

Sociedad Mexicana de Bioquímica, A. C.



PROGRAM

**XIV National Congress of Biochemistry and
Plant Molecular Biology
&
7th Symposium Mexico-USA**

**Campeche - Mexico
November 29th – December 2nd**

Scientific Committee

Academic Program

Scott Jackson

Miguel Lara Flores

Aida Martínez Hernández

Carroll Vance

with collaboration of:

Luis Herrera Estrella

Federico Sánchez Rodríguez

Abstracts

Mario Arteaga Vázquez

Alejandra Covarrubias Robles

Georgina Hernández Delgado

Alba Jofre y Garfias

Patricia León Mejía

José López Bucio

Luisa López Ochoa

Neftalí Ochoa Alejo

Mónica Santos Mendoza

June Simpson Williamson

Silvia Valdés Rodríguez

Posters

(USA and mexican researchers)

Funding Institutions



Coordinación de la
Investigación Científica, UNAM



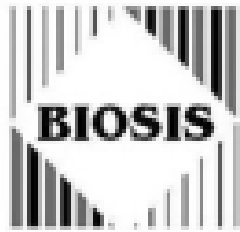
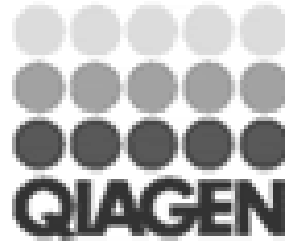
Instituto de Biotecnología
UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO



UNAM



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**XIV National Congress of Biochemistry and Plant
Molecular Biology & 7th Symposium MEXICO-USA**
November 29th – December 2nd, 2011 Campeche, Mexico

Bienvenida

Estimados participantes,

Tenemos el placer de invitarlos a participar en el **XIV Congreso Nacional de Bioquímica y Biología Molecular de Plantas** que en esta ocasión se llevará a cabo en el **Centro de Convenciones Campeche XXI, del 29 de noviembre al 2 de diciembre del 2011**. Continuando con la visión de enriquecer nuestra reunión científica con la asistencia de colegas de otros países, el congreso albergará también al **7º. Simposium México-USA**, contando con la valiosa participación de colegas y amigos de este país vecino interesados en conocer e interactuar con los grupos de investigación de nuestro país; por lo que uno de los objetivos de este foro es fomentar la interacción y fortalecer los vínculos de colaboración científica tanto nacional como binacional.

Es grato notar cómo a lo largo de los años este congreso bienal se ha ido fortaleciendo conforme la comunidad científica dedicada al estudio de la bioquímica y la biología molecular de plantas en nuestro país ha ido creciendo y madurando, atendiendo hoy todas las áreas de estudio de la biología de plantas; desde la sistemática, taxonomía, desarrollo, fisiología, nutrición, metabolismo, y reproducción, hasta el mejoramiento genético, bioenergía, biofarming, evolución, o epigenética; áreas todas para las cuales habrá foros en este congreso. Por lo anterior, esperamos contar nuevamente con la nutrida participación de los asistentes recurrentes, así como de los nuevos grupos de investigación en estas áreas. Adicionalmente, con el fin de enriquecer este foro, extendemos la más cordial invitación a investigadores de áreas afines como botánica, histología, fisiología, fitoquímica, fitogenética, agrícola, o forestal; para asistir y potenciar los alcances mediante la interacción multidisciplinaria, nacional e internacional.

Este congreso contará con sesiones plenarias matutinas, en las cuales tendremos la oportunidad de interactuar con investigadores nacionales y extranjeros de trascendencia en 12 diversas temáticas científicas; así como con sesiones concurrentes, que servirán de foro para exponer trabajos seleccionados por el comité científico. Por su alto valor formativo, en dichas sesiones se contará con espacios específicos para exposiciones por parte de estudiantes. Adicionalmente, contaremos con las sesiones de carteles donde esperamos una activa interacción entre los estudiantes y los investigadores, nacionales e internacionales. Comités de evaluación seleccionarán, por su aportación científica y creatividad, a 3 carteles por área; los cuales recibirán una distinción honorífica.

Estamos ansiosos en darles la bienvenida en Campeche, Patrimonio Cultural de la Humanidad, tierra cálida y pacífica rebotante de riquezas biótica, marina, arqueológica, histórica, gastronómica y, sobretodo, de la calidez de su gente.

¡Ven a Campeche 2011!

El Comité Organizador,

MÉXICO:

Aída Martínez Hernández, COLPOS, Campeche
Miguel Lara Flores, Centro de Ciencias Genómicas,
UNAM

USA:

Scott Jackson, University of Georgia
Carroll Vance, USDA/ARS
University of Minnesota

Welcome

Dear participants

We are pleased to invite you to participate in the **XIV National Congress of Biochemistry and Plant Molecular Biology** on this occasion will be held in **Centro de Convenciones Campeche XXI**, from November 29 to December 2, 2011.

Continuing the vision of enriching our scientific meeting attended by colleagues from other countries, Congress will also host the 7th Symposium Mexico-USA, with the valuable participation of colleagues and friends interested in this neighboring country to meet and interact with research groups in our country; so one of the objectives of this forum is to promote interaction and strengthen the scientific partnerships both domestic and binational.

It is gratifying to note how over the years, this biennial conference has been strengthened as the scientific community devoted to the study of biochemistry and molecular biology of plants in our country has grown and matured, now attending all areas of study of plant biology, from the systematics, taxonomy, development, physiology, nutrition, metabolism, and reproduction, through breeding, biofarming, evolution, or epigenetic; all areas for which there will be forums on this conference.

We hope to have again with the strong participation of the attendees recurring and new research groups in these areas. Additionally, in order to enrich this forum, we extend a warm invitation to researchers in related areas such as botany, histology, physiology, phytochemistry, plant breeding, agricultural or forestry to assist and enhance the scope through multidisciplinary interaction, national and international.

This conference will include morning plenary sessions, where we will have the opportunity to interact with national and foreign researchers of transcendence in 12 different scientific topics; as well as concurrent sessions will serve as a forum to present papers selected by the Scientific Committee for its high educational value in these sessions there will be specific areas for presentations by students. Further, we will have poster sessions where we expect an active interaction among students and researchers, national and international. Evaluation committees selected for their scientific contribution and creativity, three posters per area which will receive honorific distinction.

We look forward to welcoming you in Campeche, a World Heritage Site, warm and peaceful land full of riches biotic, marine, archaeological, historical, gastronomic and, especially, the warmth of its people.

