



CURRÍCULUM  
vitae

DR. JUAN CARLOS  
TORRES GUZMÁN



# DR. JUAN CARLOS TORRES GUZMÁN

**PROMEP Profile SEP**

since 1997

**SNI Level I**

**Professor**

Department of Biology  
Division of Natural and Exact Sciences  
University of Guanajuato  
Campus Guanajuato  
México



May 16, 1961



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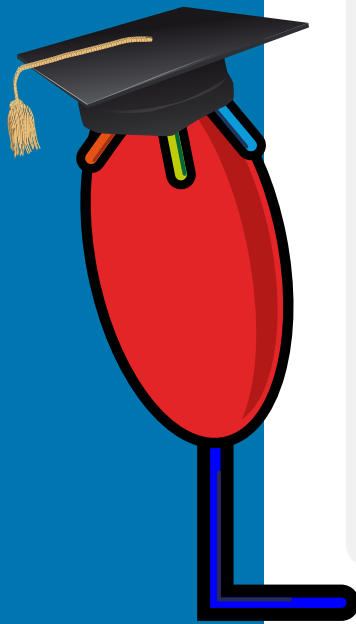
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## 1. Academic Degrees

### **Bachelor's degree: Biochemical Engineer**

Instituto Tecnológico de Celaya  
Celaya, Gto., Mexico  
1979-1983

### **Master of Science, Genetic Specialty**

Instituto de Investigación en Biología Experimental  
Facultad de Química  
Universidad de Guanajuato  
Guanajuato, Gto., México  
1985-1988

### **PhD in Biological Sciences**

Instituto de Microbiología – Bioquímica  
Facultad de Biología, Departamento de Microbiología  
Universidad de Salamanca  
Salamanca, España  
1989-1994

## 2. Postdoctoral

### **Centro de Investigaciones y de Estudios Avanzados del IPN**

Unidad Irapuato  
Departamento de Genética  
Laboratorio de Diferenciación en Hongos  
Irapuato, Gto. México  
December 1994 – July 1995

### **Universidad de Salamanca**

Instituto de Microbiología – Bioquímica  
Departamento de Microbiología  
Facultad de Biología  
Salamanca, España  
April 1995

### **Instituto Venezolano de Investigaciones Científicas (IVIC)**

Centro de Microbiología y Biología Celular  
Laboratorio de Microbiología y Fermentaciones  
Caracas, Venezuela  
April – May 1996

### **University of Alberta**

Department of Cell Biology  
Edmonton, Alberta, Canada  
March 2001 – June 2002

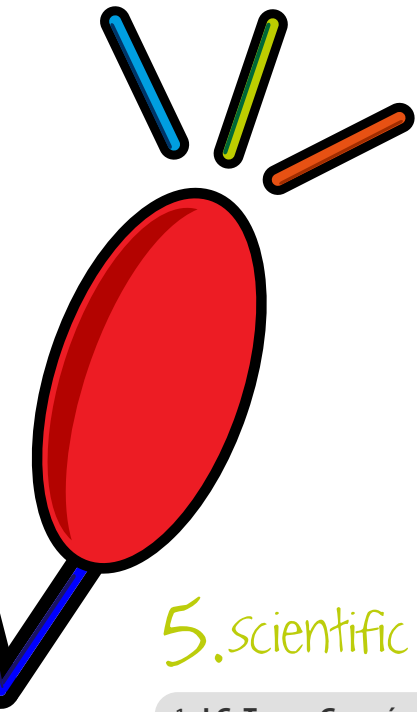
### **University of Alberta**

Department of Cellular Biology  
Edmonton, Alberta, Canada  
August 2003 – September 2003

### **Instituto Julius Kuhn Institut**

Laboratory of Dr. Andreas Leclerque  
Darmstadt, Germany  
April – July 2011

# DR. JUAN CARLOS TORRES GUZMÁN



## 3. HUMAN RESOURCES TRAINING

**Bachelor level: 49**

**Master level: 34**

**PhD level: 5**

## 4. PROFESSIONAL EXPERIENCE

### Internship

Technical Department, Process Section

**Celanese Mexicana, S.A. de C.V.**

Celaya, Guanajuato

1983

### Production Supervisor

**Food Products "La Mesa S.A. de C.V."**

Celaya, Guanajuato

1983 – 1984

## 5. SCIENTIFIC PUBLICATIONS

1. **J.C. Torres Guzmán**, G.A. Arreola García, R. Zazueta Sandoval, T. Carrillo Rayas, G. Martínez Cadena, F. Gutiérrez Corona (1994). Genetic evidence for independence between fermentative metabolism (ethanol accumulation) and yeast-cell development in the dimorphic fungus *Mucor rouxii*. **Current Genetics**: **26:166-171**.

2. **J.C. Torres Guzmán**, B. Xoconostle Cazares, L. Guevara Olvera, L. Ortiz, G. San Blas, A. Domínguez, and J. Ruiz Herrera (1996). Comparison of Fungal Ornithine Decarboxylases. **Current Microbiology**. **33: 390-392**.

3. **J.C. Torres Guzmán** and A. Domínguez. (1997). HOY1, a Homeo gene required for hyphal formation in *Yarrowia lipolytica*. **Molecular and Cellular Biology**. **17 (11): 6283-6293**.

4. J.A. Esquivel, V. Meza, **J.C. Torres Guzmán**, E. Vargas and C. Cervantes. (1998). Arsenic resistance determinants from environmental bacteria. **Revista Latinoamericana de Microbiología**. **40: 45-52**.

5. C. Cervantes, J. Campos García, S. Devars, F. Gutiérrez Corona, H. Loza Tavera, **J.C. Torres Guzmán**, R. Moreno Sánchez. (2001). Interactions of chromium with microorganism and plants. **FEMS Microbiology Reviews**. **25: 335-347**.

