Curriculum vitae

GENERAL DATA

Name:	Juan Pablo Saucedo Vázquez
Nationality:	Mexican
Place of Birth:	Aguascalientes
Date of Birth:	August 27, 1979
R.F.C.-Mexico:	SAVJ790827-SUA
CURP-Mexico:	SAVJ790827HASCZN02
Identity Card-Ecuador:	175733632-4
Current Address:	Río Aguarico 2-25 and Río Lita, Los Ceibos Ibarra, Imbabura. Ecuador.
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CURRENT ADSCRIPTION

University of Experimental Technology Yachay-Tech.
School of Chemical Sciences and Engineering.
Lecturer. January 2016 to date.

ACADEMIC QUALIFICATIONS

Bachelor in Chemistry
Facultad de Química, Universidad Nacional Autónoma de México
Period from 1998 to 2003
Professional examination: June 11, 2004
Title of the thesis: "Kinetics of oxidative dehydrogenation of an iron compound with a nitrogen ligand".

Master's Degree in Chemical Sciences
Facultad de Química, Universidad Nacional Autónoma de México
All curricular credits.
Period from 2005 to 2007
Title of the project "Mechanism of Reaction and Characterization of Intermediates in an Oxidative Dehydrogenation Reaction" presented on 24.08.2006 for the change to Ph.D. in Chemical Sciences (Q.I.) F. Q., UNAM.

PhD in Chemical Sciences
Facultad de Química, Universidad Nacional Autónoma de México
Period from 2007 to 2011
Grade Exam: October 19, 2012.
Title of thesis: "Oxidative dehydrogenation reactions promoted by iron and ruthenium. A mechanistic study. "

POSDOCTORAL EXPERIENCE

Dr. Wilhelm Hansberg y Torres
Instituto de Fisiología Celular, Universidad Nacional Autónoma de México
Period from March 2015 to January 2016.
Title of the work developed: "Elucidation of the mechanism of reaction of catalase-peroxidase of *Neurospora crassa*".

HONORS

CONACyT Mexico, National System of Researchers Level 1, period 2016-2018.

PUBLICATIONS

Published articles

1.- “Synthesis, Structure, and Characterization of Molybdenum(VI) Imido Complexes with N-salicylidene-2-aminothiophenol”. Minelli, Martin; Hart-Cooper, William; Sinnwell, Joseph; Blumberg, Drew; Guzei, Ilia; Spencer, Lara; Saucedo-Vazquez, Juan Pablo; Solano-Peralta, Alejandro; Sosa-Torres, Martha. *Polyhedron*, **2018**, 146, 26. DOI: 10.1016/j.poly.2018.02.017

2.- "Structure, Kinetics, Molecular and Redox Properties of a Cytosolic and Developmentally Regulated Fungal Catalase-Peroxidase". Vanessa Vega-García, Adelaida Díaz-Vilchis, Juan-Pablo Saucedo-Vázquez, Alejandro Solano-Peralta, Enrique Rudiño-Piñera, Wilhelm Hansberg. *Archives of Biochemistry and Biophysics*, **2018**, 640, 17–26. DOI: 10.1016/j.abb.2017.12.021

3.- "Role of Molecular Oxygen in the Iron (III)-Promoted Oxidative Dehydrogenation of Amines". Juan Pablo Saucedo-Vázquez, Peter M.H. Kroneck, Martha Elena Sosa-Torres. *Dalton Trans*. **2015**, 44 (12), 5510. DOI: 10.1039/c4dt03606a

4.- "The nitric oxide production in the moss *Physcomitrella patens* is mediated by nitrate reductase". Rigoberto Medina-Andrés, Alejandro Solano-Peralta, Juan Pablo Saucedo-Vázquez, Selene Napsucialy-Mendivil, Jaime Arturo Pimentel Cabrera, Martha Elena Sosa-Torres, Joseph G. Dubrovsky and Verónica Lira-Ruan. *Plos One*, **2015**, 10 (3), e0119400. DOI: 10.1371/journal.pone.0119400