The Organizing Committee

MÉXICO:

Aída Martínez Hernández, COLPOS, Campeche
Miguel Lara Flores, Centro de Ciencias Genómicas,
UNAM

USA:

Scott Jackson, University of Georgia
Carroll Vance, USDA/ARS
University of Minnesota

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Programme of Events

Tuesday November 29, 2011

10:00 to 19:00 **Registration**

17:00 – 17:30 **Inauguration**

17:30 – 19:30 **Inaugural Conferences**

17:30 – 18:30 Stephan Schuster
Genomics of extinct and endangered species
Penn State University

18:30 – 19:30 Luis Herrera Estrella
Sequencing of the transcriptome and genome of *Persea
Americana* (avocado) and *Utricularia gibba*
LANGEBIO CINVESTAV IPN Irapuato

19:30 – 22:00 **Welcome Cocktail**

Wednesday, November 30, 2011

Plenary Session I
Plant-Microbe and Insect Interactions

Chair: Federico Sánchez

- 8:00 – 8:25 Jean-Michel Ané
Recent evolution of a nuclear ion channel altered ion selectivity and improved functionality in calcium spiking
University of Wisconsin Madison
- 8:25 – 8:50 John Paul Délano-Frier
Exploring stress responses in grain amaranth (*Amaranthus hypochondriacus*) and husk tomato (*Physalis philadelphica*): tapping a potential source of novel genes in marginally studied plants
CINVESTAV – IPN. Irapuato
- 8:50 – 9:15 Maria J. Harrison
MtPT4 and phosphate transport in *arbuscular mycorrhizal* symbiosis
Cornell University
- 9:15 – 9:40 Melissa G. Mitchum
CLE Peptide Mimicry in Nematode Signaling with Host Plants
University of Missouri
- 9:40 – 10:05 José Juan Zúñiga Aguilar
Role of plant growth regulators in the establishment of the defense response against *Phytophthora capsici* in peppers
Centro de Investigación Científica de Yucatán
- 10:05 – 10:30 Federico Sánchez Rodríguez
Autophagy is essential for a successful *Phaseolus vulgaris*-*Rhizobium* symbiosis
Instituto de Biotecnología, UNAM
- 10:35 – 10:55 Coffee Break

Wednesday November 30, 2011

Plenary Session II
Secondary Metabolism
Response to Environment / Plant Nutrition

Chair: Don Ort

- 10:55 – 11:20 María Luisa Villarreal Ortega
Metabolic Profiling of the Mexican Anxiolytic and Sedative Plant
Galphimia glauca
Centro de Investigación en Biotecnología, UAEM
- 11:20 – 11:45 Alejandra A. Covarrubias Robles
Adaptation of plants to water deficit requires some level of
disorder
Instituto de Biotecnología, UNAM
- 11:45 – 12:10 Michelle A. Graham
Analyses of the *Rpp4* Asian Soybean Rust Resistance Locus in
Legumes
United State Deparment of Agriculture /ARS. Iowa State Univ.
- 12:10 – 12:35 Michael A. Grusak
Genetic Regulation of Dry Matter, Iron, and Zinc Accumulation in
Rice Grain
United State Deparment of Agriculture /ARS
- 12:35 – 13:00 Miguel Lara Flores
Target of Rapamycin major regulator of root development and
rhizobial symbiosis in *Phaseolus vulgaris*
Centro de Ciencias Genómicas, UNAM
- 13:00 – 13:25 Carroll Vance
Legume Biology: Solving Problems Utilizing Next Generation
Sequencing
United State Deparment of Agriculture /ARS. Iowa State Univ.
- 13:25 – 13:50 Donald Ort
Adapting crop photosynthesis to global change
United State Deparment of Agriculture /ARS. University of Illinois
- 14:00 – 15:15 Lunch

Wednesday, November 30, 2011

**Concurrent Session I-A:
Plant-Microbe and Insect Interactions I**

Chair Miguel Lara Flores

Room Two

- 15:15 – 15:30 Luis Cárdenas Torres
Polarity in growing root hairs is a key factor in supporting growth and infection thread formation during *Rhizobium*-legume interaction
Instituto de Biotecnología, UNAM
- 15:30 – 15:45 Kena Casarrubias Castillo
Characterization of defense responses induced in grain amaranth by exogenous BTH, MeJA and an avirulent interaction
CINVESTAV – IPN. Irapuato
- 15:45 – 16:00 Carlos Alberto Contreras Paredes
The absence of eukaryotic initiation factor eIF(iso)4E affects the systemic movement of an isolate of Tobacco Etch Virus in *Arabidopsis thaliana*
Facultad de Química, UNAM
- 16:00 – 16:15 Jesús Damián Cordero-Ramírez
Isolation and molecular identification of a collection of native maize rhizosphere microorganisms for biocontrol of *Fusarium verticillioides*
CIIDIR-SINALOA, IPN
- 16:15 – 16:30 Mayra J. Esparza-Araiza
Silencing genes of *Solanum* species possibly involved in the resistance against bacterial canker caused by *Clavibacter michiganensis* subsp. *michiganensis*
Instituto Potosino de Investigación Científica y Tecnológica
- 16:30 – 16:50 Coffee break

Wednesday November 30, 2011

Concurrent Session I-B: Plant Microbe Interaction II

Chair: Carroll Vance

Room Two

- 16:50 – 17:05 Lucila Méndez Morán
Arabidopsis thaliana gene expression induced by *Ustilago maydis* infection
CUCBA, Universidad de Guadalajara
- 17:05 – 17:20 Jesús Montiel González
RBOH play an essential role during the rhizobia-mediated infection and nodulation in bean roots
Instituto de Biotecnología, UNAM
- 17:20 – 17:35 Bárbara Nova-Franco
Elucidating the regulatory role of microRNA: miR172 in common bean (*Phaseolus vulgaris*) nodules
Centro de Ciencias Genómicas, UNAM
- 17:35 – 17:50 Margarita Rodríguez-Kessler
An RNA binding protein (UmRrm75) mutant of *Ustilago maydis* is affected in virulence, leading to reduced tumor formation in *Zea mays* cultivars
Instituto Potosino de Investigación Científica y Tecnológica
- 17:50 – 18:05 Jorge Ariel Torres Castillo
Opuntia interacting with insects: proteinase inhibitors from *Opuntia* spp. against digestive proteinases from *Cactophagus spinolae* Gyll
Facultad de Agronomía, UANL
-
- 18:05 – 20:00 **POSTER SESSION TERRAZA ROOM**
Plant Microbe and Insect Interactions W1 - W47
Responses to Environment W48 –W89
Plant Nutrition W90 – W95
System Biology: Genomics, Proteomics, Met. W96 – W105
Molecular Systems and Biodiversity W106 – W110

Wednesday, November 30, 2011

**Concurrent Session II-A:
Response to Environment / Plant Nutrition I**

Chair: Carmen Quinto

Room Three

- 15:15 – 15:30 Úrsula Abad
Light-regulated expression of PINOID Ser/Thr kinase, a
regulator of plant cell polarity
Institute of Cellular and Botany, University of Bonn
- 15:30 – 15:45 Elmi R. Cen Cen
Exploring the physiological role of Metallothionein-like proteins
in *Agave*
Colegio de Postgraduados Campus Campeche
- 15:45 – 16:00 Rocio Cruz Ortega
Studies on aluminum tolerance in *Fagopyrum esculentum*, an Al-
accumulator plant
Instituto de Ecología, UNAM
- 16:00 – 16:15 Carlos de la Rosa
Functional analysis of a microRNA(miR2119) in legumes in
response to water deficit
Instituto de Biotecnología, UNAM
- 16:15 – 16:30 Julio Massange Sánchez
Analysis of expression and molecular characterization of the
novel *Ah24* gene induced by mechanical damage, insect
herbivory and exogenous methyl jasmonate in *Amaranthus*
hypochondriacus
CINVESTAV – IPN. Irapuato
- 16:30 – 16:50 Coffee break