6. Ramírez, M.I., **J.C. Torres Guzmán**, J. Campos García y C. Cervantes. (2001). Molecular analysis of the *arsB* gene of the *Escherichia coli* plasmid pGTO12. **Nicolaite Science**. **29:13-22**.

7. Y. Alvarado Caudillo, J.C. Bravo Torres, V.Zazueta Novoa, H. Silva Jiménez, **J.C. Torres Guzmán**, J. Félix Gutiérrez Corona and R. Zazueta Sandoval. (2002). Presence and physiologic regulation of alcohol oxidase activity in an indigenous fungus isolated from petroleum-contaminated soils. **Applied Biochemistry and Biotechnology**. **Volume: 98. Pages: 243-255**. DOI: 10.1385/ABAB:98-100:1-9:243 Published: SPR 2002.

8. The application of systems biology to peroxisome biogenesis and function. Author(s): JC, Tam YYC, Vizeacoumar FJ, **Torres Guzmán JC**, Smith JJ, Marelli M, Aitchison JD, Rachubinski RA. Source: **YEAST Volume: 20 Pages: S23-S23. Supplement: Suppl. 1 Published: JUL 2003**

9. Vizeacoumar F.J., **J.C. Torres Guzmán**, Y.Y.C. Tam, J.D. Aitchison, and R. Rachubinski. (2003). YHR150w and YDR479c Encode Peroxisomal Integral Membrane Proteins Involved in the Regulation of Peroxisome Number, Size and Distribution in *Saccharomyces cerevisiae*. **Journal of Cell Biology**. **Volume: 161. Issue: 2. Pages: 321-332**. DOI: 10.1083/jcb.200210130.



## 5. Scientific Publications

10. YY Tam, **JC Torres Guzmán**, FJ Vizeacoumar, JJ Smith, M Marelli, JD Aitchison, and RA Rachubinski (2003). Pex11-related Proteins in Peroxisome Dynamics: A Role for the Novel Peroxin Pex27p in Controlling Peroxisome Size and Number in *Saccharomyces cerevisiae*. **Molecular Biology of the Cell. Volume: 14 Issue: 10 Pages: 4089-4102.** DOI: 10.1091/mbc.E03-03-0150.

11. Franco J. Vizeacoumar, **Juan C. Torres Guzmán**, David Bouard, John D. Aitchison, and Richard A. Rachubinski. (2004). Pex30p, Pex31p, and Pex32p form a family of peroxisomal integral membrane proteins regulating peroxisome size and number in *Saccharomyces cerevisiae*. **Mol Biol Cell.** 2004 Feb;15(2):665-77.

12. R. A. Rangel Porras, V. Meza Carmen, G. Martínez Cadena, **J.C. Torres Guzmán**, G.A. González Hernández, J. Arnau and J.F. Gutiérrez Corona (2005). Molecular analysis of a NAD-dependent alcohol dehydrogenase from the Zygomycete *Mucor circinelloides*. **Molecular Genetics and Genomics. Vol. 274, Number 4. Pag. 354 – 363.**

13. Ortiz Alvarado R, González Hernández GA, **Torres Guzmán JC**, Gutiérrez Corona JF. Transformation of *Mucor circinelloides* with autoreplicative vectors containing homologous and heterologous ARS elements and the dominant Cbx(r) carboxine-resistance gene. **Current Microbiology Volume: 52 Issue: 3. Pages: 178-181.** DOI: 10.1007/s00284-005-0088-9 Published: **MAR 2006, Epub 2006 Feb 18.**

14. Juan Francisco Jiménez Bremont, Margarita Rodríguez Kessler, Raúl Rodríguez Guerra, Carlos Cortez Penagos, **Juan Carlos Torres Guzmán** and June Simpson Williamson "Cloning and sequence analysis of ornithine decarboxylase gene fragments from the Ascomycota". **DNA Sequence. Volume: 17. Issue: 3. Pages: 231-236.** DOI: 10.1080/10425170600807009. Published: **JUN 2006.**

15. Luis Alberto Cira, Gloria Angélica González, **Juan Carlos Torres**, Carlos Pelayo, Melesio Gutiérrez and Jesús Ramírez (2008). Heterologous expression of *Fusarium oxysporum* tomatinase in *Saccharomyces cerevisiae* increases its resistance to saponins and improves ethanol production during the fermentation of Agave tequilana Weber var. azul and Agave salmiana must. **Antonie van Leeuwenhoek.** Publicado en línea 23 de septiembre de 2007. Volume 93, Number 3, **March 2008. Pp 259-266.**

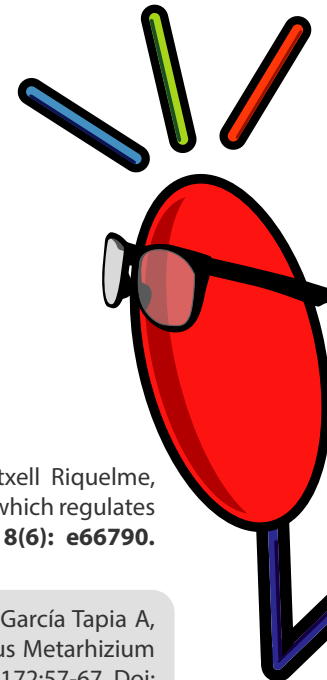
16. Gutiérrez Lomelí M, **Torres Guzmán JC**, González Hernández GA, Cira Chávez LA, Pelayo Ortiz C, Ramírez Córdova JD (2008). Overexpression of ADH1 and HXT1 genes in the yeast *Saccharomyces cerevisiae* improves the fermentative efficiency during tequila elaboration. **Antonie Van Leeuwenhoek International Journal of General and Molecular Microbiology. Volume: 93. Issue: 4. Pages: 363-371.** DOI: 10.1007/s10482-007-9213-z. Published: **May 2008. Epub Feb 2008.**

17. Morales Hernández, C.E., Padilla Guerrero, I., González Hernández, G.A. Salazar Solís, E. and **Torres Guzmán, J.C. (2010).** Catalase overexpression reduces the germination time and increases the pathogenicity of the fungus *Metarhizium anisopliae*. **Applied Microbiology and Biotechnology.** Volume: 87. Issue: 3. **Pages: 1033-1044.** DOI: 10.1007/s00253-010-2517-3.

