

CURRICULUM VITAE

FRANCISCO MANUEL, OCHOA CORONA

CONTACT INFORMATION

Office:

Oklahoma State University,
Institute for Biosecurity and Microbial Forensics (IBMF, previously NIMFFAB),
and Department of Entomology & Plant Pathology.
127 Noble Research Center
Stillwater, OK 74078. USA

Phone: 405-744-9946

Fax: 405-744-6039

E-mail: ochoaco@okstate.edu

MEDIA

Web: <https://experts.okstate.edu/ochoaco>

ORCID: <https://orcid.org/0000-0002-4112-8209>

ResearchGate: Francisco M. Ochoa Corona

X, previously Twitter: @ochoa_corona

Linkedin: Dr. Francisco Ochoa

EDUCATION

- 2001 **Ph.D.** University of Florida. Plant Pathology Department. Gainesville, USA.
Doctoral degree dissertation: *Citrus tristeza virus: Molecular characterization of isolates for use in mild strain cross protection, localization of the 5' terminus and heterologous encapsidation.*
- 1990 **M.Sc.** (Magister Scientiarum in Agronomy), Major in Plant Protection. Universidad Central de Venezuela. (University of Central Venezuela). Maracay, Venezuela. Master degree thesis: *Selection of mild strain of citrus tristeza virus for cross protection in Venezuela.* (Selección de razas débiles del virus de la tristeza de los cítricos con fines de protección cruzada en Venezuela).
- 1982 **A.E.**(Agriculture engineering), Universidad del Zulia (University of Zulia), Maracaibo, Venezuela.

PROFESSIONAL EXPERIENCE

- 2019-present **Professor.** Oklahoma State University, Institute for Biosecurity & Microbial Forensics (IBMF, previously NIMFFAB), and Department of Entomology & Plant Pathology, Stillwater, OK. USA.
- 2014-2019 **Associate professor.** Oklahoma State University, Natl. Institute for Microbial Forensics & Food and Agricultural Biosecurity (NIMFFAB), Department of Entomology & Plant Pathology, Stillwater, OK. USA.
- 2008-2014 **Assistant Professor.** Oklahoma State University, Natl. Institute for Microbial Forensics & Food and Agricultural Biosecurity (NIMFFAB), Department of Entomology & Plant Pathology, Stillwater, OK. USA.

- 2005-2008 **Principal Adviser Virology.** Ministry of Agriculture and Forestry (MAF). Biosecurity New Zealand (BNZ). Investigation and Diagnostic Centre (IDC), Plant Health & Environment Laboratory (PHEL), Auckland, New Zealand.
- 2007 **Consultant, Landcare Research, New Zealand,** Technical and scientific adviser in a project exploring biosecurity aspects and potential use of viruses for the control of the moth plant (*Araujia sericifera*).
- 2002-2005 **Scientist II-Molecular Plant Virologist.** Biosecurity New Zealand, Ministry of Agriculture and Forestry. Auckland, New Zealand.
- 2001-2002 **Postdoctoral Associate.** University of Florida. Gulf Coast Research & Education Center. Plant Virology Laboratory, Dr. Jane E. Polston.
- 1996-2000 **Graduate Research Assistant.** University of Florida. Plant Pathology Department. Citrus Research & Education Center. Plant Virology Laboratory, Dr. Richard F. Lee, and Plant Virology Laboratory, Dr. C.L. Niblett. Gainesville.
- 1994-1995 **Instructor and Lecturer of Plant Pathology.** Department of Botany, Section of Plant Pathology, Universidad Central de Venezuela (University of Central Venezuela), Venezuela.
- 1991-1993 **Professor and F.V.P.I. Scientist,** Department of Botany, Section of Plant Pathology, Universidad Central de Venezuela (University of Central Venezuela). (The F.V.P.I. Program, National Council for Technology and Research of Venezuela, supports scientists selected for novel work.)
- 1990-1991 **National Citrus Program Leader.** Farmer Service Foundation, Venezuela (FUSAGRI).
- 1984-1987 Researcher and Extension Educator. Citrus Program. FUSAGRI.
- 1982-1984 Researcher and Extension Educator. Low Valley Tropical Fruit Program. FUSAGRI.

PUBLICATIONS

Refereed

Patents & disclosures

1. U.S. International Publication Number WO 2022/174050 A1. Ochoa Corona, F. M. and Salazar Aguirre, A.M. (2022) COMPOSITION OF KITS FOR RAPID DETECTION OF SARS-COV-2 AND METHODS OF PRODUCTION AND USE THEREOF. World Intellectual Property Organization (WIPO): https://patentscope2.wipo.int/search/en/detail.jsf?docId=WO2022174050&_qid=202233
2. U.S. Provisional Patent Application Serial No. 62/929,230 Noden, B. and Ochoa-Corona, F. M. (2019). COMPOSITIONS AND KITS FOR RAPID DETECTION SCREENING OF MULTIPLE ANAPLASMA SPECIES AND METHODS OF PRODUCTION AND USE THEREOF. OSU Ref. 2020-014
3. Ochoa Corona, Francisco M. (2016). APPARATUS AND METHOD FOR BIOLOGIC SAMPLE RAPID COLLECTION AND RECOVERY DEVICE, AND CONVENIENT STORAGE. United States and Trademark Office: Patent No.: US **9423398** B2. Aug. 23. Previously reported as Patent Application: US 2012/0202211 A1 Aug.9, 2012. Download at USPTO (<https://ppubs.uspto.gov/pubwebapp/static/pages/ppubsbasic.html>) by accessing **9423398**

Scientific articles

2024

1. Rosa Lilia Ferrucho,1* Gustavo Adolfo Marín-Ramírez,1 Francisco Ochoa-Corona2 and Carlos Ariel Ángel-Calle. 2024. PCR-based detection for the quarantine fungus *Colletotrichum kahawae*, a biosecurity threat to the coffee (*Coffea arabica*) industry worldwide. *Plant Disease. First Look*: <https://apsjournals.apsnet.org/doi/epdf/10.1094/PDIS-09-23-1788-SR>

2023

1. Rafaela Gomes Ruschel, Mason Taylor, Francisco M. Ochoa-Corona, Abdul Kader Jailani Amirudeen, Tobiasz Druciarek, Mathews Paret. 2023. An artificial positive control for routine detection of rose rosette virus and *Phyllocoptes fructiphilus* that fit most primers for PCR, LAMP and RPA based assays. *Ann Appl Biol.* 1–13. DOI: [10.1111/aab.12834](https://doi.org/10.1111/aab.12834)
2. Olmedo-Velarde A, Ochoa-Corona FM, Larrea-Sarmiento AE, Elbeaino T, Flores F (2023) *In-silico* prediction of RT-qPCR-high resolution melting for broad detection of emaraviruses. *PLoS ONE* 18(5): e0272980. <https://doi.org/10.1371/journal.pone.0272980>
3. Kuhn et al. Annual (2023) taxonomic update of RNA- directed RNA polymerase- encoding negative- sense RNA viruses (realm Riboviria: kingdom Orthornavirae: phylum Negarnaviricota). *Journal of General Virology.* 2023; 104:001864 DOI 10.1099/jgv.0.001864
4. Michele Digiaro, Toufic Elbeaino, Kenji Kubota, Francisco M. Ochoa-Corona, Susanne von Bargen (2023) ICTV Virus Taxonomy Profile: *Fimoviridae* 2023. *Journal of General Virology* (in press). <https://ictv.global/report/chapter/fimoviridae/fimoviridae>

2022

1. Felipe Cevallos, Lizbeth Peña-Zuñiga, Francisco Ochoa-Corona & John Damicone (2022): Frequency and genetic variability of the avirulence gene AvrLm4-7 among *Leptosphaeria maculans* isolates collected in Oklahoma, USA, *Canadian Journal of Plant Pathology*, <https://doi.org/10.1080/07060661.2022.2077449>
2. Marcos Roberto Ribeiro-Junior, Felipe Barreto da Silva, Julio Massaharu Marubayashi, Juliana Uzan, Angelica Maria Nogueira, Cristiane Muller, Daniele Maria Nascimento, Valdir Atsushi Yuki, Nobuyoshi Narita, Marcelo Agenor Pavan, Francisco Manuel Ochoa-Corona, Renate Krause-Sakate. 2022. Molecular and biological characterization of an isolate of the potyvirus passiflora virus Y naturally infecting soybean (*Glycine max*) in Brazil. *Archives of Virology.* <https://doi.org/10.1007/s00705-022-05605-5>
3. 2022 taxonomic update of phylum *Negarnaviricota* (*Riboviria: Orthornavirae*), including the large orders *Bunyavirales* and *Mononegavirales*. Kuhn. *Archives of Virology.* (In press) <https://doi.org/10.1007/s00705-022-05546-z>
4. Nicolas Aparicio Claros, Madalyn Shires, Dimitre Mollov, John Hammond, Ramon Jordan, Francisco Ochoa-Corona, Jennifer Olson, Kevin Ong, and Lina Rodriguez Salamanca. Rose Rosette Disease: A Diagnostic Guide. *Plant Health Progress* 2022 23:4, 482-491. <https://doi.org/10.1094/PHP-05-22-0047-DG>