Wednesday November 30, 2011

Concurrent Session II-B: Response to Environment / Plant Nutrition II

Chair: Alejandra Covarrubias

Room Three

- 16:50 – 17:05 Rosario A. Muñoz Clares
Structural determinants of aldehyde specificity in the chloroplastic betaine aldehyde dehydrogenase that synthesizes the osmoprotectant glycine betaine
Facultad de Química, UNAM
- 17:05 – 17:20 Julián Mario Peña Castro
Transgenic expression of *Sub1A* and *Sub1C* rice transcription factors in *Arabidopsis* uncovers flowering inhibition as a submergence-tolerance mechanism
University of California Riverside. Universidad del Papaloapan
- 17:20 – 17:35 José Luis Reyes Taboada
Water deficit responses regulated by microRNAs in *Phaseolus vulgaris*
Instituto de Biotecnología, UNAM
- 17:35 – 17:50 Aída Araceli Rodríguez Hernández
AtGRDPI an important gene encoding a Glycine-Rich Domain Protein involved in germination and abiotic stress
Instituto Potosino de Investigación Científica y Tecnológica
- 17:50 – 18:05 Miguel Ángel Villalobos
Desiccation Tolerant Mosses: Phenotypic, Physiological, and Molecular Studies
Centro de Investigación en Biotecnología Aplicada IPN
-
- 18:05 – 20:00 **POSTER SESSION TERRAZA ROOM**
Plant Microbe and Insect Interactions W1 - W47
Responses to Environment W48 –W89
Plant Nutrition W90 – W95
System Biology: Genomics, Proteomics, Met. W96 – W105
Molecular Systems and Biodiversity W106 – W110

Thursday, December 1, 2011

Plenary Session III
Signaling and gene regulation

Chair: Patricia León Mejía

- 8:00 – 8:25 Tzvetanka Dimitrova Dinkova
Small RNA expression during induction and subculture of
maize (*Zea mays* L.) embryogenic callus
Facultad de Química, UNAM
- 8:25 – 8:50 Georgina Hernández Delgado
Transcriptomics and global regulators of common bean:
nodulation and response to abiotic stress
Centro de Ciencias Genómicas, UNAM
- 8:50 – 9:15 José López Bucio
Role of bacterial quorum sensing signals in plant growth and
development
Instituto de Investigaciones Químico-Biológicas, UMSNH
- 9:15 – 9:40 Man-Ho Oh
Tyrosine phosphorylation as a new critical component of
brassinosteroid signaling in *Arabidopsis thaliana*
United State Department of Agriculture /ARS. Univ. of Illinois
- 9:40 – 10:05 Sona Pandey
The multiplicity and novelty of heterotrimeric G-proteins in
soybean
Donald Danforth Plant Science Center
- 10:05 – 10:30 Patricia León Mejía
Novel carotenoid-derived signals involved in chloroplast and
leaf development
Instituto de Biotecnología, UNAM
- 10:35 – 10:55 Coffee Break

Thursday, December 1, 2011

Plenary Session IV
Developmental process

Chair: Sara Hake

- 10:55 – 11:20 Elena R. Álvarez Buylla
From genotypes to phenotypes and evolution via epigenetic landscapes: towards a general theory of morphogenesis using flower development as study system
Instituto de Ecología, UNAM
- 11:20 – 11:45 Elison B. Blancaflor
An ACAP-type ARF-GAP links directional membrane trafficking to the cytoskeleton in the control of *Arabidopsis* root hair development
The Samuel Roberts Noble Foundation
- 11:45 – 12:10 Felipe Cruz García
Piecing the puzzle together in *Nicotiana* pollen rejection: Interactions between pistil and pollen factors
Facultad de Química, UNAM
- 12:10 – 12:35 Stefan de Folter
Novel transcription factors involved in fruit development in *Arabidopsis*
LANGEBIO CINVESTAV IPN Irapuato
- 12:35 – 13:00 Joseph G. Dubrovsky
Auxin dual-action paradox during lateral root initiation in *Arabidopsis*
Instituto de Biotecnología, UNAM
- 13:00 – 13:25 Esther van der Knaap
The role of SUN and OVATE in tomato fruit development
The Ohio State University
- 13:25 – 13:50 Sara Hake
Patterning the maize leaf
United State Dep. of Agriculture /ARS. Univ. of Berkeley
- 14:00 – 15:15 Lunch

Thursday, December 1, 2011

**Concurrent Session III-A:
Signaling and gene regulation / Developmental process**

Chair Gladys Cassab

Room Two

- 15:15 – 15:30 José Isaac Corona Carrillo
Naphthaleneacetic acid induces the degradation of the bordering layer of maize scutella
Universidad Autónoma Metropolitana Iztapalapa
- 15:30 – 15:45 Edgar Demesa Arévalo
Role of AGP18 in the reproduction of *Arabidopsis thaliana*
LANGEBIO CINVESTAV IPN Irapuato
- 15:45 – 16:00 Ma. de la Luz Guerrero
uORFs: a possible regulatory mechanism of plant polyamine oxidases
Instituto Potosino de Investigación Científica y Tecnológica
- 16:00 – 16:15 Alma Fabiola Hernández Bernal
ABA Insensitive 4 (ABI4) is positively regulated by Leafy cotyledon 2 (LEC2) during embryogenesis and germination in *Arabidopsis thaliana*
Centro de Investigación Científica de Yucatán
- 16:15 – 16:30 Gladys I. Cassab
Role of phytohormone interactions in the root hydrotropic response of *Arabidopsis thaliana*
Instituto de Biotecnología, UNAM
- 16:30 – 16:50 Coffee break

Thursday, December 1, 2011

**Concurrent Session III-B:
Signaling and gene regulation / Developmental process II**

Chair: June Simpson

Room Two

- 16:50 – 17:05 Jorge Nieto Sotelo
Mayahuelin: a developmentally-regulated protein from the central spike leaves of *Agave tequilana* with high similarity to RIPs
Instituto de Biotecnología, UNAM
- 17:05 – 17:20 Rosana Sánchez López
Analysis of receptor-like kinase leucine-rich repeat (PvSymRK) expression in common bean root hairs
Instituto de Biotecnología, UNAM
- 17:20 – 17:35 Svetlana Shiskova
Gene expression profiles during determinate primary root growth in cardon *Pachycereus pringlei* (Cactaceae)
Instituto de Biotecnología, UNAM
- 17:35 – 17:50 David Arturo Velarde
Regulation through translation inhibition by microRNAs in the common bean (*Phaseolus vulgaris*)
Instituto de Biotecnología, UNAM
- 17:50 – 18:05 June Simpson
Candidate genes involved in reproductive to vegetative changes in *A. tequilana*
CINVESTAV – IPN. Irapuato
-
- 18:05 – 20:00 **POSTER SESSION TERRAZA ROOM**
Signaling and Gene Regulation T111 – T134
Developmental Process T135 – T168
Applied Biotech: Genetic Eng., Biofarming, Biofuels T169 – T196
Secondary Metabolism T197 – T211
Association mapping and Crop Improvement T212 – T215
Epigenetic T216 – T217
Molecular and Genome Evolution T218 – T219

