants.** *Proc. Natl. Acad. Sci. USA.* 108(17):7253-7258.
- 10.- Pelagio-Flores R., Muñoz-Parra E., **Ortiz-Castro R.**, López-Bucio J. (2012) Melatonin regulates *Arabidopsis* root system architecture likely acting independently of auxin signaling. *Journal of Pineal Research* 53:279-288.
- 11.- Pelagio-Flores R., **Ortiz-Castro R.**, López-Bucio J. (2013) *dhm1*, an *Arabidopsis* mutant with increased sensitivity to alkamides shows tumorous shoot development and enhanced lateral root formation. *Plant Molecular Biology* 81:609-625.

12.- Ortiz-Castro, R., Valencia-Cantero , E. and López-Bucio, J. (2013) The beneficial role of rhizosphere microorganisms in plant health and productivity: improving root development and nutrient acquisition. *Acta Horticulturae* (ISHS) 1009:241-250.

13.- Ortiz-Castro R., Campos-García J., López-Bucio J. (2014) *Pseudomonas putida* and *Pseudomonas fluorescens* regulate *Arabidopsis* root architecture through an auxin mediated pathway and produce bioactive cyclodipeptides. *Ecology and Evolution*. Under Review.

14.- Ortiz-Castro R., Pelagio-Flores R., Méndez-Bravo A., Ruíz-Herrera LF., Campos-García J., López-Bucio J. (2014) Pyocyanin, a virulence factor produced by *Pseudomonas aeruginosa*, alters root development through reactive oxygen species and ethylene signaling in *Arabidopsis*. *Molecular Plant-Microbe Interactions* 27:364-378.

15.- López-Bucio J, Hernández-Madriral F, Cervantes C, **Ortiz-Castro R**, Carreón-Abud Y, Martínez-Trujillo M. (2014) Phosphate relieves chromium toxicity in *Arabidopsis thaliana* plants by interfering with chromate uptake. *Biometals* 27:363-370.

16.- Raya-González J, **Ortiz-Castro R**, Ruíz-Herrera LF, Kazan K, López-Bucio J. (2014) PHYTOCHROME AND FLOWERING TIME1/MEDIATOR25 regulates lateral root formation via auxin signaling in *Arabidopsis thaliana*. *Plant Physiology* 165:880-894.

17. Martínez-Trujillo M, Méndez-Bravo A, **Ortiz-Castro R**, Hernández-Madriral F, Ibarra-Laclette E, Ruiz-Herrera LF, Long TA, Cervantes C, Herrera-Estrella L, López-Bucio J (2014) Chromate alters root system architecture and activates expression of genes involved in iron homeostasis and signaling in *Arabidopsis thaliana*. *Plant Molecular Biology* 86:35-50.

18. López-Bucio J, **Ortiz-Castro R**, Ruíz-Herrera LF, Vargas-Juárez C, Hernández-Madriral F, Carreón-Abud Y, Martínez-Trujillo M. (2015) Chromate induces adventitious root formation via auxin signalling and SOLITARY-ROOT/IAA14 gene function in *Arabidopsis thaliana*. *Biometals* 28:353-365.

b) Book chapters

1.- Ortiz-Castro R., Méndez-Bravo A., López-Bucio J. (2009) Amino compound-containing lipids: A novel class of signal regulating plant development. *Plant developmental biology-biotechnological perspectives*. Volume 2. Eng-Chong P., Davey M. (Eds). Springer Germany, pp. 209-226.

2.- Ortiz-Castro R., López-Bucio J. (2010) La arquitectura de las plantas. *Fronteras en la biología del desarrollo de las plantas*. Beltrán-Peña E., López-Bucio J. (Eds). Universidad Michoacana de San Nicolás de Hidalgo, pp. 1-14.

3.- Ortiz-Castro R., López-Bucio J. (2013) Small molecules involved in transkingdom communication between plants and rhizobacteria. *Molecular Microbial Ecology of the Rhizosphere*. Frans J. De Bruijn (Ed). Vol. I, Wiley-Blackwell, New Jersey. pp. 295-307.

4.- Ortiz-Castro R., Campos-García J., López-Bucio J. (2013) Rapid identification of plant-growth-promoting rhizobacteria system with Arabidopsis. *Molecular Microbial Ecology of the Rhizosphere*. Frans J. De Bruijn (Ed). Vol. I, Wiley-Blackwell, New Jersey, pp. 345-353.

5.- Contreras-Cornejo HA., Ortiz-Castro R., López-Bucio J. (2013) Promotion of plant growth and the induction of systemic defence by Trichoderma: Physiology, genetics and gene expression. *Trichoderma – Biology and Applications*. Mukherjee PK., Horwitz BA., Singh US., Mukherjee M., Scmoll M. (Eds). CAB International. pp. 175-196.

5. Awards and distinctions.

1.- Padre de la Patria Award (2002, 2004, 2005). Universidad Michoacana de San Nicolás de Hidalgo. Having obtained the highest notes in academic achievement from generation in the School of Biology.

2.- "Verano de la Investigación Científica del Pacífico-Delfín" Fellowship (2003, 2004).

3.- Graduate with honors in examination for the degree of Biologist (2005). Facultad de Biología. Universidad Michoacana de San Nicolás de Hidalgo.

4.- AgroBio Foundation award 2009 to the best Master Thesis in Agricultural Biotechnology Research. Awarded by AgroBio Mexico AC, in the category of best master's thesis.

5.- Graduated with honors in examination for the PhD degree (2013) Instituto de Investigaciones Químico-Biológicas, Universidad Michoacana de San Nicolás de Hidalgo.

6. Agrobio Foundation award 2013 Special mention to the best Doctor Thesis in Agricultural Biotechnology Research. Awarded by Agrobio México A.C., in the category of best doctor's thesis.

7. Distinction by the Sistema Nacional de Investigadores (SNI) Investigador Nacional Nivel 1, during the period 1 January 2015 to 31 December 2017.

8. Premios Weizmann 2014, awarded by the Academic Mexican of Sciences to the best doctor's thesis in the area of Natural Sciences.