2021

1. Andrea Salazar, Francisco M. Ochoa-Corona, Jennifer Olson, Binoy Babu, Mathews Paret. 2021. Probing Loop-Mediated Isothermal Amplification (LAMP) targeting two gene-fragments of rose rosette virus PLoS. 2021.08.in press; doi: <https://doi.org/10.1101/2021.08.17.456656>.
2. Espindola, Andres S., Daniela Sempertegui-Bayas, Danny F. Bravo-Padilla, Viviana Freire-Zapata, Francisco Ochoa-Corona, and Kitty F. Cardwell. 2021. "TASPERT: Target-Specific Reverse Transcript Pools to Improve HTS Plant Virus Diagnostics" *Viruses* 13, no. 7: 1223. <https://doi.org/10.3390/v13071223>
3. Salazar, A., Ochoa-Corona, F.M., Talley, J.L., Bruce H. Noden. 2021. Recombinase polymerase amplification (RPA) with lateral flow detection for three *Anaplasma* species of

importance to livestock health. *Sci Rep* 11, 15962. <https://doi.org/10.1038/s41598-021-95402-y>

4. Andrea Salazar, Francisco M. Ochoa-Corona, Justin L. Talley, Bruce H. Noden. 2022. An elution independent collection device (EICD) for rapid collection of *Anaplasma marginale* DNA from blood samples. *Acta Tropica* Vol. 225, January 2022, 106201 <https://doi.org/10.1016/j.actatropica.2021.106201>
5. Ryan Domingo, Cristian Perez, Diksha Klair, HuongVu, Alike Candelario-Tochiki XupengWang, Amihan Camson, Jaclyn Nicole Uy, Mouaia Salameh, Dario Arizala, Shefali Dobhal, Gamze Boluk, Jon-Paul Bingham, Francisco Ochoa-Corona, Md Emran Ali, James P. Stack, Jacqueline Fletcher, Jenee Odani, Daniel Jenkins, Anne M. Alvarez, Mohammad Arif. 2021. Genome-informed loop-mediated isothermal amplification assay for specific detection of *Pectobacterium parmentieri* in infected potato tissues and soil. *Scientific Reports* 11:21948. <https://doi.org/10.1038/s41598-021-01196-4>

2020

1. Rydzak, P., **Ochoa Corona F.M.**, Whitfield, A.E., Wayadande, AC. 2020. Combining multiplex PCR and high-resolution melting for the detection and discrimination of arthropod transmitted viruses of cereals. *Journal of Virological Methods*. 278:113823 <https://doi.org/10.1016/j.jviromet.2020.113823>
2. Andreason S.A., Arif M., Brown J.K., Ochoa-Corona F., Wayadande A. Exploring the Use of High-Resolution Melting Analysis and Helicase-Dependent Amplification for Discrimination of *Bemisia tabaci* (Hemiptera: Aleyrodidae) Cryptic Species and *Trialeurodes vaporariorum*. *Journal of Economic Entomology*, XX(XX), 2020, 1–10. doi: 10.1093/jee/toaa180
3. Ramos K., Sivaprasad Y., Guevara F., Ochoa-Corona F., Viera W., Flores F. Occurrence of potato yellowing virus in naranjilla (*Solanum quitoense* Lam.) in Ecuador. *Journal of Plant Pathology* (2020) 102:597 <https://doi.org/10.1007/s42161-019-00479-0>
4. Vazquez-Iglesias I., Ochoa-Corona F.M., Tang J., Robinson R., Clover G.R.G., Fox A., Boonham N. Facing Rose rosette virus: A risk to European rose cultivation. *Plant Pathology*. 2020;00:1–15. DOI: 10.1111/ppa.13255

2019

1. Boundy-Mills, K., McCluskey, K., Elia, P., Glaeser, J.A., Lindner, D.L., Nobles Jr, D.R., Normanly, J., **Ochoa-Corona, F.M.**, Scott, J.A., Ward, T.J., Webb K.M., Webster, K., and Wertz, J.E. (2019). Preserving US collections sparks future discoveries. *Journal of Applied Microbiology*. First published online: 23 November 2019. DOI:10.1111/jam.14525
2. Byrne, D.H., Klein, P.E., Hall, C., Windham, M., **Ochoa-Corona, F.M.**, Olson, J., Paret, M., Babu, B., Knox, G., Jordan, R., Hammond, J., Ong, K., Ochoa, R., Bauchan, G.B., Evans, T., Windham, A., Hale, F., Palma, M.A., Ribera, L. and Pemberton, H.B. (2019). Combating Rose rosette disease US national project. *Acta Hort.* 1232, 203-212. DOI: 10.17660/ActaHortic.2019.1232.30
3. **Ochoa-Corona, F.M.**, Cardwell, K.F., and Espindola, A.S. (2019). New Technologies from the Microbial World: Alternatives for Biomedical Surrogate Research. *Adv Biotech & Micro*. 2019; 13(2): 555859. DOI: 10.19080/AIBM.2019.13.555859

2018

1. Babu, B., Gary Knox, G., Paret M.L., and Ochoa-Corona, F. M. (2018). Rose Rosette Disease: Recent Advances on Molecular Diagnostic Tools. *HORTSCIENCE* 53(5):596–600. <https://doi.org/10.21273/HORTSCI12551-17>
2. Babu B, **Ochoa-Corona FM**, Paret ML. Recombinase polymerase amplification applied to plant virus detection and potential implications. *Analytical Biochemistry*, 546 (2018) 72–77.
3. Noden BH, Martin J, Carrillo Y, Talley JL, **Ochoa-Corona FM**. Development of a loop-mediated isothermal amplification (LAMP) assay for rapid screening of ticks and fleas for spotted fever group rickettsia. *PLoS ONE* (2018) 13(2): e0192331.

2017

1. Babu B, Washburn BK, Miller SH, Poduch K, Sarigul T, Knox GW, **Ochoa-Corona FM**, Paret ML. A rapid assay for detection of *Rose rosette virus* using Reverse transcription-recombinase polymerase amplification using multiple gene targets. *Journal of Virological Methods* 247 (2017) 81–90
2. Babu B, Washburn BK, Ertek TS, Miller SH, Riddle CB, Knox GW, **Ochoa-Corona FM**, Olson J, Katircioğlu YZ, Paret ML. A field based detection method for Rose rosette virus using isothermal probe-based Reverse transcription-recombinase polymerase amplification assay. *Journal of Virological Methods* 247 (2017) 81–90
3. Andreason SA, Arif M, Brown JK, **Ochoa-Corona FM**, Fletcher J, Wayadande A. Single-Target and Multiplex Discrimination of Whiteflies (Hemiptera: Aleyrodidae) *Bemisia tabaci* and *Trialeurodes vaporariorum* With Modified Priming Oligonucleotide Thermodynamics. *Journal of Economic Entomology*, 2017, 1–10.
4. Sandoval-Pineda JF, **Ochoa-Corona FM**, Torres-Rojas E. Evaluation of different RNA extraction methods from the native fungus *Xylaria* sp. *Rev. Colomb. Biotecnol. Vol. XIX No. 1* 2017, 42-54

2016

1. Babu B, Jeyaprakash A, Jones D, Schubert T S, Baker C, Washburn B K, Miller S H , Poduch K, Knox G W, **Ochoa-Corona F M**, Paret M L. Development of a rapid, sensitive TaqMan real-time RT-PCR assay for the detection of Rose rosette virus using multiple gene targets. *Journal of Virological Methods*. 235 (2016) 41-50.
2. Dobhal S, Olson JD; Arif M, Garcia Suarez JA; **Ochoa-Corona FM**. A simplified strategy for sensitive detection of Rose rosette virus compatible with three RT-PCR chemistries. *Journal of Virological Methods*. 232 (2016) 47–56.

2015

1. **Ochoa-Corona FM**, Lebas BSM, Ward LI. 2015. New Zealand stresses that it is *High Plains virus* free, and the virus struggles with an identity crisis. *J Virol* 89:7439–7440. doi:10.1128/JVI.00676-15.
2. Arif M, Opit G, Mendoza-Yerbafría A, Dobhal S, Li Z, Kučerová Z, **Ochoa-Corona FM**. 2015 Array of Synthetic Oligonucleotides to Generate Unique Multi-Target Artificial Positive Controls and Molecular Probe-Based Discrimination of *Liposcelis* Species. *PLoS ONE* 10(6): e0129810. doi:10.1371/journal.pone.0129810.
3. Yasaka R, Ohba K, Schwinghamer MW, Fletcher J, **Ochoa Corona FM**, Thomas JE, Simon YW H, Gibbs AJ, Ohshima K. 2014. Phylogenetic evidence of the migration of turnip mosaic potyvirus from Europe to Australia and New Zealand. *J Gen Virol*. 2015 96:701-713. DOI: [10.1099/jgv.0.000007](https://doi.org/10.1099/jgv.0.000007)
4. Dobhal S, Arif M, Olson J, Mendoza-Yerbafría A, Aguilar-Moreno S, Perez-Garcia M and **Ochoa-Corona FM**. Sensitive detection and discrimination method for studying multiple infections of five major plant viruses infecting ornamental plants in nursery environments. *Ann Appl Biol*. 166:286-296; DOI: 10.1111/aab.12182

2014

1. Arif, M., Dobhal, S., Garrido, P. A., Orquera, G. K., Espíndola, A. S., Young, C. A., **Ochoa-Corona, F. M.**, Marek, S. M., and Garzón, C. D. 2014. Highly sensitive end-point PCR and SYBR green qPCR detection of *Phymatotrichopsis omnivora*, causal fungus of cotton root rot. *Plant Dis*. 98:1205-1212.
2. Arif, M., G. S. Aguilar-Moreno, A. Wayadande, J. Fletcher and **F. M. Ochoa-Corona**. 2014. Primer modification improves rapid and sensitive *in vitro* and field deployable assays for

detection of *High plains virus* variants. *Applied and Environmental Microbiology*. Vol. 80 (1):32-327. DOI:10.1128/AEM.02340-13.