18. E. Padilla Guerrero, L. Barelli, G. A. González Hernández, **J. C. Torres Guzmán** and M. J. Bidochka (2011). Flexible metabolism in *Metarhizium anisopliae* and *Beauveria bassiana*: role of the glyoxylate cycle during insect patogenesis. **Microbiology-SMG, Volume: 157. Pages: 199-208.** DOI: 10.1099/mic.0.042697-0. Part: Part 1.

19. Jaime Madrigal Pulido, Israel Padilla Guerrero, Isaura de J. Magaña Martínez, Briseida Cacho Valadez, **Juan Carlos Torres Guzmán**, Eduardo Salazar Solís, J. Félix Gutiérrez Corona, Augusto Schrank, Francisco Jiménez Bremont, Angélica González Hernández, (2011). Isolation, characterization and expression analysis of the ornithine decarboxylase gene (ODC1) of the entomopathogenic fungus, *Metarhizium anisopliae*. **Microbiological Research.** Volume: 166. Issue: 6. **Pages: 494-507.** DOI: 10.1016/j.micres.2010.10.002.

20. Corrales Escobosa AR, Rangel Porras RA, Meza Carmen V, González Hernández GA, **Torres Guzmán JC**, Wrobel K, Wrobel K, Roncero MI, Gutiérrez Corona JF. (2011). *Fusarium oxysporum* Adh1 has dual fermentative and oxidative functions and is involved in fungal virulence in tomato plants. **Fungal Genetics and Biology.** Volume: 48. Issue: 9. **Pages: 886-895.** DOI: 10.1016/j.fgb.2011.06.004.



## 5. Scientific Publications

21. Azul Martínez Vázquez, Angélica González Hernández, Ángel Domínguez, Richard Rachubinski, Meritxell Riquelme, Patricia Cuellar Mata and **Juan Carlos Torres Guzmán (2013)**. Identification of the transcription factor Znc1p, which regulates the yeast-to-hypha transition in the dimorphic yeast. *Yarrowia lipolytica*. eISSN:1932-6203. **PLoS ONE 8(6): e66790**. doi:10.1371/journal.pone.0066790.

22. Callejas Negrete OA, **Torres Guzmán JC**, Padilla Guerrero IE, Esquivel Naranjo U, Padilla Ballesteros MF, García Tapia A, Schrank A, Salazar Solís E, Gutiérrez Corona F, González Hernández GA. (2015). The Adh1 gene of the fungus *Metarhizium anisopliae* is expressed during insect colonization and required for full virulence. **Microbiological Research**. 172:57-67. Doi: 10.1016/j.micres.2014.11.006. Epub 2014 Dec 5.

23. Yáñez Barrientos Eunice, Kazimierz Wrobel, **Juan Carlos Torres Guzmán**, Alma Rosa Corrales Escobosa and Katarzyna Wrobel (2016). "Determination of SeMet and Se(IV) in biofortified yeast by ion-pair reversed phase liquid chromatography-hydride generation-microwave induced nitrogen plasma atomic emission spectrometry (HPLC-HG-MP-AES). B., 2016, 31, 203-211. DOI: 10.1039/C5JA00276A.

24. Vargas Maya NI, González Hernández GA, Padilla Guerrero IE, **Torres Guzmán JC**. Overexpression of smorf YNR034W-A/EGO4 in *Saccharomyces cerevisiae* increases the fermentative efficiency of Agave tequilana Weber must. *J Ind Microbiol Biotechnol*. 2017 Jan; **44(1):63-74**. Doi: 10.1007/s10295-016-1871-2. Epub 2016 Nov 16.

25. Cynthia Castro Vargas, César Linares López, Adolfo López Torres, Katarzyna Wrobel, **Juan C. Torres Guzmán**, Gloria A. González Hernández, Kazimierz Wrobel, Humberto Lanz Mendoza and Jorge Contreras Garduño. "Methylation on RNA: A Potential Mechanism Related to Immune Priming within But Not across Generations" (2017). **Front Microbiol**. 2017 Mar **28;8:473**. Doi: 10.3389/fmicb.2017.00473. eCollection 2017. *Front. Microbiol*. <https://doi.org/10.3389/fmicb.2017.00473>

26. Héctor Medina Gómez, Galia Adame Rivas, Angélica Hernández Quintero, Angélica González Hernández, **Juan Carlos Torres Guzmán**, Humberto Lanz Mendoza, Jorge Contreras Garduño. "The occurrence of immune priming can be species-specific in entomopathogens. **Microbial Pathogenesis 118 (2018) 361-364**. <https://doi.org/10.1016/j.micpath.2018.03.063>

27. Medina Gómez H, Farriols M, Santos F, González Hernández A, **Torres Guzmán JC**, Lanz H, Contreras Garduño J. Pathogen-produced catalase affects immune priming: A potential pathogen strategy. **Microb Pathog**. 2018 Dec; **125:93-95**. doi: 10.1016/j.micpath.2018.09.012.