5.- "The Magic of Dioxygen" in "Sustaining Life on Planet Earth: Metalloenzymes Mastering Dioxygen and Other Chewy Gases" Volume 15 of the series Metal Ions in Life Sciences. Kroneck P., Saucedo-Vázquez J.P. Sosa Torres M. E. Series editors: Astrid Sigel, Helmut Sigel and Roland Sigel; Springer SBM, Dordrecht, the Netherlands; **2015**, pp 1-12. DOI: 10.1007/978-3-319-12415-5_1

6.- “Role of dioxygen in the oxidative dehydrogenation at mononuclear hexadentate N-6 iron complexes”. Martha E. Sosa-Torres, Juan P. Saucedo-Vázquez, Pedro D. Sarmiento-Pavia, Ricardo D. Paez-Lopez. *J. Biol. Inorg. Chem.* **2014**, 19, (Suppl 2):S727. From the Conference: 12th European Biological Inorganic Chemistry Conference (EuroBIC). DOI: 10.1007/s00775-014-1150-5

7.- "The Membrane-Bound Quinohemoprotein Alcohol Dehydrogenase from *Gluconacetobacter diazotrophicus* PAL5 Carries a [2Fe-2S] Cluster". S. Gómez-Manzo, A. Solano-Peralta, J. P. Saucedo-Vázquez, J. E. Escamilla-Marván, PMH Kroneck, M. E. Sosa-Torres. *Biochemistry*. **2010**, 49 (11), 2409-2415. DOI: 10.1021/bi9015007

8.- "On the Mechanism of Iron (III)-Dependent Oxidative Dehydrogenation of Amines." Juan Pablo Saucedo-Vázquez, V. M. Ugalde-Saldívar, A. R. Toscano, P. M. H. Kroneck, M. E. Sosa-Torres. *Inorg. Chem.* **2009**, 48 (3), 1214-1222. DOI: 10.1021/ic8016968

9.- "Magnetic and high-frequency EPR studies of an octahedral Fe (III) compound with unusual zero field splitting parameters". A. Solano-Peralta, R. Escudero-Derat, J. P. Saucedo-Vázquez, H. El-Mkami, G. M. Smith, P-M.H. Kroneck, M.E. Sosa-Torres, *Dalton. Trans.* **2009**, 1668-1674. DOI: 10.1039/b814225d

Published book chapters

"Biochemistry of organocopper compounds" in "The Chemistry of Organo-Copper". Martha E. Sosa-Torres, Juan Pablo Saucedo-Vázquez, Saúl Gómez-Manzo, Peter M. H. Kroneck. John Wiley & Sons; Verlag, January **2010**. ISBN-10: 0-470-77296-4.

Articles submitted and in preparation:

"Probing the Heme Centers of Alcohol Dehydrogenase from N_2-Fixing *Gluconacetobacter diazotrophicus* with NO". A. Solano-Peralta, J. P. Saucedo-Vázquez, S. Gómez-Manzo, J. E. Escamilla-Marván, PMH Kroneck, M. E. Sosa-Torres. Submitted for publication to *Biochemistry*. **2018**.

“Nitrogen fixation, a Nitrogenase approach”. Valentina Córdoba, Steven Jiménez-Guailla, Marta López, Kamil Makowski, Juan Pablo Saucedo-Vázquez. Article in preparation, **2018**.

"Single crystal EPR determination of Spin Hamiltonian for an octahedral Fe (III) compound with unusual zero field splitting parameters and non-hydrogen bonding. A. Solano-Peralta, J. P. Saucedo-Vázquez, M. E. Sosa-Torres. Article in preparation, **2018**.

TEACHING MATERIALS PUBLISHED

Collaborator in the "Manual of Practices of Laboratory of Chemistry" for Biology. Faculty of Sciences. UNAM. 2012.