2013

1. Ouyang P., M. Arif, J. Fletcher, U. Melcher and **F. M. Ochoa-Corona**. 2013. Enhanced reliability and accuracy for field deployable bioforensic detection and discrimination of *Xylella fastidiosa* subsp. *pauca*, causal agent of citrus variegated chlorosis using Razor Ex technology and TaqMan quantitative PCR. *PLOS ONE* 8 (11): e81647.
2. Caasi, Donna Ria J., Arif Mohammad, Payton Mark, Melcher Ulrich, Winder Louise, **Ochoa-Corona Francisco M.** 2013. A multi-target, non-infectious and clonable artificial positive control for routine PCR-based assays, *Journal of Microbiological Methods* 95: 229-234. Published on-line as <http://dx.doi.org/10.1016/j.mimet.2013.08.017>
3. Stobbe, A.H., J. Daniels, A.S. Espindola, R. Verma, U. Melcher, **F. Ochoa-Corona**, C. Garzon, J. Fletcher, William Schneider. 2013. E-probe Diagnostic Nucleic acid Analysis (EDNA): A theoretical approach for handling of next generation sequencing data for diagnostics. *Journal of Microbiological Methods*94:356-366. <http://dx.doi.org/10.1016/j.mimet.2013.07.002>
4. MacDiarmid, R, Rodoni, B., Melcher, U., **Ochoa-Corona, F.**, Roossinck, M. 2013. Biosecurity implications of new technology and discovery in plant virus research. *PLoS Pathogen* 9(8): e1003337. DOI:10.1371/journal.ppat.1003337
5. Arif, M., J. Fletcher, S. M. Marek, U. Melcher and **F. M. Ochoa-Corona**. 2013. Development of a rapid, sensitive and field deployable Razor Ex BioDetection System and qPCR assay for detection of *Phymatotrichopsis omnivora* using multiple gene targets. *Appl. Environ. Microbiol.* 79 (7): 2312-20. DOI:10.1128/AEM.03239-12
6. Arif, Mohammad, **Francisco M. Ochoa-Corona**. 2013. Comparative assessment of 5' A/T-rich overhang sequences with optimal and sub-optimal primers to increase PCR yields and sensitivity. *Molecular Biotechnology* 55:17–26. DOI:10.1007/s12033-012-9617-5

2012

1. Arif, M., **Ochoa-Corona, F.M.**, Opit, G.P., Li, Z., Kucerová, Z., Stejskal, V., Yang, Q. 2012. PCR and isothermal-based molecular identification of the stored-product psocid pest *Lepinotus reticulatus* (Psocoptera: Trogiidae). *J. Stored Prod. Res.* 49: 184–188. DOI:10.1016/j.jspr.2012.02.001
2. **Ochoa-Corona F.M.**, B. Rodoni and J. Tang. 2012. A survey on the methods of primer design among plant pathologists in Australia and New Zealand. *Journal of Life Sciences* 6 (5): 476-480.

2011

1. **Ochoa-Corona, F. M.** 2011. Biosecurity, microbial forensics and plant pathology: education challenges, overlapping disciplines and research needs. *Australasian Plant Pathol.* 40: 335–338. DOI 10.1007/s13313-011-0052-z
2. Winder, L.; Phillips, C.; Richards, N.; **Ochoa-Corona, F.**; Hardwick, S.; Vink, C.; Goldson, S. 2011. Evaluation of DNA melting analysis as a tool for species identification. *Methods in Ecology and Evolution* 2 (3):229-332. DOI: 10.1111/j.2041-210X.2010.00079.x

2010

1. **Ochoa-Corona, F.M.**, J. Z. Tang, B. S. M. Lebas, L. Rubio, A. Gera and B. J. R. Alexander. 2010. Diagnosis of *Broad bean wilt virus 1* and *Verbena latent virus* in *Tropaeolum majus* in New Zealand. *Australasian Plant Pathology* 39 (2): 120-124. Includes credit for this issue cover page. Doi: 10.1071/AP09070

2. Tang, J., Olson J. D., **Ochoa-Corona F. M.**, Clover G. R. G. 2010. *Nandina domestica*, a new host of *Apple stem grooving virus* and *Alternanthera mosaic virus*. *Australasian Plant Disease Notes* 5, 1–3. DOI: 10.1071/DN10010

2009

1. Elliott, D. R., B. S. M. Lebas, **F. M. Ochoa-Corona**, J. Tang, B. J. R. Alexander. 2009. Investigation of *Impatiens necrotic spot virus* outbreaks in New Zealand. *Australasian Plant Pathology* 38 (5):490 – 495. DOI: 10.1071/AP09031
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2008

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2007

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2006

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2005

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1993-1998

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2. **Ochoa Corona, F.M.** and Ward, L. 2010. *Citrus* (Citrus), *Fortunella* (Kumquat) & *Poncirus* (Trifoliolate orange) Post-Entry Quarantine Testing Manual. Biosecurity New Zealand. July 2010. 58 pp. Authorship: p. 35. Online access:
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- TASPERT: Target-specific reverse transcript primer pools for plant virus detection using Oxford Nanopore sequencing. ESPINDOLA (1), D. Sempertegui (2), D. Bravo-Padilla (2), F. Ochoa-Corona (1), K. F. Cardwell (1), (1) Oklahoma State University, Stillwater, OK, USA; (2) Oklahoma State University, OK, USA S3.188. **Phytopathology 113:S3.1**.
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2022

- Characterization of two novel viruses from Potyviridae and Partitiviridae intercepted by the U.S. quarantine program. R. G. RUSCHEL (1), X. Hu (2), F. Ochoa Corona (1), O. P. Hurtado-Gonzales (3), M. M. Malapi-Wight (4), (1) Oklahoma State University, Stillwater, OK, USA; (2) USDA, Beltsville, MD, USA; (3) USDA-APHIS Plant Germplasm and Quarantine Program, Beltsville, MD, USA; (4) USDA-APHIS BRS Biotechnology Risk Analysis Program, Riversdale, MD, USA pag S3.94. (Abstr.) **Phytopathology 112:S3.1**.
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Abstracts in Conference Proceedings

2016

1. Larrea-Sarmiento, A.E., Arif, M., Olmedo-Velarde, A., Jen Olson , Ochoa-Corona, F.M. 2016. Sensitive detection and discrimination of HPWMoV, WSMV and TriMV using multiplex RT-PCR (PART II): Discrimination and detection of populations by high resolution melting. *CIBB-FP-EO-012*. Pag. 39. *CIBB III: 2016 International Congress of Biotechnology and Biodiversity. (Congreso Internacional de Biotecnología y Biodiversidad. 2016.)*. Investigación y competitividad, claves para la producción. Libro de memorias. Guayaquil. Ecuador. October 10—13, 2016. Eds. Centro de Investigaciones Biotecnológicas del Ecuador (CIBE); Escuela Superior Politécnica del Litoral (ESPOL). 206 pp.
2. García-Suarez, J. A., Dobhal, S., Ochoa-Corona, F.M. 2016. Virus detection of *Tobamovirus* with wide spectrum degenerate oligonucleotides by TD-RT-PCR high resolution melting. *CIBB-FP-EO-013*. Pag. 40. *CIBB III: 2016 International Congress of Biotechnology and Biodiversity. (Congreso Internacional de Biotecnología y Biodiversidad. 2016.)*. Investigación y competitividad, claves para la producción. Libro de memorias. Guayaquil. Ecuador. October 10—13, 2016. Eds. Centro de Investigaciones Biotecnológicas del Ecuador (CIBE); Escuela Superior Politécnica del Litoral (ESPOL). 206 pp.
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4. Ochoa-Corona, F.M., Daniels, J. Gallucci-Mazziero B., Carrillo-Tarazona Y., Cardozo-Burgos C., Ochoa F.M. 2016. Toward broad detection of plant waterborne viruses. *CIBB-FP-EO-015. Pag. 42. CIBB III: 2016 International Congress of Biotechnology and Biodiversity. (Congreso Internacional de Biotecnología y Biodiversidad. 2016.). Investigación y competitividad, claves para la producción. Libro de memorias. Guayaquil. Ecuador. October 10—13, 2016. Eds. Centro de Investigaciones Biotecnológicas del Ecuador (CIBE); Escuela Superior Politécnica del Litoral (ESPOL). 206 pp.*
5. Salazar, A., Molina, S., Ochoa-Corona, F.M., Olson, J. 2016. Detección de *Rose rosette virus* mediante el método de amplificación isotérmica de ácidos nucleicos LAMP (LOOP-MEDIATED ISOTHERMAL AMPLIFICATION). *CIBB-FP-EO-016. Pag. 43. CIBB III: 2016 International Congress of Biotechnology and Biodiversity. (Congreso Internacional de Biotecnología y Biodiversidad. 2016.). Investigación y competitividad, claves para la producción. Libro de memorias. Guayaquil. Ecuador. October 10—13, 2016. Eds. Centro de Investigaciones Biotecnológicas del Ecuador (CIBE); Escuela Superior Politécnica del Litoral (ESPOL). 206 pp.*
6. Olmedo-Velarde, A., Larrea-Sarmiento, A. E., Ochoa-Corona, F. M. 2016. Discriminating *Potexvirus* species by qRT-PCR coupled to high resolution melting. *CIBB-FP-CA-002. Pag. 63. CIBB III: 2016 International Congress of Biotechnology and Biodiversity. (Congreso Internacional de Biotecnología y Biodiversidad. 2016.). Investigación y competitividad, claves para la producción. Libro de memorias. Guayaquil. Ecuador. October 10—13, 2016. Eds. Centro de Investigaciones Biotecnológicas del Ecuador (CIBE); Escuela Superior Politécnica del Litoral (ESPOL). 206 pp.*