Thursday, December 1, 2011

**Concurrent Session IV-A:
Applied Biotechnology / Secondary Metabolism I**

Chair: Neftalí Ochoa Alejo

Room Three

- 15:15 – 15:30 María Belem Arce Vázquez
Antioxidant activity of insoluble dietary fiber hydrolysates as
obtained of *Amaranthus hypochondriacus* plant residue
Universidad Autónoma Metropolitana Iztapalapa
- 15:30 – 15:45 Ivette Cornejo Corona
Biotic factors recognized by the promoter of the *PEAS1* gene of
chili pepper (*Capsicum annuum*)
CINVESTAV – IPN. Irapuato
- 15:45 – 16:00 Norma Laura Rodríguez Ávila
Analysis of carotenoid cleavage dioxygenase (CCD1) from
Annatto (*Bixa orellana* L.): key enzymes in the oxidative
remodeling of carotenoids
Centro de Investigación Científica de Yucatán
- 16:00 – 16:15 Luzmila Martínez González
Antigenic peptides derived from F and G proteins of Respiratory
Syncytial Virus, produced on lettuce plants as a first step for a
plant-based vaccine
Instituto Potosino de Investigación Científica y Tecnológica
- 16:15 – 16:30 Neftalí Ochoa Alejo
Transcriptomics of chili pepper fruits: Searching for secondary
metabolism-related genes
CINVESTAV – IPN. Irapuato
- 16:30 – 16:50 Coffee break

Thursday, December 1, 2011

Concurrent Session IV-B: Applied Biotechnology / Secondary Metabolism II

Chair: Edmundo Lozoya Gloria

Room Three

- 16:50 – 17:05 Amanda Moreno Rodríguez
Accumulation of flavonoids in three medicinal plants from San Rafael, Puebla, under greenhouse conditions
Facultad de Estudios Superiores Iztacala, UNAM
- 17:05 – 17:20 Benita Ortega Berlanga
Plant transformation through viral vectors and nuclear transformation: strategies to produce high levels of antiviral and antigenic peptides to prevent Respiratory Syncytial Virus infections
Instituto Potosino de Investigación Científica y Tecnológica
- 17:20 – 17:35 María José Serrano Maldonado
Cell death induction of a breast cancer cell line by an antioxidant extract of mistletoe (*Cladocolea loniceroides*)
Universidad Autónoma Metropolitana Iztapalapa
- 17:35 – 17:50 Juan Pablo Valenzuela Avendaño
Changes in wheat germination, morphology and productivity induced by ScTPS1-TPS2 fusion gene transformation
Centro de Investigación en Alimentación y Desarrollo, A.C
- 17:50 – 18:05 Edmundo Lozoya Gloria
Comparison among microalgae and plant oils for special purposes
CINVESTAV – IPN. Irapuato
-
- 18:05 – 20:00 **POSTER SESSION TERRAZA ROOM**
Signaling and Gene Regulation T111 – T134
Developmental Process T135 – T168
Applied Biotech: Genetic Eng., Biofarming, Biofuels T169 – T196
Secondary Metabolism T197 – T211
Association mapping and Crop Improvement T212 – T215
Epigenetic T216 – T217
Molecular and Genome Evolution T218 – T219

Friday, December 2, 2011

Plenary Session V
Systematics and Biodiversity
Association mapping and crop improvement / Applied Biotechnology

Chair: Robert Stupar

- 8:00 – 8:25 Luis E. Eguiarte
Phylogenetic studies of mexican plants: Molecular clocks,
adaptive radiations and coevolution
Instituto de Ecología, UNAM
- 8:25 – 8:50 Jason Holliday
Genomics of adaptation to climate in trees
Virginia Tech
- 8:50 – 9:15 Katrien M. Devos
Genome structure and Evolution in Wheat – The C-value
Paradox revisited
University of Georgia
- 9:15 – 9:40 Maria J. Monteros
Resources and Strategies for Crop Improvement in Alfalfa
The Samuel Roberts Noble Foundation
- 9:40 – 10:05 Robert M. Stupar
Structural variation hotspots in the soybean genome localize to
clusters of biotic stress response genes
University of Minnesota
- 10:05 – 10:30 Ángel G. Alpuche Solís
Production of plant-made antigens and antimicrobial peptides:
A reliable approach to reduce the burden of mucosal infectious
diseases
Instituto Potosino de Investigación Científica y Tecnológica
- 10:35 – 10:55 Coffee Break

Friday, December 2, 2011

Plenary Session VI

Epigenetics / Molecular and Genome Evolution / System Biology (Oomics)

Chair: Richard Jorgensen

- | | |
|---------------|--|
| 10:55 – 11:20 | Mario A. Arteaga Vázquez Paramutation: Transgenerational Transfer of Epigenetic Information Universidad Veracruzana |
| 11:20 – 11:45 | Stacey A. Simon Characterization of Small RNAs in Maize Paramutation-Impaired Mutants University of Delaware |
| 11:45 – 12:10 | Ana L. Caicedo How to evolve a weed: the evolutionary genomics of invasive red rice University of Massachusetts |
| 12:10 – 12:35 | Ma Jianxin Genetic Basis of Soybean Stem Growth Habit Purdue University |
| 12:35 – 13:00 | Jamie A. O'Rourke The Transcriptome of Common Bean: Nodules to Beans United State Dep. of Agriculture /ARS. Univ. Minnesota |
| 13:00 – 13:25 | Rafael Rivera Bustamante A "hot" tool for Chili pepper genomic research: <i>Capsicum</i> Transcriptome DB. CINVESTAV – IPN. Irapuato |
| 13:25 – 13:50 | Richard Jorgensen Conserved Peptide Upstream Open Reading Frames in Plant mRNAs are Associated with Regulatory Genes LANGEBIO CINVESTAV IPN Irapuato |
| 14:00 – 15:15 | Lunch |

Friday, December 2, 2011

**Concurrent Session V-A:
System Biology (Oomics)**

Chair: Octavio Martínez de la Vega

Room Two

- 15:15 – 15:30 Luis Pedro Iñiguez
Identifying genes involved in nodulation and symbiotic nitrogen fixation (SNF) in *Phaseolus vulgaris* using RNAseq technology
Centro de Ciencias Genómicas, UNAM
- 15:30 – 15:45 Aída Martínez Hernández
Molecular characterization and gene expression regulation of Crassulacean Acid Metabolism genes identified in the *Agave tequilana* transcriptome
Colegio de Postgraduados Campus Campeche
- 15:45 – 16:00 Pablo Peláez Hernández
Identification of *Phaseolus vulgaris* microRNAs by high-throughput sequencing
Instituto de Biotecnología, UNAM
- 16:00 – 16:15 Alfredo Sánchez Villarreal
An “omics” profile of the circadian component *TIME FOR COFFEE* reveals its role in integrating stress and metabolic signals in *Arabidopsis thaliana*
Colegio de Postgraduados Campus Campeche
- 16:15 – 16:30 Octavio Martínez de la Vega
TRANOVA: a method to gain biological knowledge from RNA-seq experiments
LANGEBIO CINVESTAV IPN Irapuato
- 16:30 – 16:50 Coffee break

Friday, December 2, 2011

**Concurrent Session V-B:
Genome Evolution / Epigenetics**

Chair: Stewart Gillmor

Room Three

- 15:15 – 15:30 Yair Cárdenas Conejo
Evolutionary origin of the second genomic component of
geminiviruses, the largest family of plant DNA viruses
Instituto Potosino de Investigación Científica y Tecnológica
- 15:30 – 15:45 Víctor Miguel Palomar Olguín
Control of gene expression mediated by epigenetic modulation
of transposable elements in response to abiotic stress
Instituto de Biotecnología, UNAM
- 15:45 – 16:00 Daniel Rodríguez Leal
Phylogenetic analysis of ARGONAUTE gene family in plants
LANGEBIO CINVESTAV IPN Irapuato
- 16:00 – 16:25 Stewart Gillmor
The CDK8 Module of Mediator regulates multiple phase
transitions during the life cycle of Arabidopsis
LANGEBIO CINVESTAV IPN Irapuato
- 16:30 – 16:50 Coffee break