28. Rangel Porras RA, Díaz Pérez SP, Mendoza Hernández JM, Romo Rodríguez P, Alejandro Castañeda V, Valle Maldonado MI, **Torres Guzmán JC**, González Hernández GA, Campos García J, Arnau J, Meza Carmen V, Gutiérrez Corona JF (2019). Alcohol dehydrogenase 1 participates in the Crabtree effect and connects fermentative and oxidative metabolism in the Zygomycete *Mucor circinelloides*. **J Microbiol**. 2019 Jul; **57(7):606-617**. doi: 10.1007/s12275-019-8680-z. Epub 2019 Jun 27.

29. Contreras Garduño, J., Méndez López, T.T., Patiño Morales, A. González Hernández GA, **Torres Guzmán JC**, Krams I, Méndez Cuenca L., Ruiz Guzmán, G. The costs of the immune memory within generations. **Sci Nat 106, 59 (2019)** doi:10.1007/s00114-019-1657-2.

30. González Hernández GA, Padilla Guerrero IE, Martínez Vázquez A, **Torres Guzmán JC**. Virulence factors in the entomopathogen genus *Metarhizium*. **Curr Protein Pept Sci**. 2020 Jan 15. doi: 10.2174/1389203721666200116092407. Epub ahead of print.

31. Perla Araceli Meléndez Hernández, Javier Ulises Hernández Beltrán, Alicia Hernández Guzmán, Ricardo Morales Rodríguez, **Juan Carlos Torres Guzmán**, Héctor Hernández Escoto. Comparative of alkaline hydrogen peroxide pretreatment using NaOH and Ca(OH)<sub>2</sub> and their effects on enzymatic hydrolysis and fermentation steps. **Biomass Conversion and Biorefinery (2019)**. <https://doi.org/10.1007/s13399-019-00574-3>

32. Rosa Angélica Rangel Porras, Sharel P. Díaz Pérez, Juan Manuel Mendoza Hernández, Pamela Romo Rodríguez, Viridiana Alejandro Castañeda, Marco I. Valle Maldonado, **Juan Carlos Torres Guzmán**, Gloria Angélica González Hernández, Jesús Campos García, José Arnau, Víctor Meza Carmen & J. Félix Gutiérrez Corona. Alcohol dehydrogenase 1 participates in the Crabtree effect and connects fermentative and oxidative metabolism in the Zygomycete *Mucor circinelloides*. **J Microbiol**. **57, 606-617 (2019)**. <https://doi.org/10.1007/s12275-019-8680-z>

33. Cervantes Quintero, K.Y., Padilla Guerrero, I.E., **Torres Guzmán, J.C.**, Villa Martínez, B.G., Valencia Félix, A, and González Hernández G.A. Members of the nitronate monooxygenase gene family from *Metarhizium brunneum* are induced during the process of infection to *Plutella xylostella*. **Appl Microbiol Biotechnol 104, 2987-2997 (2020)**. <https://doi.org/10.1007/s00253-020-10450-0>

Alcohol Fungic Dehydrogenases: Physiological Role and Biotechnological Potential. Gloria Angélica González Hernández, **Juan Carlos Torres Guzmán**, J. Félix Gutiérrez Corona and Roberto Zazueta Sandoval. **Chemical Bond**, April 2010. <http://quimica.ugto.mx/revista/index.html>

## 7. Lectures

1. Gutiérrez Corona, J.F., R. Zazueta Sandoval, J.M. Mendoza Hernández, C. Avitia Domínguez, G.A. González Hernández and **J.C. Torres Guzmán**. "Genetic determination of ADH activity in fungi of the genus *Mucor*". VII National Congress of Biotechnology and Bioengineering. **II International Symposium on Bioprocess Engineering. Mazatlan, Sin. August 1997.**

2. Alvarado Carrillo Y., **J.C. Torres Guzmán**, J.F. Gutiérrez Corona, P. Lappe Oliveras and R. Zazueta Sandoval. "Molecular Studies of alcohol dehydrogenase from a hydrocarbon biodegradable fungus". VIII National Congress of Biotechnology and Bioengineering. **IV Latin American Congress of Biotechnology and Bioengineering. Huatulco, Oax. Mexico. September 1999.**

3. Ibarra Rivera, T.R., G.A. González Hernández and **J.C. Torres Guzmán**. ADH expression in *Metarhizium anisopliae*. **I Summer of Science of the Central Region. San Luis Potosí, S.L.P. Mexico. August 2000.**

4. Esquivel Naranjo E.U., Román Reyes L., Morales Hernández C.E., **Torres Guzmán J.C.**, Salazar Solís E., and G.A. González Hernández. (2000). "Optimization of the mass production of conidia of the CARO4 strain of *Metarhizium anisopliae* and effect of different fertilizers on viability." **Memories of the XXIII National Congress of Biological Control. Guanajuato, Gto. November 2000.**

5. **Torres Guzmán, J.C.** González Hernández, G.A., Salazar Solís E. (2007). Typing and Genetic Improvement of *Metarhizium anisopliae* Strains. Biological Control and Management of the Central American Lobster (*Schistocerca piceifrons piceifrons*, WALKER). **Technological Institute of Cd. Victoria, Tamaulipas.** November 15, 2007. **ISBN: 978-968-5384-08-07.**

6. **Juan Carlos Torres G.**, Eduardo Salazar Solís, Angélica González H. (2008). Search for ecologically friendly alternatives for pest control in modern agriculture: *Metarhizium anisopliae* as a study model. **Ide@s CONCYTEG. 978-607-95030-2-4. Year 3. Number 37.** July 3rd, 2008.