2014

7. Donna Caasi, Mohammad Arif, Mark Payton, Ulrich Melcher, Louise Winder, Francisco Ochoa-Corona. 2014. A multi-target, non-infectious and clonable artificial positive control for PCR-based assays. *International Union of Microbiological Societies Congresses (IUMS) Abstracts 2014. Montreal, Canada. VIR-PM2057. Pag 215.*
8. Donna Caasi, Mohammad Arif, Denise Altenbach, Francisco Ochoa Corona. Rapid sampling of microorganisms and nucleic acids for PCR assays using a novel elution independent collection device. *International Union of Microbiological Societies Congresses (IUMS) Abstracts 2014. Montreal, Canada. VIR-PM2075. Pag.224.*
9. Robin MacDiarmid, Brendan Rodoni, Francisco Ochoa-Corona, Marilyn Roossinck, Ulrich Melcher, Fiona Constable. Biosecurity implications of new technology and discovery in plant virus research. *International Union of Microbiological Societies Congresses (IUMS) Abstracts 2014. Montreal, Canada. VIR-WK201.01. Pag 354.*

2013

10. **Francisco M. Ochoa Corona.** New diagnostic strategies that can be applied to potatoes in Turkey. Symposium on Potato Harmful Organisms. Hosted by the Plant Protection Central Research Institute. Ankara, Turkey 4-7 November, 2013.
11. Daniels, J., W. Schneider, J. Fletcher, and **F. Ochoa-Corona.** Next generation sequencing and its application as a biosecurity tool. Gordon Research Conference (GRC) on Chemical and Biological Terrorism Defense. Ventura, CA. 2013.

2012

12. Daniels, J., A. Stobbe, A. Espindola, W. Schneider, J. Fletcher and **F. Ochoa Corona**. 2012. Next generation sequencing as a diagnostic tool for biosecurity agencies. ASM Biodefense Conference, Washington, D.C.
13. Daniels, Jon, Bill Schneider, and **Francisco Ochoa Corona**. A need for simple and user-friendly detection methods for waterborne microbes. 2012. Water Research Symposium. Tulsa, Oklahoma.

2011

14. Daniels, J., A. Stobbe, A. Espindola, W. Schneider, J. Fletcher, and F. Ochoa-Corona. *In-silico* Simulation of Massive Parallel Sequencing as a Diagnostic Tool. Gordon Research Conference (GRC) on Chemical and Biological Terrorism Defense. Ventura, CA. 2011.
15. Arif, M., Ouyang P., **Ochoa-Corona, F.**, Wayadande, A. and Fletcher, J. 2011. Detection of *Xylella fastidiosa* in the insect vector, the glassy-winged sharpshooter, *Homalodisca vitripennis*. 59th Annual Meeting of Entomological Society of America, Reno, Nevada, USA
16. Arif, M., **Ochoa-Corona, F.M.** and Opit, G., Li, Z.H., Kučerová, Z., Stejskal, V. and Yang, Q.Q. 2011. Sensitive detection and discrimination of stored-product pests of genus *Liposcelis* (Psocoptera: Liposcelididae) and *Lepinotus* (Psocoptera: Trogiidae). 59th Annual Meeting of Entomological Society of America, Reno, Nevada, USA.

2010

17. Arif, M., Oikonomakos, I., Caasi, D. and **Ochoa-Corona, F.** 2010. Optimized PCR-based detection for microbial forensics using 5' non-complementary sequences and thermodynamics. 19th Annual Virology Retreat, Ardmore, USA.

Popular Articles

2024

1. OSU biosecurity institute awarded \$1.8M to cultivate the next generation of professionals by Alisa Boswell-Gore Communications Coordinator, OSU Ag Research. 04-10-2024.
<https://news.okstate.edu/articles/agriculture/2024/osu-biosecurity-institute-awarded-1.8-million-to-cultivate-the-next-generation.html>

2021

1. OSU scientists develop new test for anaplasmosis in livestock, by Alisa Boswell-Gore Communications Coordinator, OSU Ag Research. October 6, 2021.

2020

1. Andrea Gentili, Sauro Simoni, Laura Tomassoli, Francisco M.Ochoa-Corona, Francesco Faggioli. Il virus del rosettamento è una minaccia. *Colture Protette*, n. 09 - ottobre 2020, 52-54

2018

2. SENASICA a la vanguardia para proteger a los alimentos que se producen en México. (*SENASICA at the forefront to protect food production in Mexico*)
<https://www.gob.mx/senasica/articulos/senasica-a-la-vanguardia-para-proteger-a-los-alimentos-que-se-producen-en-mexico?idiom+es>
3. VII International Symposium on Rose Research and Cultivation.
By Fabrice Foucher and Dave Byrne. *Chronica Horticulturae Vol 58 (1):34-35*

2016

4. Testing DNA in a Flash. OSU researcher earns patent on a revolutionary device.
By Leilana McKindra. Photos by Todd Johnson. *State magazine. Winter 2016. Pag. 102-103.*
5. Primer design workshop to be held at Oklahoma State University!
By Karen Snover-Clift and Tricia Allen, Cornell University. *NPDN News (2016) Vol. 11. Issue 6: 4*

2015

6. Técnicas para diagnóstico molecular e identificación temprana de plagas y enfermedades (Techniques for molecular diagnostics and early identification of pest and diseases). Published online at: <http://www.ica.gov.co/Noticias/Todas/2015/Tecnicas-para-diagnostico-molecular-e-identificaci.aspx> The article, in Spanish, describes an expert in forensic microbiology from Oklahoma State University that taught a workshop for officers at ICA (Colombian Institute for Agriculture).

2013

7. Land-Grant Mission
By Insider OSU Communications. *O'Colly Weekend Friday, September 27, 2013. Pag 6-7.*

GRANTS & AWARDS**2023**

Akhilesh Ramachandran; Francisco Ochoa Corona, Suzanne Genova, Jerry Saliki. Pen-side diagnostic assay development and validation for Porcine Epidemic Diarrhea. Oklahoma Porcine Board. \$6,000.

2022

Ochoa Corona FM. Olson J. Developing Sustainable Rose Landscapes via Rose Rosette Disease Education, Socioeconomic Assessments and Breeding RRD Resistant Roses with Stable Black Spot Resistance, USDA-NIFA-SCRI-009081. \$145,146.

Reichert, Michael; Mc Cullagh, Elizabeth; Ochoa-Corona, Francisco; Youssef, Noha; Zuo, Chris Bocai; Wilson, Gail; Minghetti, Mateo; Zhang, Bo. RaMP: Oklahoma Network addressing human impacts across biological processes (ON-RaMP). Award number 2216648. NSF Division of Biological Infrastructure. \$61100 x 3 years = \$183,300. Total project \$2,719,700.00. \$61100 x 3 years = \$183,300 Total project \$2,719,700.00

Ochoa Corona FM. Mudziwapasi, R. 2nd Primer design workshop for molecular diagnostics development and application (Hybrid-Online). Mandela Washington Fellowship for Young African Leaders. \$3,000.00

Arif M., Michael Melzer, Kabi Neupane. OSU Principal Co-Pi: Francisco Ochoa Corona, OSU Co-Pi: Maria Ma and Andres Espindola. The NEXTGEN of diverse agriculture biosecurity professionals through a Pacific-Continental Network. USDA-NIFA-ARPAED-009362. \$1,919,108. Total project. \$7,361,149.31.

2021

Ochoa Corona FM. Mudziwapasi, R. Primer Design for PCR based detection and diagnostics using free Web-based software (Hybrid-Online). \$3,000.00

Ochoa Corona F.M. Cardwell, K. Rotor-Gene Q 5plex HRM Platform. Oklahoma Agricultural Experiment Station. \$32,499.

2020

Ochoa Corona FM., Espindola, A. E-probe Diagnostic Nucleic Acid Analysis (EDNA) for QUARANTINE Detection and Discrimination of POACEAE Viruses. 2020 Farm Bill Plant Protection Act Section 7721 Funding. \$109,054.00.

Ochoa Corona FM., Espindola, A. Target-specific high-throughput sequencing (HTS) EDNA-Pome for detection of quarantine pathogens of Pome. 2020 Farm Bill Plant Protection Act Section 7721 Funding. \$120,613.00.

2019

Nelson Toby, Erika Lutter, Karen Wozniak, Francisco **Ochoa-Corona**, and Andres Espindola. Melanin-Inspired Antimicrobials. Cowboy Technologies. \$6,000 out of \$25,000.

Ochoa Corona FM., Espindola, A. Detection of detrimental viruses and viroids in high value chrysanthemums in Oklahoma. SCBG- ODAFF-USDA. \$68,374.41

Ochoa Corona FM., Espindola, A. Monitoring the vectors of grapevine red blotch virus using minion sequencing in Oklahoma. SCBG- ODAFF-USDA. \$49,995.00

2014-2018

Twelve grant proposals were awarded during 2014-2018 out of 31 submitted, three as PI, and nine as co-PI. Nineteen proposals were not granted. The granted funding contributed \$996,912.50 to my independent OSU research program.