Friday, December 2, 2011

Plenary Session VII

Closing Conferences

Chair: Scott Jackson

- | | |
|---------------|---|
| 16:50 – 17:15 | Scott A Jackson Genome Evolution in the Genus <i>Oryza</i> University of Georgia |
| 17:15 – 17:40 | Michael S Barker Polyploidy and Plant Evolution University of Arizona |
| 17:40 – 18:05 | Jean Phillippe Vielle Calzada Epigenetic regulation of gametogenesis in <i>Arabidopsis thaliana</i> LANGEBIO CINVESTAV IPN Irapuato |
| 18:05 – 18:30 | Honorable mention to selected Posters |
| 18:30 – 18:45 | Closing Ceremony |
| 20:00 – 24:00 | Farewell Party |

Posters Session
Wednesday

PLANT-MICROBE AND INSECT INTERACTIONS

1

Selection of strains of *Bacillus subtilis* and control of *Botrytis cinerea* on strawberry fruits

Ma. del Rosario Abraham-Juárez, Ramón Arturo Gallaga-Cisneros, Francisco Alejo-Iturvide, Víctor Olalde-Portugal. mabraham@dulcinea.ugto.mx

2

Characterization of enzymatic activities in the apoplast of healthy and diseased banana leaves affected with black sigatoka

Alcocer-Álvarez Carmela, Canto Canché Blondy Islas-Flores Ignacio. islasing@cicy.mx

3

Characterization of the physiological and developmental changes of *Sorghum bicolor* mediated by volatile organic compounds produced by the PGPR *Arthrobacter agilis*

Nancy Araceli Alejandre-Ramírez, Lourdes I Macías-Rodríguez, Idolina Flores-Cortez y Eduardo Valencia-Cantero. vcantero@umich.mx

4

Induced activities of defense-related enzymes in response to herbivory and jasmonic acid treatment in husk-tomato (*Physalis philadelphica*)

Mariana Andrade Medina, Víctor Quezada Camargo, Norma Martínez Gallardo, John Délano Frier, Carla Sánchez Hernández. sanchez.cv@gmail.com

5

Analysis of Regulatory Mechanisms of Phaseolotoxin Synthesis in *Pseudomonas syringae* pv. phaseolicola NPS3121

Jackeline Lizzeta Arvizu-Gómez, Alejandro Hernández-Morales, Reynaldo Ariel Álvarez-Morales. lizzeta28@gmail.com

6

Altered mycorrhizal colonization in roots of tomato plants with an altered wound-response or impaired in jasmonic acid synthesis correlates with changes in isoprenoid, phenylpropanoid and defense gene expression

Hamlet Avilés-Arnaut, Norma Angélica Martínez-Gallardo, John Paul Délano-Frier. jdelano@ira.cinvestav.mx

7

A natural recombinant of begomoviruses from two different New World clades isolated from tomato in the Potosinian Huasteca, Mexico

Bañuelos-Hernández Bernardo, J Armando Mauricio-Castillo, Gerardo R. Arguello-Astorga. bernardo@ipicyt.edu.mx

8

LifeAct allows actin microfilament visualization in transgenic living root hair cells

Luis A Bañuelos, Isaac Zepeda, Rosana Sánchez, Noreide Nava, Olivia Santana, Federico Sánchez, Carmen Quinto, Luis Cárdenas. luisc@ibt.unam.mx

9

Bean TOR (Target of Rapamycin) Gene: Isolation and Characterization

Lourdes Blanco, Kalpana Reddy, Miguel Lara. lara@ccg.unam.mx

10

Banana foliar fragments vs *in vitro* plantlets in *Musa acuminata*-*Mycosphaerella fijiensis* interaction

AD Canché-Gómez, CM Rodríguez-García, L Peraza-Echeverría, R Grijalva-Arango, BB Canto-Canche, IR Islas-Flores, L Sáenz-Carbonell, R Vázquez- Euán, I Córdova-Lara y Y Sánchez- Rodríguez. koyi@cicy.mx

11

Purification of NLP-like proteins from the *in vitro* culture filtrate of *Phytophthora capsici*

Mayra Díaz-Brito, Karlina García-Sosa, Luis Manuel Peña-Rodríguez, Fernando Contreras-Martín, Ignacio Islas-Flores. islasign@cicy.mx

12

Analysis of level genes expression in potato plants *in vitro* in response to mexican potato purple top phytoplasma infection

Nadia Rubí Douriet-Gámez, Rosa María Longoria-Espinoza, María Elena Santos-Cervantes, Jesús Alicia Chávez-Medina, Melina López-Méyer, Jesús Méndez-Lozano, Norma Elena Leyva-López. neleyval@ipn.mx

13

Functional analysis of candidate genes that confers tolerance to *Clavibacter michiganensis* subsp. *michiganensis* through VIGS

María de L Enríquez-Macías, Mayra J Esparza-Araiza, Bernardo Bañuelos-Hernández, José P Lara-Ávila, Gerardo R Argüello-Astorga, Elvira Hernández-Rico, Paul H Goodwin, Ángel G Alpuche-Solís. alpuche@ipicyt.edu.mx

14

Massive screening of a maize rhizosphere microorganism collection to obtain antagonists against *Fusarium verticillioides*

Alejandro Miguel Figueroa-López, Jesús Damián Cordero-Ramírez, Rubén Félix-Gastélum, Ignacio Eduardo Maldonado-Mendoza. imaldona@ipn.mx

15

Movement of Euphorbia mosaic virus-Yucatán peninsula in *Tomato plants*

Naivy F Gamboa Tec, Lucila A Sánchez Cach, Luisa A López Ochoa. luisa_lopez@cicy.mx

16

Differential gene expression induced by arbuscular mycorrhiza symbiosis related to defense and photosynthesis in leaves of tomato plants

González-Ortiz María Alejandra, Peinado-Guevara Luz Isela, Medina-Godoy Sergio, López-Meyer Melina. mlopez@ipn.mx.