7. Adriana García Tapia, José Manuel Zamudio Arroyo, Guadalupe Araceli López Andrade, Gloria Angélica González Hernández, Eduardo Salazar Solís and **Juan Carlos Torres Guzmán**. (2008). Isolation of the NAT1 gene from the entomopathogenic fungus *Metarhizium anisopliae*, similar to an N-acetyl transferase. **Memories of the XXXI National Congress of Biological Control. Zacatecas. Zac.** November 17-21, 2008. **ISBN: 968-9099-10-8.**

8. Guadalupe Araceli López Andrade, Cecilia Gamero Posada, Adriana García Tapia, **Juan Carlos Torres Guzmán** and Gloria Angélica González Hernández. (2008). The comet assay as a tool to assess DNA damage caused by oxidative stress in the entomopathogen *Metarhizium anisopliae*. **Memories of the XXXI National Congress of Biological Control. Zacatecas. Zac.** November 17-21, 2008. **ISBN: 968-9099-10-8.**

9. Gloria Angélica González Hernández, Claudia Erika Morales Hernández, **Juan Carlos Torres Guzmán**, Israel Enrique Padilla Guerrero, Eduardo Salazar Solís, Adriana García Tapia, Guadalupe Araceli López Andrade. "Isolation and characterization of the cat1 gene from the entomopathogenic fungus *Metarhizium anisopliae*". **5th Research and Linking Forum. 2010. Pag. 181-190. ISBN: 978-607-441-069-3. University of Guanajuato.** January 21-22, 2010. **Silao, Guanajuato.**

10. **Juan Carlos Torres Guzmán**, Gloria Angélica González Hernández, Israel Enrique Padilla Guerrero, Eduardo Salazar Solís, Celia Catalina Romero Amara, Irma Guadalupe Gutiérrez Alameda, Guadalupe Araceli López Andrade, Adriana García Tapia. "Construction of a vector for overexpression of *Polistes annularis* hyaluronidase A in the entomopathogenic fungus *Metarhizium anisopliae*". **5th Research and Linking Forum. 2010. ISBN: 978-607-441-069-3. Pag. 228-237. University of Guanajuato.** January 21-22, 2010. **Silao, Guanajuato.**

11. Juan Carlos Balandrán Juárez, Israel Enrique Padilla Guerrero, **Juan Carlos Torres Guzmán** and Gloria Angélica González Hernández. Construction of strains of the entomopathogen *Metarhizium anisopliae* overexpressors of homologous and heterologous genes of 2-nitropropane dioxygenase. **Summers of Scientific Research 2010. ISBN: 978-607-441-085-3. University of Guanajuato.** July 30, 2010. **Leon, Guanajuato.**

12. **Juan Carlos Torres Guzmán**, Ma. Azul del Rocío Martínez Vázquez, Ángel Domínguez Olavarri, Patricia Cuellar Mata and Gloria Angélica González Hernández. Transcriptional analysis of the yeast transition - mycelium of *Yarrowia lipolytica*. **6th Research and Linking Forum. University of Guanajuato. Silao, Gto., Januray 21st, 2011. ISBN: 978-607-441-107-2.**



13. **Juan Carlos Torres Guzmán**, Israel Enrique Padilla Guerrero, Eduardo Salazar Solís, César Arturo Ojeda Gutiérrez, Juan Carlos Baladrán Juárez, Patricia Cuellar Mata, Adriana García Tapia, Guadalupe Araceli López Andrade and Gloria Angélica González Hernández. Participation of Nitro-propane dioxygenase genes (2np1 and 2np2) in the pathogenesis of the entomopathogenic fungus *Metarhizium anisopliae*. **6th Research and Linking Forum. University of Guanajuato. Silao, Gto., January 21st, 2011. ISBN: 978-607-441-107-2.**

14. Francisco Eduardo López Medrano, **Juan Carlos Torres Guzmán**. "Monitoring of the fermentation for the production of Tequila." **Summer Memories of Scientific Research UG. 2012. ISBN: 978-607-441-191-1 DR. © University of Guanajuato. Pag. 460 – 465.**

15. Luis Fernando Ramírez Sánchez, **Juan Carlos Torres Guzmán**. "Physicochemical, microbiological and rheological analysis in the elaboration of the Guanajuato cheese cake." **Summer Memories of Scientific Research UG. 2012. ISBN: 978-607-441-191-1 DR. © University of Guanajuato. Pag. 294 – 301.**

16. Fitzya Yasen Bocanegra Jiménez, **Juan Carlos Torres Guzmán**. "Analysis of the expression of the CIE1 gene of the entomopathogenic fungus *Metarhizium anisopliae*". **Summer Memories of Scientific Research UG. 2012. ISBN: 978-607-441-191-1 DR. © University of Guanajuato. Pag. 196 – 202.**

17. Vargas Maya N.I, González Hernández, G.A. López Andrade A., García Tapia A., and **Torres Guzmán J.C.** Overexpression of the gene YLR177W in *Saccharomyces cerevisiae* wild type strain increased the ethanol tolerance. Analysis of the subcellular localization of the proteins encoded by the genes YNOR034W-A, YGR146C and YLR177W. *Memorias in extenso of the International Workshop on Experimental Biology. 1st Edition, 2012. University of Guanajuato. ISBN: 978-607-441-210-g. Pag. 261 – 271.*

18. Villa Martínez B.G., **Torres Guzmán, J.C.**, Padilla Guerrero I., Salazar Solís, E., Leclerque A., López Andrade, G.A., García Tapia A., and González Hernández, G.A. (2012). Characterization of 2np1 and 2np2 genes from *Metarhizium anisopliae*. *Memorias in extenso of the International Workshop on Experimental Biology. 1st Edition, 2012. University of Guanajuato. ISBN: 978-607-441-210-g. Pag. 272 –282.*