2008-2013

Fifteen research grant proposals were awarded (six on which I served as PI, seven as co-PI and two as collaborator). These research projects secured a total of \$1,728,076.

2015-2024 Hatch Project OKL03143.

This project will focus on forensic plant pathology relevant to agricultural biosecurity in Oklahoma, the southern plains and the United States. It will include adaptation and development of methods for pathogen detection and discrimination with special focus on waterborne plant pathogens. Also, validation of methods for plant pathogen collection, detection, diagnosis and discrimination in plant tissue or associated material such as water, organic fluids, soil, and insect vectors of diseases suspected of harboring microorganisms of relevance for agricultural biosecurity in Oklahoma, the southern plains and the United States. This project will also consider developing detection discrimination methods for insect vectors of plant pathogens to include arthropods like mites and other phytopathogens such as bacteria, fungi, viroids, and phytoplasma. Specifically, basic topics of this research within the outlined objectives are: Seeking to define what is a waterborne plant virus, characterizing the genomic organization of relevant genomes, molecular landmarks, conserved and divergent genomic sequences, and the implication of this variability on taxonomical relationships, morphology, host-pathogen associations and the dynamics of the plant pathogen bio-geographic distribution and global dispersal routes. The biodiversity of regulated-exotic naturalized and indigenous microorganisms and diseases of relevance to agricultural biosecurity will be also considered.

2014-2019 Hatch Project OKL02950.

Francisco M. Ochoa Corona. Detection and diagnostic methods for agricultural biosecurity and forensic plant pathology applications. Division of Agricultural Sciences and Natural Resources. Status: **In progress.**

This project develops solutions for agricultural biosecurity and microbial forensics needs developing, and providing validation of methods for plant pathogen collection, detection, diagnosis and discrimination in plant tissue or associated material suspected of harboring microorganisms of relevance for agricultural biosecurity in Oklahoma, the southern plains and the United States. Both microbial forensics and agricultural biosecurity approaches are required to avoid and/or minimize regional, national or global movement of unwanted pathogens. Especial emphasis is given to the study of waterborne plant viruses and other water phytopathogens as well as arthropod transmitted viruses. Objectives are: A) To develop and/or validate methods for plant pathogen detection, discrimination, and disease diagnosis. Emphasis will be given to methods for non-skilled operators and friendly to use. B) The new methods will be target specific and/or broad detection to include variants within the target. The new methods can include diagnostic keys or diagnostics pathways if required. C) Methods will be developed for detection and diagnostic of specimens from active or passive surveillance activities, farm fields, borders or transitional sites, high value crops, specialty crops, imported or exported plant genetic material, including samples from suspected bio-crime scenes. D) To develop and validate sampling devices and/or sampling procedures, for rapid screening. It will include the assessment of new biomaterial to streamline microbial forensic investigations, diagnostics and screening of plant material potentially carrying unwanted plant pathogens of agricultural biosecurity relevance. Attention will be given to requirements of the three described biosecurity zones: global, borders and pathways, and within Oklahoma and the U.S. The duration of this project is anticipated to be five years.

2008-2014 Hatch Project OKL02773.

Francisco M. Ochoa Corona. Development and application of tools for agricultural biosecurity and forensic plant pathology. Division of Agricultural Sciences and Natural Resources. Status: **Finalized**

This Hatch project focuses on aspects of forensic plant pathology relevant to agricultural biosecurity in Oklahoma, the southern plains and the United States. Include adaptation and development of methods for pathogen detection, diagnosis and discrimination. Further research will characterize the organization of plant pathogen genomes, molecular landmarks, conserved and divergent genomic sequences, and the implication of this variability on taxonomical relationships, morphology, evolutionary pathways, host-pathogen associations and the dynamics of the plant pathogen bio-geographic distribution and global dispersal routes. The biodiversity of regulated-exotic, naturalized, and indigenous microorganisms and diseases of relevance to agricultural biosecurity will be also considered.

AWARDS

Ochoa-Corona's Awards

- **2024** Library Honoree. *o-Author of "Chapter 86. ROSE. In: Viral Diseases of Field and Horticultural cCops"* <https://library.okstate.edu/news/celebratingbooks/2024-honorees/>
- **2021** Sarkeys Distinguish Endowed Professorship III 2021-2025.
- **2016** Library Honoree. Co-author of "*Tactical Sciences for Biosecurity in Animal and Plant Systems*" <https://library.okstate.edu/news/celebratingbooks/2023-honoree>
- 2. **2016** Library Honoree. Co-author of "Detection and Diagnostics of Plant Pathogens". Published in 2014. <https://library.okstate.edu/news/celebratingbooks/2016-honorees/>
- 3. **2015 Berry Faculty Fellow Award.** The OSU Oklahoma Water Resources Center (Water Center) recognize the Division of Agricultural Sciences and Natural Resources (DASNR)

faculty, Extension educators, and district specialists who are making outstanding contributions in research, Extension, and/or education. I was selected the **2015-2017 Berry Faculty Fellow**.

- **2013 Oklahoma State University, Institute for Creativity and Innovation. Creativity Challenge Contest.** 2nd place (tie). Water security: educational and research promoting innovative solutions and rational use of water.
- **2013 Oklahoma State University, Botanical Society Photo Contest.** Honorable Mention. Title: Vibrating Texture.
- **2012 Oklahoma State University, President's Cup For Creative Interdisciplinary Award.** 3rd Place. EDNA: Powerful New Technology for Electronic Diagnostic Nucleic Acid Analysis.
- **2011 Oklahoma State University. 8th Annual Graduate Research in the Biological Science Symposium.** Biochemistry and Molecular Biology Graduate Student Association. 1st Place Award to graduate advisee Donna R. Caasi.
- **2011 Oklahoma State University Botanical Society Photo Contest.** 1st Place and Honorable Mention. Titles: 'Stone Roses' and 'Falling in Love'.
- **2001 APS Caribbean Division Award.** Awarded by the APS Foundation (American Phytopathological Society).
- **2000 Academic Achievement by the International Students in the Plant Pathology Department.** Certified by the College of Agriculture and Life Sciences. University of Florida.
- **1994-96 F.V.P.I. Level "1".** Awarded by the Venezuelan Foundation for Promoting and Registering. Venezuelan Scientists. (Fundación Venezolana de Promoción del Investigador). Secretary of Science and Technology of Venezuela (Ministerio de Ciencia y Tecnología).
- **1991-93 F.V.P.I. Level "Candidate".** Awarded by Venezuelan Foundation for Promoting and Registering. Venezuelan Scientists.
- **1994 Outstanding Lecturer Award.** Awarded by the XLVI Class (1994) of Engineers in Agriculture. Universidad Central de Venezuela. 1994.
- **1990 Honor Master Degree Thesis.** Awarded by the Graduate School (Comisión de Estudios de Postgrado). Universidad Central de Venezuela
- **AFOCAR acknowledgment** by the Fruticulture Association of Western Carabobo State (Venezuela)
- **1987-1990 Master Degree Scholarships.** "Gran Mariscal de Ayacucho Foundation". Caracas, Venezuela.
- **1996-2001 Ph.D. Assistantship.** "University of Florida, Plant Pathology Department, dr Richard Lee".

Mentored Graduate Research Assistants Awards

- **2020.** Andrea Salazar Aguirre. Recipient of the Women's Faculty Council Student Research Award.
- **2019.** Andrea Salazar Aguirre. First place Graduate Student Poster presentation at the Entomology Society of America (ESA).
- **2018.** Andrea Salazar Aguirre Travel award to attend the "Latinos in Agriculture Leaders Conference.
- **2017.** Lizbeth Peña-Zúñiga. **ISHS Young Minds Award** for the best oral presentation at the VII International Symposium on Rose Research and Cultivation in France in July 2017. *Lizbeth Peña-Zúñiga, Andrés Espíndola, Patricia Klein, Thomas Debener, Jasper Rees, David Byrne and Francisco M. Ochoa-Corona. 2017. Broad detection strategies for multiple targets of rose virome using next generation sequencing and bioinformatics.*
- **2017.** Patrick Rydzak. **BMBGSA Research Symposium in Biological Sciences Awards.**

First place oral presentation. Granted at the 14th Annual BMBGSA Research Symposium in Biological Sciences. Sept 14-15, 2017.

Patrick Rydzak. Detection and Differentiation of Arthropod-Transmitted Viruses of Cereal Crops Using Multiplex PCR and High Resolution Melting.

4. **2016.** Alejandro Olmedo-Velarde. **CIBB III Best Poster presentation:** Congreso Internacional de Biotecnología y Biodiversidad. (International Congress of Biotechnology and Biodiversity) Guayaquil. Ecuador. October 10-13, 2016.

Olmedo-Velarde, A., Larrea-Sarmiento, A. E., Ochoa-Corona, F. M. Discriminating Potexvirus species by qRT-PCR coupled to high resolution melting.

5. **2016.** Patrick Rydzak. **Outstanding Student Poster presentation at 2016 Water Research symposium.** October 11-12, in conjunction with the **2016 Oklahoma Governor's Water Conference.**

Jon Daniels, Beatriz Gallucci, Patrick Rydzak, and Francisco Ochoa Corona. Water as a vehicle for waterborne plant pathogens and the global impact.