Collaborator in the "Manual of Practices of Laboratory of Organic Chemistry" for Biology. Faculty of Sciences. UNAM. 2012.

ACADEMIC EXPERIENCE

School of Chemical Sciences and Engineering. **Yachay-Tech. Ecuador**
Experiments design in Inorganic Chemistry (Elective course, 5th-8th semester). Theory and laboratory. Sem. Summer 2018.

School of Chemical Sciences and Engineering. **Yachay-Tech. Ecuador**
Inorganic Chemistry II (6th semester). Theory and laboratory. Sem. January-May 2018.
Inorganic Chemistry I (5th semester). Theory. Sem. January-May 2018.
Bioinorganic Chemistry (Elective course, 8th semester). Theory. Sem. January-May 2018.

School of Chemical Sciences and Engineering. **Yachay-Tech. Ecuador**
Inorganic Chemistry II (6th semester). Theory and laboratory. Sem. August-December 2017.
Inorganic Chemistry I (5th semester). Theory. Sem. August-December 2017.

School of Chemical Sciences and Engineering. **Yachay-Tech**. **Ecuador**
Inorganic Chemistry II (6th semester). Theory and laboratory. Sem. April-July 2017.
Inorganic Chemistry I (5th semester). Theory. Sem. April-July 2017.

School of Chemical Sciences and Engineering. **Yachay-Tech**. **Ecuador**
Inorganic Chemistry I (5th semester). Theory and laboratory. Sem. September 2016-January 2017.
Chemistry II. Laboratory (2 courses), Sem. September 2016-January 2017.

School of Chemical Sciences and Engineering. **Yachay-Tech**. **Ecuador**
Chemistry. General Leveling Emblematic. Theory (2 courses). Sem. April-August 2016.
Chemistry II. Laboratory, Sem. April-August 2016

School of Chemical Sciences and Engineering. **Yachay-Tech**. **Ecuador**
Chemistry. General Leveling Emblematic (3 courses). Theory. 2nd part of the Sem. January-March 2016.

Faculty of Sciences (Biology), **UNAM. México**
Chemistry

Theory and laboratory Sem. 2010-I, 2011-I, 2011-II, 2012-I, 2012-II, 2013-I, 2013-II, 2014-I, 2014-II, 2015-I, 2016-I.
Organic Chemistry
Theory and laboratory Sem. 2009-II, 2010-II, 2012-II, 2015-I.

Faculty of Chemistry, **UNAM. México**
Inorganic Chemistry I (Inorganic Descriptive)
Laboratory Sem. 2011-I, 2011-II, 2012-I, 2012-II, 2013-I, 2013-II, 2014-I, 2014-II, 2015-I
Theory Sem. 2014-I

Faculty of Chemistry, **UNAM. México**
Inorganic Chemistry IV (Coordination Chemistry)
Laboratory Sem. 2014-II, 2015-I, 2015-II, 2016-I.

Faculty of Sciences (Earth Sciences), **UNAM. México**
General Chemistry
Theory and laboratory Sem. 2012 -II, 2013-I

DIRECTED THESIS

BACHELOR

1.- Steven Javier Jimenez Guailla. "Síntesis de biomiméticos inorgánicos del cofactor FeMo de Nitrogenasa". Universidad de Tecnología Experimental Yachay-Tech. En progreso **2018**.

2.- Airina Valentina Cordova Torres. "Estudio de la activación de nitrógeno molecular en enzimas de bacterias acido-acéticas y compuestos modelo". Universidad de Tecnología Experimental Yachay-Tech. En progreso **2018**.

3.- Lourdes Araceli Granja Alvear. "Estudio de la activación de sustratos de importancia sintética en enzimas de bacterias fijadoras de nitrógeno y en compuestos modelo". Universidad de Tecnología Experimental Yachay-Tech. En progreso **2018**.