19. Ana Cristina Aguilera Terán, **Juan Carlos Torres Guzmán (2013)**. Analysis of the overexpression of the SPT3 and SPT15 genes in the fermentative efficiency of *Saccharomyces cerevisiae* strains used in the production of tequila. **Summer Memories of Scientific Research UG. ISBN: 978-607-441-248-2 DR. © University of Guanajuato. Pag. 268 – 272.**

20. David Alberto García Estrada, **Juan Carlos Torres Guzmán. (2013)**. Monitoring of the Fermentation process during tequila production. **Summer Memories of Scientific Research UG. ISBN: 978-607-441-248-2 DR. © University of Guanajuato. Pag. 500 - 505.**

21. G. A. González Hernández, V. Olmedo Monofil, E. Salazar Solís, A. Leclerque, B. Villa Martínez, K. Cervantes, A. García Tapia, A. López Andrade, C.A. Ojeda Gutiérrez, R. Ruiz Martínez, **J.C. Torres Guzmán. (2013)**. Participation of 2-nitropropane dioxygenase genes of *Metarhizium anisopliae* in its physiology and pathogenicity. *Memories of the 8th. Research and Linking Forum. ISBN: 978-607-441-256-7. DR. © University of Guanajuato. Pag. 70 - 74.*

22. **J.C. Torres Guzmán**, H. Hernández Escoto, A. García Tapia, A. López Andrade, N.I. Vargas Maya, A. Valadéz Cedillo, F.E. López Medrano, I.H. Piña Torres, Miguel Roa Castañeda and G.A. González Hernández. (2013). Development of strains of *Saccharomyces cerevisiae* with greater fermentative efficiency for use in the tequila industry. *Memories of the 8th. Research and Linking Forum. ISBN: 978-607-441-256-7. DR. © University of Guanajuato. Pag. 75 - 78.*

23. García Tapia Adriana, Ramírez Cuellar Angélica Julieta, **Torres Guzmán Juan Carlos**, Padilla Guerrero Israel Enrique, López Andrade Guadalupe Araceli and González Hernández Gloria Angélica. Analysis of the expression of 2NP genes of *Metarhizium anisopliae* (Hypocreales: Clavicipitacea) against different nutritional factors ". *Memories of the XXXVII National Congress of Biological Control. Merida, Yucatan, Mexico. November 6-7, 2014. ISBN: in process.*

24. "Analysis of the interaction of Mexican strains of *Metarhizium* spp. with *Sorghum vulgare*". *Memories of the International Symposium on Experimental Biology. October 2-3, 2014. Guanajuato, Gto., ISBN: 978-607-441-311-3. DR. © University of Guanajuato. Pag. 111 – 114.*

25. Vargas Maya Naurú Idalia, **Torres Guzmán Juan Carlos**, López Andrade Araceli, García Tapia Adriana and González Hernández Gloria Angélica. "Study of the genes involved in the stress response in *Saccharomyces cerevisiae* and their effect during Agave juice fermentation". *Memories of the International Symposium on Experimental Biology*. **October 2-3, 2014. Guanajuato, Gto., ISBN: 978-607-441-311-3. DR. © University of Guanajuato. Pag. 237 – 243.**

26. López Medrano Francisco Eduardo, González Hernández Gloria Angélica, García Tapia Adriana, López Andrade Guadalupe Araceli and **Torres Guzmán Juan Carlos**. "Overexpression of the invertase and  $\alpha$ -amylase in industrial yeast". **2-3 de Octubre de 2014. Guanajuato, Gto., ISBN: 978-607-441-311-3. DR. © University of Guanajuato. Pag. 115 – 122.**

27. "Analysis of overexpression of the genes SPT3, SPT15 and SUC2 in the fermentative efficiency of *Saccharomyces* strains used in the production of Tequila. **Guanajuato, Gto., ISBN: 978-607-441-311-3. DR. © University of Guanajuato. Pag. 1 - 7.**

28. Antonio Carlos Daniel Torres García, Juan Carlos Torres Guzmán, Gloria Angélica González Hernández. Intracellular localization of proteins involved in the pathogenic process of *Metarhizium anisopliae*. **(2015). Youth in Science. Vol1. No.1 Summer of Scientific Research. ISSN 2395-9797.**

29. Héctor Jonathan Salazar Morales, Claudia Erika Morales Hernández, **Juan Carlos Torres Guzmán**. Molecular Characterization of Industrial Yeasts of *Saccharomyces cerevisiae*. **(2015). Youth in Science. Vol1. No.1 Summer of Scientific Research. ISSN 2395-9797.**

30. Fuentes Villanueva Karla, **Torres Guzmán Juan Carlos**. Molecular Typing of Industrial Strains of *Saccharomyces cerevisiae*. **(2015). Youth in Science. Vol1. No.1 Summer of Scientific Research. ISSN 2395-9797.**

31. Oliver Alejandro López Rodríguez, Claudia Erika Morales Hernández, **Juan Carlos Torres Guzmán**. Construction of plasmids for the intracellular localization of proteins involved in the pathogenic process of *Metarhizium anisopliae*. **(2015). Youth in Science. Vol1. No.1 Summer of Scientific Research. ISSN 2395-9797.**

32. Nayelli Jacqueline Ramírez López, **Juan Carlos Torres Guzmán**. Molecular characterization of *Saccharomyces cerevisiae* strains used in the production of Tequila. **Youth in Science. Vol. 2. No. 1 Summer of Scientific Research. 2016. ISSN 2395-9797.**

33. Tyler Fletcher, Adriana García Tapia, **Juan Carlos Torres Guzmán**. Molecular typing of industrial strains of *Saccharomyces cerevisiae*. **Youth in Science. Vol. 2. No. 1. Summer of Scientific Research. 2016. ISSN 2395-9797.**