COURSES TAUGHT & INVITED GUEST LECTURES

2009-2023

Instructor of Record

- **ENPP 2143 (formerly PLP 2143/ENTO 2143).**

Global issues in Agricultural Biosecurity and Forensics. Three credits, offered every spring since 2009 to present. Starting in 2018 PLP/ENTO 2143 will be offered during odd spring semesters.

- **ENPP 5014 (formerly PLP 5014 Plant Virology)**

This course was consolidated (theory 5013 and lab 5012) and is offered the spring semesters of even years only.

In Campus Invited Lecturer

- **PLP/ENTO 5623**, Advanced Biotech Methods. Lecture topic: Oligonucleotide primer design. Four hours of instruction, one hour of theory and three hours of laboratory. **October 12, (10:30-11:45 am)** theory, and **October 14 (12:30-3:20 pm), 2021** laboratory.
- **PLP/ENTO 5992**, Career Skills & professionalism for Scientists. Lecture topic. Careers'in Academia. One hour of instruction (Theory). **September 2, 2021** (4:00-5:00 pm)
- **PEPS/MBBE 627**, Molecular Diagnostics: Principles and Practices. University of Hawaii. Lecture topic: Oligonucleotide primer design workshop. Twenty four hours of theory and laboratory instruction. **September 14-16, 2021** (8:00am -5:00 pm)
- **ENTO/PLP5020**, Biosecurity & Microbial Forensics from prevention to response. One hour of instruction (Theory) **October 8, 2021**
- **AGIN 5312**. Applied issues in Intl AG. Master in International Agriculture. Creativity: Invention vs Innovation in Bioscurity. Oklahoma State University. **October 7, 2020**
- **ENTO 2233**. Insects in Global Public Health. Lecture given: 'Insects Vectors of Plant Diseases within Ag Biosecurity & Forensics Systems'. **Years: 2009 to 2011.**
- **ENTO/PLP 6303**. "Soil borne plant pathogens". Lecture given: 'Soil-borne virus detection'. **Years: 2010 and 2015**
- **ENTO 4800**. Entomology Practicum. Lectures given: Year 2010 'Ag Biosecurity & Forensics Systems'. Year 2011, 'Creativity, Invention and Innovation'. **Year 2013**, three sections.

- **ENTO/PLP 4923.** Application of Biotechnology in Pest management. Lecture given: 'Detection and Diagnostic Strategies'. **Years 2011 and 2013.**
- **ENTO-PLP 5623.** Advanced Biotechnology Methods. Lecture and laboratory given: 'Oligonucleotide Primer Design'. **Years 2011, 2013, and 2015.**
- **MICR 5153.** Emerging Infectious Agents. Lecture given: Emerging Plant Infectious Agents. **Years 2011 and 2012, 2014, 2016, 2017.**
- **NREM. 4033 & 5033.** Invasive species. Lecture given: Emerging infectious agents, Microbial Forensics & Biosecurity Research. **Year 2015.**
- **Ag 1011.** Intro to Freshman Seminar, CASNAR, class **09-25-2014.**

Guest Speaker

International

2024

F.M. Ochoa Corona. Understanding E.D.N.A. / Electronic-probe Nucleic-acid Analysis. Guest speaker at Online Workshop "Future of HTS Technologies in Biosecurity" First Three Wednesdays of March 2024. Biosecurity New Zealand, Auckland. New Zealand

F.M. Ochoa Corona Oral presentation. Two attempts to determine the limit of detection of plant viruses in unassembled HTS metagenomes. XX International Plant Protection Congress. Athens, Greece. July 1-5, 2024.

2014-2019

F.M. Ochoa Corona. Diagnostic Methods for Viral Diseases (Métodos para el diagnóstico de enfermedades virales). Universidad Técnica de Manabí, Ecuador, 03-11-2022. Online.

F.M. Ochoa Corona. EUPHRESKO Collaboration. Virus Curate & Flado-Vigilant (Partner 8 WP6) Comm. Network Kick off meeting. 03-14-2022. Online

F.M. Ochoa Corona. EUPHRESKO Collaboration. Flado-Vigilant (Partner 8 WP6) Euphresco Flado-Vigilant: midterm meeting in April. 04-13-2022. Online

Ochoa-Corona F.M. Biosecurity, Food security, creativity, and other fundamental concepts to activate the Venezuela's agriculture. (Bioseguridad, seguridad alimentaria, creatividad, y otros conceptos fundamentales para la reactivación efectiva del agro venezolano). March 11, 2021. FUSAGRI (Farmer's Service Foundation), Venezuela. <https://www.fusagri.com/en/>. Ciclo encuentros virtuales, a seminar series (Spanish and online).

Ochoa-Corona F.M. New technologies from the plant microbial world: Alternatives for biomedical surrogate research. (Nuevas tecnologías del mundo fito-microbiano: Alternativas para la investigación sustitutiva en biomedicina). April 28, 2021. Universidad Católica de Manizales, Colombia. <https://www.ucm.edu.co/>. Día del bacteriólogo seminar series (Spanish and online).

Ochoa-Corona, Francisco and Mudziwapasi, Reagan. Hybrid online Workshop 'Primer Design for PCR based detection and diagnostics using free Web-based software'. October 4-8, 2021. Lupane University, Zimbabwe. Sponsored by the U.S. Department of State and The Mandela Washington Fellowship.

Peña-Zuñiga, L., Espíndola, E., Ochoa-Corona, F.M. 2019. Detection of host selected pathogens sets by E-probe Diagnostic Nucleic acid Analysis (EDNA). 1st International Molecular Plant Protection Congress. Adana Turkey.

Peña-Zuñiga, L., Espíndola, A., Klein, P., Debener, T., Byrne, D., and Ochoa-Corona, F. M. 2019. E-probe Diagnostic Nucleic-acid Analysis (EDNA-Rose). A High Throughput Sequencing (HTS) analysis & bioinformatics approach for complete Rose-virome detection. Exploring the best diagnostic fit for *Rose rosette virus*. International Advances in Plant Virology. Rome, Italy.

Ochoa-Corona, F. M., Salazar-Aguirre, A., Molina-Cardenas, S., Olmedo-Velarde, A., Peña-Zuñiga, L., Espíndola, A., Dobhal, S., Olson, J., Paret, M. Babu, B. Jordan, R. Hammond, J. Ong, K. and Byrne, D.H. 2019. Exploring the best diagnostic fit for *Rose rosette virus*. International Advances in Plant Virology. Rome, Italy.

Ochoa-Corona, F. M. November 23, 2019. Creativity: Invention vs innovation. What can bring together Brazil-U.S. research for Plant Protection? UNESP (Universidade Estadual Paulista "Julio DE Mesquita Filho", Campus Botocatu, Brazil.

KEY NOTE SPEAKER at 1ST INTERNATIONALMOLECULAR PLANT PROTECTION CONGRESS. Adana Turkey. April 10-13, 2019
Title: Detection of host selected pathogens sets by E-probe Diagnostic Nucleic acid Analysis (EDNA)

PONTEFICIA UNIVERSIDAD CATÓLICA DE CHILE.

Title: Bioseguridad, microbiología forense, virus de plantas en aguas, y un poquito de creatividad (Biosecurity, microbial forensics and a bit of creativity). Santiago, Chile.01-07-2014

UNIVERSIDAD NACIONAL DE COLOMBIA.

Title: Bioseguridad, microbiología forense, virus de plantas en aguas, y un poquito de creatividad (Biosecurity, microbial forensics, wáter borne plant viruses and a bit of creativity). Bogotá Colombia.01-06-2014

PLANT PROTECTION CENTRAL RESEARCH INSTITUTE. General Directorate of Agricultural Research and Policies. Ministry of Food Agriculture and Livestock of the Republic of Turkey.

Title: Creativity, Invention and innovation in Biosecurity and Microbial forensics. Ankara, Turkey. 06-09-2014 and 06-16-2014.

INTERNATIONAL SYMPOSIUM OF MICROBIAL FORENSICS.

Title: How I Visualize Biosecurity and Microbial Forensics vs. Microbial Forensics Needs. San Diego, CA. Date: 02-19 to 20 -2015

INTERNATIONAL WORKSHOP PLANT BIOSECURITY IN THEORY AND PRACTICE. Title: Diagnostics Theory and practice... an overview. Kansas State University. Manhattan. KS. Date: 05-18 to 22, 2015.

National

2024.

American Seed Trade Association. Emerging Diseases Subcommittee. Invited Speaker F. M Ochoa-Corona. Detection of plant viruses in metagenomics sequence data using Microbe Finder (MiFi). Monterey, CA. USA. January 28, 2024.

2014-2023

Driever, Makenzie, Ruschel, Rafaela G., Ochoa-Corona, Francisco M. April 19, 2022. Exploring the Virome of Chrysanthemums in Oklahoma. Oklahoma State University, ConocoPhillips Alumni Center. Undergraduate Research Symposium.

Austin Camilla, Gomes Ruschel, Rafaela, Ochoa Corona, Francisco M. April 19, 2022. First report of pokeweed mosaic virus (PkMV) in Michigan based on molecular detection methods. Oklahoma State University, ConocoPhillips Alumni Center. Undergraduate Research Symposium.

Isabella G. Hinojosa, Rafaela G. Ruschel, Francisco M. Ochoa Corona. April 19, 2022. Preservation of rose rosette emaravirus Infected Tissue at Room Temperature. Oklahoma State University, ConocoPhillips Alumni Center. Undergraduate Research Symposium.