4.- Diego David Menoscal Santos. "Síntesis y evaluación de la actividad anticancerígena de complejos de rutenio con ligantes bidentados basados en etilendiamina" Universidad de Tecnología Experimental Yachay-Tech. En progreso **2018**.

5.- Sofía Peñafiel Vicuña. "Bioremediación de suelos contaminados por metales pesados en cultivos de caña de azúcar en la Provincia de Imbabura". Universidad de Tecnología Experimental Yachay-Tech. En progreso **2018**.

RESEARCH PROJECTS AND GRANTS

1.- "Activation of small molecules assisted by iron metal centers. Applications to modeling biological processes with public health impact". **PI: Juan Pablo Saucedo Vázquez, PhD**; Co-I: Gotfried Suppan, PhD; Alejandro Solano, PhD; Valentina Cordova; Cecilia Medina; Araceli Granja; David Moreno; Nelson Bastidas. Internal Grant 22 of Universidad Yachay-Tech. approved (call 2017) and currently in progress.

2.- "DIFERENCIACIÓN CELULAR COMO RESPUESTA A LA TENSIÓN OXIDANTE EN Neurospora crassa". PI-I: Wilhelm Hansberg y Torres, PhD; **Co-I: Juan Pablo Saucedo Vázquez, PhD**; Vanessa Vega, MSc. DGAPA-PAPIIT IN208717, UNAM, México. January 2015-December 2017.

3.- "Análisis estructural, funcional y espectroscópico de las metalo-proteínas de Gluconacetobacter diazotrophicus y compuestos biomiméticos relacionados a estos sistemas biológicos". PI-I: Martha Elena Sosa Torres, PhD; **Co-I: Juan Pablo Saucedo Vázquez, PhD**; Saúl

Gómez Manzo, PhD; Alejandro Solano Peralta, PhD. CONACyT 128921, UNAM, México. 2009-2011.

TECHNICAL / EQUIPMENT EXPERIENCE

Electronic Paramagnetic Resonance (EPR): Bruker Elexsys E500 spectrometer, microwave sources X band (9.5 GHz), Q band (12 GHz). Oxford cryostat with liquid helium technology, liquid nitrogen cryostat. EPR software: Xepr and simulation software: Easyspin 5.014, Simfonia 1.2 and WinEPR 1.2.

Nuclear Magnetic Resonance (NMR): Varian Unity-Inova 300 Spectrometer. RMN Software: VNMR 6.1C and MestReNova 10.02.

Infrared Spectroscopy (FTIR): Perkin Elmer 1710 Spectrometer. IR Software: OPUS 2.00.

Electrochemistry: Potentiostat / Galvanostat EG & G PAR model 273-A equipped with 3-electrode system for voltammetry, chronoamperometry and columetry. Software: PowerSuite 2.44

Luminescence Spectrophotometer: Perkin Elmer LS 50 Spectrophotometer. Software: FL WinLab 3.0

UV-Vis spectrophotometer: Spectrophotometer with Agilent 8453A diode array detector, with Peltier equipment for temperature control. Software: ChemStation B.04 with Kinetic module.

Potentiometry: Oximeter for dissolved oxygen measurement YSI 5100, potentiometer for pH and redox potential Orion 720A, other potentiometers: Brand Hanna, Corning, Conductronic, Beckman.

LANGUAGES

Spanish: Speak and write (maternal language).

English: Speak and write.

- Possession exam of the English Language, approved at the Center for Teaching Foreign Languages (CELE) of the UNAM.

- English advanced course: LEVEL B2.1: English for Academic Purposes I, English Language Program Yachay-Tech University. Course with evaluation, February 7-May 9 2018.

UPDATE COURSES

Courses with evaluation.

Workshop on Research, Grants, and Internationalization. Yachay-Tech University, Ecuador, 19-20 December **2017**. Held by Carlos Castillo Chávez, PhD, Patricio Ponce, PhD and Helene Skikos. Duration 90 hours.