34. Sánchez Arias Cindy Zuleyka, **Torres Guzmán Juan Carlos**. Characterization of strains of *Saccharomyces cerevisiae* used in wine production. **Summer of Scientific Research. Vol. 2. No. 1. 2017. ISSN 2395-9797.**

35. Torres García Cynthia Jareth, **Juan Carlos Torres Guzmán**. Optimization of yeast production with biotechnological interest. **Summer of Scientific Research. Vol. 2. No. 1. 2017. ISSN 2395-9797.**

36. Bañuelos Vaquera Karla Lizeth, Adriana García Tapia, Angélica González Hernández, Israel Enrique Padilla Guerrero, **Torres Guzmán Juan Carlos**. Mean of crop optimization for the production of yeasts with biotechnological interest. **Summer of Scientific Research. Pag. 989 – 994. Vol. 4, No. 1. 2018. ISSN 2395-9797.**

37. De León Cáceres Cristy Adriana, Durón Castellanos Arely, Piña Torres Iván Horacio, **Torres Guzmán Juan Carlos**, Padilla Guerrero Israel Enrique. Effect of the *Metarhizium fungus* on the growth of the *Amaranthus hypochondriacus* plant. **Summer of Scientific Research. Pag. 748 – 753. Vol. 4, No. 1. 2018. ISSN 2395-9797.**

38. Flores Estrada Guadalupe, González Hernández Gloria Angélica, **Juan Carlos Torres Guzmán**, Israel Enrique Padilla Guerrero, Karla Cervantes Quintero, Araceli López Andrade. Monitoring of *Metarhizium* peroxisomes in the beneficial fungus-plant and / or entomopathogenic fungus-insect interaction. **Summer of Scientific Research. 2018. Pag. 853-857. Vol. 4, No. 1. ISSN 2395-9797.**

39. Ruiz Aguilar Isay, Durón Castellanos Arely, Piña Torres Iván Horacio, **Torres Guzmán Juan Carlos**, Padilla Guerrero Israel Enrique. Interaction of the *Metarhizium robertsii* fungus in association with the *Medicago sativa* plant. **Pag. 885-888. Summer of Scientific Research. 2018. ISSN 2395-9797.**



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## 8. outreach Articles

Callejas Negrete O.A., U. Ezquivel Naranjo, E. Salazar Solís, J.F. Gutiérrez Corona, **J.C. Torres Guzmán** and G.A. González Hernández (2002). Optimization of the mass production of conidia of *Metarhizium anisopliae*, typing of native strains and their genetic improvement. Research in Guanajuato: 2001. **Guanajuato Science and Technology Council. September 2002.**

Estrada García R., C.E. Morales Hernández, **J.C. Torres Guzmán**, E. Salazar Solís and G.A. González Hernández. (2003). Introduction of stable genetic markers to a native Mexican strain of the entomopathogenic *Metarhizium anisopliae*. Research in Guanajuato: 2002. **Guanajuato Science and Technology Council. September 2003.**

Gloria Angélica González Hernández, **Juan Carlos Torres Guzmán**, J. Félix Gutiérrez Corona and Roberto Zazueta Sandoval. (2010). "Fungal alcohol dehydrogenases: physiological role and biotechnological potential". Electronic magazine. Chemical bond. **www.revistaequim.com N.17 Vol. 2. Pag. 1 – 15.**

## 9. Books

### **Microbiología. Conocimiento y Manejo de Microorganismos**

(Microbiology. Knowledge and Management of Microorganisms)

University of Guanajuato Editorial. ISBN: 978-968-864-502-4.

### **Genética, Experimentación Básica** (Genetics, Basic Experimentation)

University of Guanajuato Editorial. ISBN: 978-607-441-709-8.

## 10. Book chapters

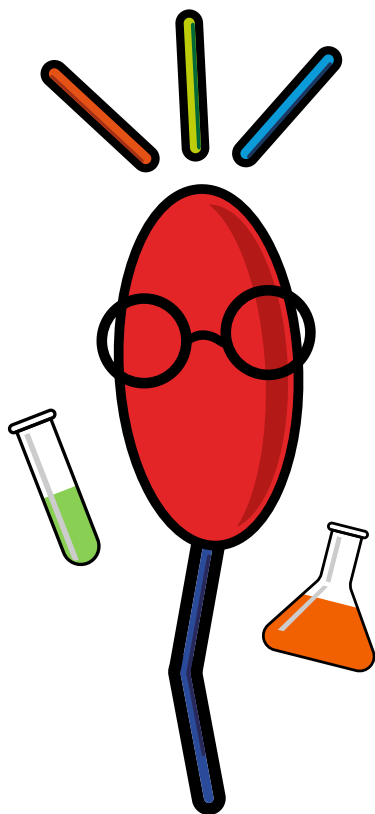
**Torres Guzmán, J.C.**, González Hernández, G.A., Salazar Solís E. (2007). Typing and genetic improvement of strains of *Metarhizium anisopliae*. Biological control and management of Central American lobster (*Schistocerca piceifrons piceifrons*, WALKER). November 15, 2007. **ISBN: 978-968-5384-08-07.** National Service of Health, Safety and Agricultural Quality. Technological Institute of Cd. Victoria. Ludivina Barrientos Lozano.