F.M. Ochoa Corona. 06-27 to 29-2022. RRD Research in Oklahoma: An Artificial Positive Control (APC) that fit all primers & field trial update. NCPNR – Annual Tier II meeting. Texas A&M College Station, TX.

F.M. Ochoa Corona. 09-05 to 09-09, 2022. Oligonucleotide Primer Design Workshop for diagnostics application. University of Hawaii, Manoa campus.

Gomes Ruschel, R., Espindola Camacho, A., Ochoa-Corona, F., Malapi-Wight, M., Hu X., Hurtado-Gonzales O. E-probe diagnostic nucleic acid analysis for quarantine viruses on *Poaceae*. American Phytopathological Society (APS). August 2-6, 2021.

Virtual National Clean Plant Network Rose (NCPN Rose) Summer Meeting Jul 22, 2020.

American Phytopathological Society August 1-14, 2020. IDEA CAFE: Detection of plant pathogens in metagenomics datasets using Microbe Finder (MiFi). August 13, 2020.
<https://apsnet.confex.com/apsnet/2020/meetingapp.cgi/Session/4212>

Andrea Salazar, Francisco Ochoa-Corona, Justin Talley, Bruce Noden. March 15-18, 2020. A field deployable Rapid *Anaplasma* Detection (RAD) kit for screening three *Anaplasma* species infecting livestock. Entomological Society of America North Central/Southwest Joint Branch Meeting-2020. Oklahoma City, OK. Virtual Oral presentation.

Iriarte; F.B., Fife, A.; Schuetz, K., Davenport B.; Villanasey Joseph, S., Julian C.A.; Olson, J. **Ochoa-Corona**, F., Williams-Woodward, J., Knox, G. W., Martini, X., Babu, B., and Paret, M. L. 2019. Reverse transcription-recombinase polymerase amplification/Agdia AmplifyRP® for rapid detection of rose rosette virus. NPDN

Salazar, A., Noden, B., **Ochoa-Corona, F.**, Justin Talley, J. 2019. Detection and discrimination of three *Anaplasma* species infecting livestock using Recombinase Polymerase Amplification (RPA). Entomology Society of America - Annual Meeting, St. Louis, MO.

Salazar, A., Noden, B., **Ochoa-Corona, F.**, Justin Talley, J. 2019. Detection and discrimination of three *Anaplasma* species infecting livestock using Recombinase Polymerase Amplification (RPA) Annual Research Symposium in Biological Sciences, Stillwater, OK. Oklahoma State University

Espindola, E., Freire-Zapata, V., Watanabe L. F. M., **Ochoa-Corona, F. M.**, and Cardwell, K. F. 2019. Detecting viruses and bacteria of grapevine with Microbe Finder (MiFi) and an Oxford Nanopore sequencer. American Phytopathological Society. Cleveland, Ohio, U.S.A.

Arizala, D., Dobhal, D., Crockford, A. B., **Ochoa-Corona, F.**, Alvarez, A.M., Arif, M. 2019. Multiplex TaqMan qPCR targeting unique genomic regions for specificity, sensitivity and robust detection of *Pectobacterium* species and *P. parmentieri*. American Phytopathological Society. Cleveland, Ohio, U.S.A.

Ochoa Corona, F.M. 'Syndemics of Plant Viruses and other Plant Pathology Threats'. Feb. 26th, Oklahoma State University, 2020 spring EPP seminar series. OSU Stillwater.

Jen Olson and Francisco Ochoa Corona, Oklahoma State University "Direct trapping of plant viruses in plastic tubes for rapid-inexpensive PCR assay processing. The 2020 Great Plains Diagnostic Network (GPDN) Webinar Series, February 12th, 2020.

APS TAMPA, FL. 2016. Title Development of efficient diagnostic tools to enable rapid, easy-to-use, accurate and affordable detection of Rose rosette virus.

University of Arkansas. Invited seminar, Dept. Plant Pathology. September 05, 2017. Fayetteville, AK. Title: When oligo data meet primer design: Application in biosecurity & microbial forensics.

2008-2023

International

1. Ochoa-Corona F.M. Biosecurity, Food security, creativity, and other fundamental concepts to activate the Venezuela's agriculture. (Bioseguridad, seguridad alimentaria, creatividad, y otros conceptos fundamentales para la reactivación efectiva del agro venezolano). March 11, 2021. FUSAGRI (Farmer's Service Foundation), Venezuela. <https://www.fusagri.com/en/> . Ciclo encuentros virtuales, a seminar series (Spanish and online).
2. Ochoa-Corona F.M. New technologies from the plant microbial world: Alternatives for biomedical surrogate research. (Nuevas tecnologías del mundo fito-microbiano: Alternativas para la investigación sustitutiva en biomedicina). April 28, 2021. Universidad Católica de Manizales, Colombia. <https://www.ucm.edu.co/> . Dia del bacteriologo seminar series (Spanish and online).
3. Ochoa-Corona, Francisco and Mudziwapasi, Reagan. Hybrid online Workshop 'Primer Design for PCR based detection and diagnostics using free Web-based software'. October 4-8, 2021. Lupane University, Zimbabwe. Sponsored by the U.S. Department of State and The Mandela Washington Fellowship.

4. SYMPOSIUM ON POTATO HARMFUL ORGANISMS. Hosted by the Plant Protection Central Research Institute. Ankara, Turkey 4-7 November, 2013. Title of seminar: New diagnostic strategies that can be applied to potatoes in Turkey.
5. 'THE AUTONOMOUS POPULAR UNIVERSITY OF PUEBLA' (UPAEP), Tehuacan Campus (2012). Language week. 2012. 'The way I visualize and teach biosecurity'. Fall semester. Online via Skype and remote-Prezi from my office.
6. 2ND INTERNATIONAL AGRO-INDUSTRIAL SYMPOSIUM. Universidad Autónoma de Chapingo. 2012. Mexico. Title of seminar: '*Invencción vs. Innovación. Instrumentos de bioseguridad agrícola y microbiología forense para minimizar los efectos de la globalización y comercio internacional*' (Invention vs innovation. Agricultural biosecurity and microbial forensics instruments to minimize the effects of globalization and international trade).
7. KEYNOTE SPEAKER AT THE 4TH ASIAN CONFERENCE ON PLANT PATHOLOGY AND THE 18TH BIENNIAL AUSTRALASIAN PLANT PATHOLOGY CONFERENCE. Darwin, Australia. 26 April - 29 April 2011. Title of seminar: *Biosecurity, microbial forensics and plant pathology: Education challenges, overlapping disciplines and research needs*.
8. 'DIPARTIMENTO DI SCIENCE E TECNOLOGIE FITOSANITARIE' (DISTEF), FACOLTÀ DI AGRARIA, UNIVERSITA DEGLI STUDI DI CATANIA, SICILY, ITALY AND THE INTERNATIONAL DOCTORAL PROGRAM (DOTTORATO INTERNAZIONALE) which is coordinated by Prof. Gabriella Cirvilieri. *Primer design. Biosecurity and microbial forensics*. September, 9, 2010.
9. UNIVERSITY OF FOOD AND TECHNOLOGIES, DEPARTMENT OF ORGANIC CHEMISTRY AND MICROBIOLOGY. Plovdiv, Bulgaria, with the sponsorship of the 2009-2010 USDA's Foreign Agricultural Service (FAS) administered under the Borlaug International Agricultural Science and Technology Fellowship Program for Bulgaria. *Primer design. Biosecurity and microbial forensics*. September, 16, 2010.
10. UNIVERSIDAD POPULAR AUTÓNOMA DEL ESTADO DE PUEBLA (UPAEP). The seminar was given via polycom from OSU. *Tópicos de interés global en bioprotección agrícola y microbiología forense*. 04-26-2010.

2008-2013

11. Department of Plant Pathology, Kansas State University. (2012). Title of the seminar: 'Biosecurity research, waterborne plant viruses and a pinch of creativity'.
12. American Phytopathological Society (APS) North-Central Division. Rapid City, South Dakota. *Biosecurity, biosafety, biodiversity, microbial forensics and plant pathology: Overlapping arenas, few case studies*. 06-07-2010. Invited opening speaker.
13. American Phytopathological Society (APS), Hawaii. Honolulu. (2011). Microbial forensics: Investigative plant pathology.

OSU- Stillwater campus

14. 2010 Collaborative Programs for the Oklahoma National Guard Training Program (Agribusiness Development Team Mission Activity in Afghanistan), sponsored by the Division of Agricultural Sciences and Natural Resources (Dr. David M. Henneberry, Director of International Agricultural Programs). Title: *Biosecurity, biosafety, biodiversity,*

- microbial forensics and plant pathology: Overlapping arenas, few case studies.* 06-07-2010.
15. Guest speaker to students, and a faculty delegation from the Universidad Autónoma de Chapingo, Chapingo, Mexico visiting OSU. Division of Agricultural Sciences and Natural Resources (Dr. David M. Henneberry, Director of International Agricultural Programs) *Tópicos de interés global en bioprotección agrícola y microbiología forense.* 06-23-2010/
Topic of global interest in biosecurity and microbial forensics.
 16. Henry Bellmond Research Center faculty discussion group. Title: *Invention vs innovation. Rapid microbial collection and nucleic acid recovery.* November 19, 2010. Invited by Dr. Jacqueline Fletcher.
 17. Guest speaker to students, and a faculty delegation from the Universidad Autónoma de Chapingo, Chapingo, Mexico visiting OSU. Division of Agricultural Sciences and Natural Resources (Dr. David M. Henneberry, Director of International Agricultural Programs) *Tópicos de interés global en bioprotección agrícola y microbiología forense.* 06-23-2010/
Topic of global interest in biosecurity and microbial forensics. 2011.
 18. Defense Threat Reduction Agency (DTRA) visiting OSU. 2011. Title: Detection & diagnostics. How we understand invention & innovation. How we understand biosecurity systems.