17

Induced activities of defense-related enzymes and growth promotion in response to seaweed extract elicitation in tomato (*Solanum lycopersicum*)

R Mireya Hernández-Herrera, Carla. Sánchez-Hernández, Fernando Santacruz-Ruvalcaba, Mario A Ruiz-López. sanchez.cv@gmail.com

18

***Bax inhibitor-1* is a programmed cell death negative regulator in the *Phaseolus-rhizobia* symbiosis**

Alejandrina Hernández-López, Eloín Díaz, Gabriel Guillen, Federico Sánchez.
federico@ibt.unam.mx

19

Enrichment of endophytic microbial fraction from leaves of *Citrus limon* var. Eureka

Elizabeth G Hernández-Mota, Claudia P Larralde-Corona, Erika de la Cruz- Arguijo, José A Narváez Zapata. armería_alpina_84@yahoo.com.mx, euforbia_84@hotmail.com

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Transcriptional profile of *Pseudomonas syringae* pv. phaseolicola NPS3121 in response to tissue extracts from a susceptible *Phaseolus vulgaris* L. cultivar

Alejandro Hernández-Morales, Jackeline Lizzeta Arvizu-Gómez, Ariel Álvarez-Morales.
aldolasa@yahoo.com.mx

21

Transcriptional analysis of some *Mycosphaerella fijiensis*'s cell wall genes during its interaction with banana

Nuvia Eugenia Kantún Moreno, Leticia Peraza Echeverría, Rosa Grijalva Arango, Cecilia Rodríguez García, Andrew James Kay, José Ruiz Herrera, Blondy Canto Canché.
cantocanche@cicy.mx

22

Quantitative Evaluation of rhizobacteria isolated from tropical region with antagonistic activity against *Colletotrichum gloeosporioides* Penz

Macedo-Castillo A, Martínez-Hernández A, Lara-Reyna J. jlara@colpos.mx

23

Defence activation by arachidonic acid in the avocado root against *Phytophthora cinnamomi* Rands

Diana Edith Madrigal-Silva, Elda Castro-Mercado, Ernesto García-Pineda.
egpineda@umich.mx

24

A new begomovirus isolated from a weed (*Rhynchosia minima*) in Sinaloa, Mexico is able to infect soybean but not common bean

J Armando Mauricio-Castillo, Bernardo Bañuelos-Hernández, Jesús Méndez-Lozano, Gerardo R. Argüello-Astorga. jamaca1209@hotmail.com

25

A complex of five bipartite begomoviruses isolated from a weed (*Solanum rostratum*) included only two different B genomic components

J Armando Mauricio-Castillo, Josefát Gregorio-Jorge, Salvador Ambriz-Granados, Gerardo R Argüello-Astorga. jamaca1209@hotmail.com

26

Characterization of the peptidase activity of nodulin 41, an aspartic peptidase with affinity for denatured proteins that is involved in plant innate immunity

Juan Elías Olivares, Georgina Estrada, Claudia Díaz, Xóchitl Alvarado, Jessica S Quevedo, Margarita Rodríguez-Kessler, Federico Sánchez. federico@ibt.unam.mx

27

Inter-kingdom communication between plants and bacteria based on bacterial cyclodipeptides that modulate pathogenicity and symbiosis

Randy Ortiz-Castro, César Díaz-Pérez, Miguel Martínez-Trujillo, Rosa E del Río, Jesús Campos-García, José López-Bucio. jlbucio@umich.mx

28

Interacción del fitopatógeno *Ustilago maydis* con la enzima beta glucosidasa en plántulas de teosinte (*Zea diploperennis*). Martha Pérez_Díaz, Romel Castillo-Hernández, Alma Dolores Pérez-Santiago. titamar605@ hotmail.com

29

Air-borne rhizobacteria signals differentially modulate the root-system architecture in *Arabidopsis* and modify the auxin content in the plant

Paola Pérez-Flores, Josué Altamirano-Hernández, Perla García-Juárez, José López-Bucio, Eduardo Valencia-Cantero, Lourdes Macías-Rodríguez. Imacias@umich.mx

30

Differential plant gene expression in early developmental stages of the symbiotic interaction between *Phaseolus vulgaris* and rhizobia

Bertha Pérez-Hernández, Olivia Santana, Gabriel Guillén, Carmen Quinto. quinto@ibt.unam.mx

31

A SINA E3 ubiquitin-ligase affect root growth and nodulation in *Phaseolus vulgaris*.

Karina Picazarri, David Jauregui, Jesús Montiel, Olivia Santana, Carmen Quinto. quinto@ibt.unam.mx

32

Isolation and identification of sequences of resistance genes analogs in coconut palm

Carlos Alberto Puch-Hau, Iván Córdova-Lara, Santy Peraza-Echeverría, Carlos Oropeza-Salín, Luis Sáenz-Carbonell. vyca@cicy.mx

33

Phytoremediatory effect of *Ocimum basilicum* L. and its rhizosphere exposed to different concentrations of the organochlorine pesticide endosulfan

Ramírez-Sandoval M, Girón-Pérez MI, Rojas-García AE, Medina-Díaz IM, Muñiz-Hernández S, Robledo-Marengo ML, Velázquez-Fernández JB. jesusbvf@gmail.com

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Induction of defense responses by salicylic acid in avocado roots against *Phytophthora cinnamomi*.

Gerardo Rangel-Sánchez, Elda Castro Mercado, Ernesto García Pineda.
egpineda@umich.mx

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Molecular identification of *Streptomyces* and evaluation of antagonistic against potato common scab in Northern of Sinaloa

Anailia Rete-Corral, Mariela Guadalupe Espinoza-Mancillas, María Elena Santos-Cervantes, Alicia Chávez-Medina, Jesús Méndez-Lozano, Norma Elena Leyva-López, Rubén Félix-Gastélum. neleyval@ipn.mx

36

The role of PvHsp22, a small heat shock protein in nodule ontogeny in *Phaseolus vulgaris*.

Jonathan Israel Rodríguez-López, Claudia Díaz-Camino, Gabriel Guillén, Federico Sánchez. federico@ibt.unam.mx

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***Arabidopsis* HR4 gene is induced by microbe interaction**

Jorge Sáenz-Mata, Juan Francisco Jiménez-Bremont. jbremont@ipicyt.edu.mx

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Characterization of beneficial microorganisms isolated from sugar cane in region Huasteca for the development of biofertilizers

Salazar Badillo Fatima Berenice, Becerra Flora Alicia, Rodríguez Guerra Raúl, López Rubio Enrique y Jiménez Bremont Juan Francisco: jbremont@ipicyt.edu.mx

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Quantification by real time PCR of the biomass of *Mycosphaerella fijiensis* in banana plantations placed in Teapa, Mexico and held with semi-intensive and intensive management of fungicides

Sánchez-Rodríguez Y, Vázquez-Euan R, Sáenz-Carbonell L, Canto-Canché B, Islas-Flores I. islasign@cic.mx

40

Quantification and characterization of symptoms caused by *C. Liberibacter asiaticus* in different species of citrus on the Southeast of México

Ruth Sandoval-Luna, Emiliano Loeza Kuk, José Manuel Cambrón Crisantos, José Abrahán Ramírez Pool, Daniel Bravo Pérez, Alma Rosa Solano Baez, Ricardo Alfredo Munguía Rosales, Elena Iobana Alanis Martínez, José Abel López Buenfil. labsur.senasica@gmail.com

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Folate profiles in common bean (*Phaseolus vulgaris*) during symbiosis with *Rhizobium etli*

Rafael Urrea-López, Rocío I Díaz de la Garza. rociodiaz@itesm.mx

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Antifungal activity of Amaranth cystatin: A possible mechanism of action

Silvia Valdés-Rodríguez, Armando Guerrero-Rangel, José Antonio Segoviano-Rosales, Laura Valdés-Santiago, Claudia León-Ramírez, Susana C Rodríguez, DoraLinda Guzmán-de-Peña. svaldes@ira.cinvestav.mx

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When tolerance matters: study of biochemical and physiological responses of grain amaranth (*Amaranthus cruentus*) to artificial herbivory

Erandi Vargas-Ortiz, Axel Tiessen, John Paul Delano-Frier jdelano@ira.cinvestav.mx