Gloria Angélica González Hernández, Eduardo Salazar Solís, Mónica García Esquivel and **Juan Carlos Torres Guzmán**. Case study. Diversity of Mexican strains of the pathogenic insect fungus *Metarhizium anisopliae*. On Biodiversity in Guanajuato: State Study. Ch. 8. Diversity of Species. **ISBN: 978-607-7607-78-6. Vol. II. ISBN: 978-607-7607-80-9.** Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) 2012. **Instituto de Ecología del Estado de Guanajuato (IEE). México. pp 83-90.**

Gloria Angélica González Hernández, Eduardo Salazar Solís, Manuel Darío Salas, Claudia Erika Morales Hernández, Cecilia Gamero Posada, Ma. Azul del Rocío Martínez Vázquez and **Juan Carlos Torres Guzmán**. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) 2012. Instituto de Ecología del Estado de Guanajuato (IEE). Mexico. pp 313-320. Case study. Genetic improvement of the pathogenic insect fungus *Metarhizium anisopliae*. On Biodiversity in Guanajuato: State Study. **Ch. 9. Diversidad Genética. ISBN: 978-607-7607-78-6. Vol II. ISBN: 978-607-7607-80-9.**

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## II. Patents



**Patent:** Method for obtaining Transformed Strains of *Metarhizium anisopliae* with Resistance to Ultraviolet A Light (UVA)

**Application number:** MX/A2007/015095

**Application date:** 11/29/2007

**Date of issue:** 07/28/2013

**Patent:** Method for increasing the mass production of conidia of the entomopathogen *Metarhizium anisopliae*

**Authors:** Juan Carlos Torres, Gloria Angélica González Hernández, Eduardo Salazar Solís, Manuel Darío Salas, Alfonso Ortiz Meza, Adriana García Tapia, Paola Ivonne López Macías.

**Application number:** MX/a/2013/014692

**Application date:** 12/13/2013

**Date of issue:** 06/28/2018

**Patent request:** Yeast for high gravity fermentations in Agave juice with high performance in the production of ethanol

**Authors:** Juan Carlos Torres Guzmán, Gloria Angélica González Hernández, Israel Enrique Padilla Guerrero, Adriana García Tapia, Inván Horacio Piña Torres, Francisco Eduardo López Medrano, Nauru Idalia Vargas Maya, María del Rosario Ramírez Zúñiga

**Application number:** MX/a/2015/016199

**Application date:** 11/24/2015

**Patent request:** Yeast with a high content of organic Selenium mainly as *Selenium methionine (SeMet)*

**Authors:** Gloria Angélica González Hernández, Juan Carlos Torres Guzmán, Israel Enrique Padilla Guerrero, Víctor Manuel García Vera, Naurú Idalia Vargas Maya, María del Rosario Ramírez Zúñiga, Adriana García Tapia

**Application number:** MX/a/2016/016813

**Application date:** 12/16/2016

## 12. Research GROUPS

### Academic:

Fundamental and Biotechnological Aspects of Microorganisms and Plants

### Members:

Dr. Gloria Angélica González Hernández. Dr. J. Félix Gutiérrez Corona, Dr. Vianney Graciela Olmedo Monfil, Israel Enrique Padilla Guerrero.

### Consolidated CA

## 13. Technological Development

**Implementation of the biphasic process of production of conidia of *Metarhizium anisopliae*.** Charities Organism Production Unit. CESAVEG - University of Guanajuato.

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## 14. Collaboration with the Productive Sector

Collaboration with the plant producing beneficial organisms belonging to the **Comisión Estatal de Sanidad Vegetal de Estado de Guanajuato (CESAVEG)**, in the production of spores of Entomopathogenic Fungi, with technical advice, quality control, identification and certification of strains; improvement of the production process.

Project University of Guanajuato  
**Tequilera Corralejo, S.A. de C.V.**

Project University of Guanajuato  
**Innovaciones Industriales Biotecnológicas, S. A. de C.V.**

Company Formation  
**Industrializadora de Levaduras Mexicanas, INLEMEX, S.A. de C.V.**  
February 2013

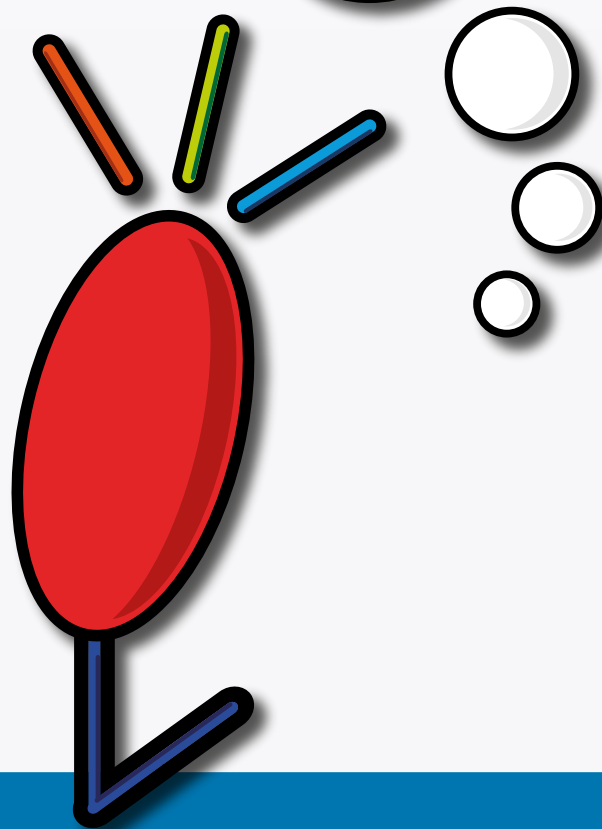
## 15. Member of Scientific Societies

1. **Sociedad Mexicana de Bioquímica, A.C.**
2. **Sociedad Mexicana de Genética**
3. **Sociedad Mexicana de Control Biológico**
4. **Society for Invertebrate Pathology**
5. **Sociedad Mexicana de Biotecnología y Bioingeniería**





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