4th International Frontiers Workshop on Protein Folding, Evolution and Function, Oaxaca, Mexico, 03-07 November **2015**. Duration 20 hours.

Training course: Practice in Electron Paramagnetic Resonance. Delivered by Dr. Ralph, Weber, (12-16 March **2012**). Faculty of Chemistry, UNAM. Duration 40 hours.

"Summer School: Metal Ions in Biology-Key Elements of Life". Faculty of Chemistry, UNAM-DAAD Germany. (May 15-31, **2008**). Duration 112 h. Made in Cuernavaca Morelos. Held by Dr. Peter M. H. Kroneck, Dr. Martha Elena Sosa Torres, Dr. Oliver Einsle, Dr. Susana Andrade, Dr. Heindrich Küpper.

Electron Paramagnetic Resonance (EPR): A major tool of modern biology and bioinorganic chemistry. Faculty of Chemistry, UNAM, January 28 and 30, **2004**. Taught by Prof. Peter M. H. Kroneck. Duration 5 hours

Training course: Electron Paramagnetic Resonance. Delivered by Dr. Ralph, Weber, (6-10 Dec **2004**). Faculty of Chemistry, UNAM. Duration 40 hours.

"Inorganic Chemistry and its Relevance in the Chemical Industry". Faculty of Chemistry, UNAM. (September **2002**). Duration 15h. Taught by Prof. Heinrich Nöth.

Academic development courses

Course of “Pedagogy and Didactics for the Qualification of Teachers to the Emblematic General Leveling”. Official course of the National System of Leveling and Admission of the IES. Duration 100 hours. (July 5-August 3, **2016**). University of Experimental Research and Technology Yachay-Tech. Ecuador.

Course-workshop "Human Relations in the Classroom". Delivered by Ped. Ma. Eugenia Cisneros Cantor and Psic. Tania Ramírez Manzanares. Official course of the Program of Updating and Overcoming Teachers (PASD). Bachelor of the DGAPA. Duration 20 hours. (August 17 to September 14, **2011**). Faculty of Sciences, UNAM.

Course-workshop "Manual Review of Chemistry". Taught by Dr. Yolanda Caballero and Q. Verónica Muñoz Otero. Official course of the Program of Updating and Overcoming Teachers (PASD) 2011 Bachelor of the DGAPA. Duration 40 hours. (10 March-07 April **2011**). Faculty of Sciences, UNAM.

Course-workshop "Practical Experiences of Organic Chemistry". Taught by M. in C. Daniel Humberto Rosas Sánchez and M. in C. Jorge Luis López Zepeda. Official course of the Program of Updating and Overcoming Teachers (PASD) 2010 Bachelor of the DGAPA. Duration 40 hours. (11-22 January January **2010**). Faculty of Sciences, UNAM.

Theoretical-practical course for the preparation of Chemistry Tests "SIGE". Taught by members of the DGEE. Duration 30 hours. September **2010**.

Special Pedagogic Course-Workshop “Docencia y Educación” Departamento de Superación Académica (DSA) for the Formation of new Chemistry Teachers. 1st semester of **2004**, Duration 80 hours. Faculty of Chemistry, UNAM.

NATIONAL AND INTERNATIONAL CONFERENCES AND CONGRESSES

V Latin American Meeting on Biological Inorganic Chemistry, Querétaro, Mexico. October 18-22, **2016**. "*Neurospora crassa* catalase-peroxidase: molecular, kinetic and redox properties". Co-author of the work. Wilhelm Hansberg-Torres, Vanessa Vega-García, Juan Pablo Saucedo-Vázquez.