PROFESSIONAL DEVELOPMENT

2021

1. Supervisor Academy. Oklahoma State University. OSU Talent Development. October 2021

2020

2. Purchasing Card Refresher Training, 11-3-2020
3. Clery Act CSA & Incident Report Training, 12-15-2020
4. Fostering and Promoting a Culture of Diversity & Inclusion at OSU, 12-7-2020
5. Title VII and Title IX Training

2018

6. Graduate Faculty Lunch-n-Learn: The Stalled Out Student. April 25, 2018.
OSU, Institute for Teaching & Learning Excellence (ITLE).

2017

7. Microbiome workshop. OSU Center For Integrative Microbiome Science. January 12, 2017. Stillwater, OK. Provided development elements to guide faculty and investigators becoming independent extramurally funded.
8. OSU I-Corps Course. June 6-27, 2017. Stillwater, OK.
9. Fall CASNR Teaching Workshop: Documenting Teaching Excellence by Dr. Wiebke Boeing. New Mexico State University. August 15, 2017. Stillwater OK.
10. Workshop on Open Textbook Network (OTN). OSU Library.
11. Workshop for increasing openness and reproducibility in quantitative research. October, 12, 2017. OSU, Institute for Teaching & Learning Excellence (ITLE).
12. Assessing and Evaluating Student Performance and Success. 04/15/2015.
OSU, Institute for Teaching & Learning Excellence (ITLE).

2014

13. Assessment in Service-Learning: How do we know that they really learned? 11/11/2014.
OSU, Institute for Teaching & Learning Excellence (ITLE).

2013

14. Faculty Certificate Program and Endorsement in Program Assessment: Developing Classroom Assignments for Multiple Assessment Purposes. 10/10/2013. OSU, Institute for Teaching & Learning Excellence (ITLE).
 15. Faculty Certificate Program and Endorsement in Program Assessment: Assessing Writing as a Program Outcome. 9/27/2013. OSU, Institute for Teaching & Learning Excellence (ITLE).
 16. Flipping your Classroom. 8/1/2013. OSU, ITLE.
 17. Assessment Series: Interpreting Results from the Student Survey of Instruction. 2/21/2013. OSU, ITLE.
 18. Supporting Student Success Series: Motivating Students to Learn. 2/19/2013. OSU, ITLE.
- 2012**
19. Supporting Student Success Series: Teaching Strategies that Engage Students. 2/22/2012 OSU, ITLE.
- 2011**
20. Benefit from Patents Online: Supplement Your Research and Teaching. 2/11/2011. OSU, ITLE.
- 2010**
21. Teaching in American Classrooms as International Faculty Members: Insights, Perspectives, and Strategies. 10/12/2010. OSU, ITLE.
 22. 24/7 Lessons: Online Narrated Presentation. 8/11/2010. OSU, ITLE.
 23. TechKnowledge Series: Turnitin. 1/7/2010. OSU, ITLE.
 24. Study Abroad Faculty Leaders' Panel on Emergency Preparedness. 4/28/2010. OSU, ITLE.
- 2009**
25. Writing Questions and Assignments for Student Critical Thinking Skills. 12/2/2009. OSU, ITLE.
 26. "DNA Microarray Technology Workshop: A comprehensive introduction". OSU Microarray Core and the Department of Biochemistry & Molecular Biology. Instructor: Peter R. Hoyt. June, 15-19, **2009**.
 27. Who wants to be an entrepreneur?" Oklahoma EPSCor and Innovation to Enterprise (i2E), Inc. October 30, 2009. Reed Center, Midwest City, OK.
- 2008**
28. Certificate Series: What is Known About How Students Learn. 9/11/2008. OSU, ITLE.
 29. Write winning grants seminar & workshop by David C. Morrison and Stephen W. Russell. 10/08/08. OSU.
 30. USDA/CSREES Grantsmanship workshop. Arlington, 09-30-08. Sponsored by OSU-DASNR.

BIOSAFETY & COMPLIANCE

2015/2016/2017/2018

Title VII and Title IX Training

2023

Annual Biosafety Training: Completing Employee Injury Reports

Annual Biosafety Training: Heat_stress_fact_sheet

Annual Biosafety Training: Laboratory Clutter

Annual Biosafety Training: Cold_stress_fact_sheet

2022

Annual Biosafety Training: Eyewash safety shower fact sheet

Annual Biosafety Training: Heat stress fact sheet

Annual Biosafety Training: Work place ergonomics fact sheet

Annual Biosafety Training: Cold stress fact sheet

2021

Annual Biosafety Training: Extension cord fact sheet

Annual Biosafety Training: Office safety act sheet

2020

Annual Biosafety Training: EHS Fact Sheet Cold Stress 11-21-2020.

Annual Biosafety Training: Heat Stress, 8-28-2020

Annual Biosafety Training: Environmental Health and Safety, 6-12-2020

Annual Biosafety Training: Laboratory Clutter, 3-12-2020.

2019

Annual Biosafety Training: Fire Extinguisher, 03, 08, 2019.

Annual Biosafety Training: Sun safety 08, 02, 2019.

Annual Biosafety Training: Office safety training, 05, 29, 2019

Annual Biosafety Training: Back safety, 1, 03, 2019

Annual Biosafety Training: Cold stress

2018

Annual Biosafety Training: Fire Extinguisher

Annual Biosafety Training: Sun safety

Annual Biosafety Training: Hazard Communication.

Annual Biosafety Training: Back safety

2017

Annual Biosafety Training: Fire Extinguisher

Annual Biosafety Training: Sun safety

Annual Biosafety Training: Hazard Communication

Annual Biosafety Training: Hazard Waste Management,

2011/2012/2013/2014/2015/2016

Annual Biosafety Training: Hazard Communication

Annual Biosafety Training: Fire Extinguisher

Annual Biosafety Training: Snow and Ice Safety

Annual Biosafety Training: Lab Personal Protective Equipment

2010

Annual Biosafety Training: Hazard Communication, 01-12-10.

Annual Biosafety Training: Hazard Waste Management, 01-20-10.

Annual Biosafety Training: Autoclave Safety, 01-07-10.

2009

Annual Biosafety Training: Hazard Communication, 01/30/09.

Annual Biosafety Training: Hazard Waste Management, 02/03/09.

Annual Biosafety Training: Autoclave Use, 07/17/09.

NBFAC Training, 09/17/2009.

2008

Shutting In Campus, 09/11/08.

Hazard Communication, 09/08/08.

Purchasing Card Training and Airfare And Lodging Purchasing Training, 09/23/08.

SERVICE & AFFILIATION TO SOCIETIES

1. **2014-2017. Senior Editor.** Plant Health Progress, an American Phytopathological Society (APS) peer-reviewed journal of applied plant health. ISSN 1535-1025
2. **NCPNR – Annual Tier II meeting. August 1-2. 2017. Longwood-Pennsylvania**
 - Los Angeles County Arboretum, CA, June 26-27, **2018**, Title of seminar: RRV-Diagnostics. How good are they?
 - Lonwood Gardens, Longwood, Pennsylvania. August 1-2. **2017**. RRV-LAMP progress and EDNA-Rose for detection and diagnosis of rose viruses combining next generation sequencing and bioinformatics.
 - American Rose Society Headquarters, Shreveport, LA. June 28-29, **2016**. Title of seminar: Diagnostics 101, Roses, Biosecurity & Possibilities.
3. **2017 APS Workshop: Principles of Diagnostic Assay Validation. August 5, 2017. San Antonio, TX.**
Ochoa Corona, FM. Participated as organizer, and collaborator (introduction to validation and in charge of virus group).
4. **2014/2015/2016. Oklahoma State University.** Biosafety Plan Review.
5. **2009-2010. National Academies of Sciences.** Washington. USA. Invited member of the Committee on Scientific Milestones for the Development of a Gene-Sequence-Based Classification System for Oversight of Select Agents.
6. **2009-present.** Member of Website Committee, OSU Department of Entomology and Plant Pathology.
7. **2009-present.** Member of Diagnostics Committee, OSU Department of Entomology and Plant Pathology

2008-2013 Peer Reviewing in Referred Scientific Journals

1. American Phytopathological Society.

2008-2013 Peer Reviewing in Referred Scientific Journals

1. Annals of Applied Biology
2. Applied and Environmental Microbiology
3. Crop Protection
4. European Journal of Plant Pathology
5. Journal of Virological Methods
6. Phytopathology
7. Phytopatologia Mediterranea
8. Plant Disease
9. Plant Disease notes
10. PLoS
11. Scientia Horticulturae
12. Scientific Reports_Nature
13. The International Journal of Molecular Sciences
14. Viruses

2008-2013 Peer Reviewing in Referred Scientific Journals

1. Fitopatologia Mexicana
2. Journal of Virological Methods
3. Molecular Biology Reports
4. Molecular Ecology Resources
5. Phytopatologia Mediterranea
6. Plant Disease
7. Plant Health Progress
8. Bitki Koruma Bülteni/Plant Protection bulleting –Turkey
9. Annals of Applied Biology
10. PLoS