44

Detection of *Mycosphaerella fijiensis* in Banana plant wastes

Roberto Vázquez-Euán, Ignacio, Islas-Flores, Yazmin Sánchez-Rodríguez, Rosalia Nuñez-Pastrana, Miguel Tzec-Simá. Luciano Martínez-Bolaños, Blondy Canto-Canche cantocanche@cicy.mx

45

A wide spectrum of viruses is shown in a first survey of strawberry from El Bajío region

María Nérida Vázquez-Sánchez, Pedro Antonio Dávalos González, Laura Silva-Rosales, Alba Estela Jofre-Garfias. ajofre@ira.cinvestav.mx

46

Isolation of *Beet mild curly top virus* from bean and the leafhopper *Circulifer tenellus*, in Zacatecas, Mexico

R Velásquez-Valle, LR Reveles-Torres, J Mena-Covarrubias, MA Salas-Luevano, Gerardo R Argüello-Astorga, JA Mauricio-Castillo. jamaca1209@hotmail.com

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to be announced

Zamudio-Moreno, E., Moreno-Valenzuela, O. y López-Ochoa, L. luisa_lopez@cicy.mx

RESPONSES TO ENVIRONMENT

48

Functional characterization of group 6 LEA proteins in *Arabidopsis thaliana*

Inti Arroyo, Miguel Palomar, José Luis Reyes, Alejandra A. Covarrubias. inti@ibt.unam.mx

49

Establishment of an *in vitro* culture system for resurrection plants of *Selaginella* genera

Analilia Arroyo Becerra, Marilyn Lima-Gonzalez, Ma. Lilia Hernández-Pérez, Alejandra Chamorro-Flores, Miguel Ángel Villalobos López. alarroyo@ipn.mx

50

Identification and comparative analysis of microRNAs regulated by drought in two cowpea genotypes (*Vigna unguiculata* L.)

Blanca Estela Barrera-Figueroa, Lei Gao, Ndeye N. Diop, Zhigang Wu, Jeffrey D. Ehlers, Philip A. Roberts, Timothy J. Close, Jian-Kang Zhu, Renyi Liu. bbarrera@unpa.edu.mx

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Flux of ions and the role of K⁺ in the response of habanero pepper under salt stress

Emanuel Bojórquez -Quintal, Fátima Medina-Lara, Manuel Martínez-Estévez.
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Oxidative stress in *Agave tequilana* induced by abiotic stress

J. Humberto Caamal-Velázquez, Jorge Santamaría-Fernández, Aida Martínez-Hernández, Francisco Espadas-Gil, Carlos Talavera, Ermelinda Reyes-Pérez, Luis E. Kantún-Cauich, Suemy Echeverría-Echeverría. hcaamal@colpos.mx

53

Transformation of *Chlorella spp.* and immobilization in alginate beads as an experimental model for functional evaluation of plant antioxidant genes: Catalase and glycolate oxidase of *Kochia (Kochia scoparia L.)* in response to salt stress

Carlos A. Cabada-Tavares, Mario Arce-Montoya, Luz E. González-González, David R. López-Aguilar, Mario Rojas-Arzaluz, Juan F. Jiménez-Bremont, Gracia A. Gómez-Anduro. ggomez@cibnor.mx

54

Mercury (HgCl₂) and its influence in the fibrillar mRNA (mRNA-FB) and nucleolar protein fibrillar 34Kd (Fb-34kD) in embryos bean (EB)

Huerta J, Cabral FJ, Esparza Ibarra E, Cortes-Hermosillo JJ. jesuscortes59@gmail.com

55

Identification of AtLEA4-5-interacting proteins under water deficit

Cuevas-Velázquez Cesar Luis, Olvera-Carrillo Yadira, Covarrubias Alejandra. ccuevas@ibt.unam.mx

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Effects of air pollution on cell membrane integrity of *Tillandsia usneoides* transplanted to an industrial area in Central Mexico

Efraín Miguel Chávez Solís, Miguel Ángel Martínez, Corina Solís, Carlos A. Lucho Constantino, Rosa Icela Beltrán, Carmen López, Luis Carlos Longoria. afrochs@gmail.com

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Effects of water stress in bryophytes with biotechnological potential by infrared spectroscopy

Linda Gallardo, Raúl Delgado, Analilia Arrollo, Miguel A. Villalobos. rdmacuil@yahoo.com.mx

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Physiological and morphological responses of plants under water stress by infrared spectroscopy

Linda Gallardo, Raúl Delgado, Analilia Arrollo, Miguel A. Villalobos. rdmacuil@yahoo.com.mx

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Identification and validation of reference genes for microRNA RT-qPCR in *Phaseolus vulgaris* under abiotic stress

Gabriel Guillén, Cecilia Contreras-Cubas, Ana Belén Mendoza-Soto, Loreto Naya, Luis Pedro Iñiguez, Rosaura Aparicio-Fabre, Ximena Contreras, Georgina Estrada, José Luis Reyes, Georgina Hernández, Federico Sánchez. federico@ibt.unam.mx

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Transcription levels of genes associated with drought in common bean as a tool for selecting tolerant genotypes

Glenda M. Gutiérrez Benicio, Víctor Montero Tavera, César L. Aguirre Mancilla, Juan G. Ramírez Pimentel, Juan C. Raya Pérez, Jorge A. Acosta Gallegos. montero.victor@inifap.gob.mx

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Searching pyrophosphatases in *Taxodium mucronatum*

Eric E Hernández Domínguez, Rogelio Rodríguez Sotres. sotres@servidor.unam.mx

62

Effect of chromium (VI) on the global transcriptional expression in *Arabidopsis thaliana* L

Fátima Hernández Madrigal, José López Bucio, Alfonso Méndez Bravo, Randy Ortiz Castro, Miguel Martínez Trujillo. codigogenetico@gmail.com

63

Analysis of the response of primary and lateral roots of *Arabidopsis thaliana* *CycB1::uidATO* variable conditions of stress caused by metals

Juan Carlos Jiménez Saragoz, María Gloria Solís Guzmán, Randy Ortiz Castro, Marco Alejandro Cañas Navarro, Miguel Martínez Trujillo. codigogenetico@gmail.com

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Osmotic stress in micropropagated plants of *Agave tequilana*

Kantún-Cauich Luis, Martínez-Hernández Aida, Santamaría-Fernández Jorge, Echeverría-Echeverría Suemy, Caamal-Velázquez J. Humberto. hcaamal@colpos.mx

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Induction of betacyanins synthesis by copper stress in plants of *Beta vulgaris* L.

Janet María León Morales, Gabriela Sepúlveda Jiménez. gsepulvedaj@ipn.mx

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Early transcriptional response of papaya seedlings to thermal stress

Rodolfo López-Gómez, Luis Carlos Rodríguez-Zapata, Enrique Ibarra-Laclette, Luis María Suárez Rodríguez. lgomez@umich.mx

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Analysis of inorganic nutrients on the reversion of the phenotypic effects of toxicity and *AtPT2* expression caused by chromium (VI) in *Arabidopsis thaliana* L

Miguel Martínez Trujillo, Fátima Hernández Madrigal, José López Bucio, Randy Ortiz Castro. codigogenetico@gmail.com

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Common bean (*Phaseolus vulgaris*) - *Rhizobium tropici* symbiosis under aluminum toxicity: identification of responsive microRNAs

Ana Belén Mendoza-Soto, Loreto Naya, Alfonso Leija, Oswaldo Valdés-López, Sujay Paul, Rosaura Aparicio-Fabre, Mario Ramírez, José Luis Reyes, Georgina Hernández. gina@ccg.unam.mx

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Mechanism of response to aluminum toxicity through salicylic acid in suspension cells of *Coffea arabica* L. and *Capsicum chinense* Jaq.