5th Congress of the SMB Branch of Physicochemistry, Structure and Design of Proteins, Oaxaca, Mexico, 03-07 November **2015**. "Redox properties and spectroscopic characterization of the Heme b of CAT-2, the catalase-peroxidase from *Neurospora crassa*. " Oral presentation in English. Juan Pablo Saucedo-Vázquez, Vanessa Vega-García, Wilhelm Hansberg-Torres.

40th International Conference on Coordination Chemistry-ICCC40, Valencia, Spain, September 9-13, **2012**. "Outer Sphere O2 Activation at a Mononulcear Iron Site" Martha E. Sosa Torres and Juan Pablo Saucedo Vázquez. MS.C2-P-249.

5th Symposium of Inorganic Chemistry. FES-Cuautitlán **2012**. "The versatility of transition metals, from inorganic compounds to functional sites in metalloproteins". Oral presentation. Juan Pablo Saucedo Vázquez and Martha E. Sosa Torres.

Gordon Research Conferences on Metals in Biology-**2011** California USA. January 30-February 4, 2011. "Probing the Heme Centers of Alcohol Dehydrogenase (ADH) from N2-Fixing *Gluconacetobacter diazotrophicus* with NO". A. Solano-Peralta, J.P. Saucedo-Vázquez, S. Gómez-Manzo, J. E. Escamilla-Marván, P.M.H. Kroneck and M.E. Sosa-Torres.

Gordon Research Conferences on Metals in Biology-**2011** California USA. "Single Crystal EPR determination of Hamiltonian Spin for an octahedral Fe (III) compound with usual zero field splitting parameters" A. Solano-Peralta, J.P. Saucedo-Vázquez, M.E. Sosa-Torres.

Gordon Research Conferences on Metals in Biology-**2010** California USA. January 31-February 5, 2010. "Membrane-bound quinohemoprotein alcohol dehydrogenase from *Ga. Diazotrophicus*: redox potentials and spectroscopy of the cofactors ". Gómez-Manzo, A. Solano-Peralta, J.P. Saucedo-Vázquez, J. E. Escamilla-Marván, P. M. H. Kroneck, and M. E. Sosa-Torres.

Gordon Research Conferences on Metals in Biology-**2009** California USA. January 25-February 1, 2009. "The Role of Oxygen on Iron (III) mediated Oxidative Dehydrogenation of Amines". J. P. Saucedo-Vázquez, P.M.H. Kroneck, M. E. Sosa-Torres.

Gordon Research Conferences on Metals in Biology.California USA. 27 January-01 February **2008**. "Magnetic and Multi-frequency EPR Investigations of an Octahedral Faith (III) Complex". A. Solano-Peralta, J. P. Saucedo-Vázquez, R. Escudero, H. Hopfl, H. El-Mkami, G. M. Smith, M. E. Sosa-Torres.

"Multi-frequency EPR Study of an Fe (III) System with unusual zfs Parameters" A. Solano-Peralta, JP Saucedo-Vázquez, R . Escudero, H. Hopfl, H. El-Mkami, GM Smith, ME Sosa-Torres. X International Symposium on Bio-organic Chemistry, Challenge for a new generation. Szlarska Poreba, Poland, 20-25 Sep, **2005**. "Structure and Reaction Mechanism of Oxidative Dehydrogenation of Iron (III) polyamine complexes. Looking for labile intermediates ". ME. Sosa-Torres, J.P. Saucedo-Vázquez, V.M Ugalde-Saldívar.

Meeting of Inorganic Chemistry, Cuernavaca **2003**, EQI2003, Cuernavaca, Morelos, 11-13 June 2003. "Kinetics of oxidative dehydrogenation reaction between iron (III) and tripod ligand". Juan Pablo Saucedo and Martha E. Sosa-Torres.

"V workshop of young people in research", CINVESTAV. **2003**. "Kinetics of oxidative dehydrogenation reaction between iron (III) and tripod ligand". Oral presentation. CINVESTAV Unit Zacatenco, Mexico D.F. Juan Pablo Saucedo and Martha E. Sosa-Torres.