José Armando Muñoz-Sánchez, Yahaira Guillén-Yahaira, Teresa Hernández-Sotomayor. ths@cicy.mx

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Expression of Arabidopsis Glycine-Rich Domain Protein (GRDP) in Lettuce produces tolerance to salt stress

Azucena Ortega-Amaro, Aida Rodríguez-Hernández, Sergio Rosales-Mendoza, J. Francisco Jiménez-Bremont. aortega@ipicyt.edu.mx

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A Glycine-rich domain protein is essential for the salt stress tolerance in Arabidopsis

Azucena Ortega-Amaro, Eloísa Hernández-Lucero, Aida Rodríguez-Hernandez, Julio Salinas, Juan Francisco Jiménez-Bremont. jbremont@ipicyt.edu.mx

72

A novel acidic SK₃-type dehydrin from *Opuntia streptacantha* is involved in cold stress response

María Beatriz Pérez-Morales, Pablo Delgado-Sánchez, Ana Erika Ochoa-Alfaro, Margarita Rodríguez-Kessler, Juan Francisco Jiménez-Bremont. jbremont@ipicyt.edu.mx

73

Hydrotropism in *Arabidopsis thaliana*: tropic responses in thioredoxin mutants

Georgina Ponce, Fernando Lledias, Nadia Porras, Delfeena Eapen, Ma. Eugenia Campos, Gladys Cassab. geop@ibt.unam.mx

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Transcriptome of common bean-*Rhizobium* symbiotic nitrogen fixation under oxidative stress

Mario Ramírez, Gabriel Guillen, Sara I Fuentes, Lourdes Girard, Patricia Rivera, Oswaldo Valdés-López, Francesca Sparvoli, Dario Panzeri, Georgina Hernández. mario@ccg.unam.mx

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Preliminary study of the plant hemiparasite *Psittacanthuscalyculatus*.

Juan Carlos Raya Pérez, Jorge Covarrubias, Gabriel Ramírez, Cesar Leobardo Aguirre Mancilla. juancarlos.raya@gmail.com

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Oxidative stress in *Agave tequilana* induced by Paraquat

Ermelinda Reyes-Pérez, Aida Martínez-Hernández, Luis E Kantún-Cauich, Echeverría-Echeverría Suemy, J Humberto Caamal-Velázquez. hcaamal@colpos.mx

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Abscisic Acid improves drought tolerance of the Mexican moss *Pseudocrosidium replicatum*

Selma Rios Meléndez, Emmanuel Valádez Hernández, Analilia Arroyo Becerra, Miguel Ángel Villalobos López. ciba_mangel_ipn@hotmail.com

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Structural analysis of a group 6 LEA protein

Rivera Nájera Lucero Y, Saab Rincón Gloria, Battaglia Marina, Solórzano Rosa M, Del Río Portilla Federico, Covarrubias Robles Alejandra A. rlucero@ibt.unam.mx

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Arabidopsis Lipid Transfer Protein is involved in the response to salt and osmotic stress conditions

Mario Rojas-Arzaluz, Gracia A. Gómez-Anduro, Juan Fco. Jiménez-Bremont. jbremont@ipicyt.edu.mx

80

Effects of water stress and *Macrophomina phaseolina* in growth, grain yield and gene differential expression of common bean (*Phaseolus vulgaris* L.)

Raymundo Rosas-Quijano, Sanjuana Hernández-Delgado, Sandra Judith Rodríguez-Herrera, Alma Delia Paz-González, Juan Manuel González-Prieto, Netzahualcoyotl Mayek-Pérez. rrosasq@ipn.mx

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***OpsHSP18* gene of *Opuntia streptacantha* is involved in the response to abiotic stress**

Silvia Salas-Muñoz, Juan Francisco Jiménez-Bremont. jbremont@ipicyt.edu.mx

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Membrane model to explain the participation of carotens and the changes in energy in photosynthesis

García-Jiménez Federico-Alfredo, José Luis Sánchez Millán, Castells García. Yolanda, Collera Zúñiga Ofelia fedgar@servidor.unam.mx, jlsan@unam.mx

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Functional analysis of arginine decarboxylase (ADC) in mediating drought tolerance and nodule development in common bean

Sonia Silvente Keller, Pallavolu Maheswara Reddy, Erika Álvarez, Miguel Lara, Federico Sánchez, Guadalupe Zavala. silvente@ccg.unam.mx

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Antioxidant Capacity of Wild and Cultivated Damiana (*Turnera diffusa* Willd.) from Baja California Sur

Lluvia de Abril Alexandra Soriano-Melgar, Lilia Alcaraz-Meléndez, Lía C. Méndez-Rodríguez, María Esther Puente, Fernando Rivera-Cabrera, Tania Zenteno-Savín. tzenteno04@cibnor.mx

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Isolation and characterization of the *Phaseolus vulgaris* PvPAO4 gene encoding a polyamine oxidase

Tapia-Moreno MA, Guerrero-González ML, Guillen G, Sanchez F, Jiménez-Bremont JF, Rodríguez-Kessler M: mrodriguez@fc.uaslp.mx

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Evidence for individual non-overlapping roles by the inorganic soluble pyrophosphatase isoforms

Lilian Gabriela Valencia-Turcotte, Francisca Morayna Gutiérrez-Luna, María del Carmen Martínez-Normandía, Eric Edmundo Hernández-Domínguez, Rogelio Rodríguez-Sotres. sotres@servidor.unam.mx

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Effects of water deficit on root elongation and solutes accumulation in *Zea mays* L.

Sabina Velázquez-Márquez, Víctor Conde- Martínez, Carlos Trejo-López, Adriana Delgado-Alvarado, Aquiles Carballo Carballo, Ebandro Uscanga-Mortera. vconde@colpos.mx

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The analysis of the gene expression for transporters type antiporter Na⁺/H⁺ in *Mesembryanthemum crystallinum* suggests the involvement of *McNhx2* in response to stress by salinity

Norberto A. Warner-Urías, Mario Arce-Montoya, Carlos E. Angulo Valadez, Gracia A. Gómez-Anduro. ggomez@cibnor.mx

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Effect of water stress on content capsaicinoid in relation to its synthesis and degradation activity in the fruit of habanero (*Capsicum chinense* Jacq.)

Enid Zamudio-Moreno, Fátima Medina- Lara, Graciano Calva-Calva, Manuel Martínez-Estévez. enid@cicy.mx

PLANT NUTRITION

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Effect of Aluminium on coffee plants (*Coffea arabica*) cultivated in hydroponic conditions

Camilo Escalante-Magaña, Fátima Medina-Lara, Manuel Martínez-Estévez. luismanh@cicy.mx

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Molecular characterization of a high-affinity nitrate transporter, *CcNRT2*, from habanero pepper (*Capsicum chinense* Jacq.).

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***Arabidopsis MKO1* locus is required for maintenance of the auxin response pattern during primary root growth**

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Maribel Morales Cabrera, Baldomero Alarcón Zúñiga, Jesús Axacatl Cuevas Sánchez, Rosario Venegas Ordoñez. balarbon@correo.chapingo.mx

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