



BioCubagro2025

From biotechnological research to agricultural products

June, 8th - 13th
Varadero, Cuba



SCIENTIFIC PROGRAM

The most recent and novelties results in biotechnology applied to Agriculture.
The proactive relationship of Agriculture-biotechnological research between basic science and applied research.

+537 2504369

www.cigb.edu.cu/en/event/biocubagro-2025-2/

biocubagro2025@cigb.edu.cu

CIGB CENTRO
DE INGENIERÍA GENÉTICA
Y BIOTECNOLOGÍA





PROGRAMA / PROGRAM

Lunes 09 / Monday 09

Sala Melia Internacional I / *Room Melia Internacional I*

Sesión: Mejoramiento de plantas mediante ingeniería genética y edición de genomas/

Session: Improvements of plants by genetic engineering and genome editing tools

08:30 - 09:30 Conferencia plenaria / *Plenary lecture*

The use of Genetic Engineering to Address Future Food Security and Sustainability

Mario Pablo Estrada García

CIGB, Cuba

09:30 - 10:30 Conferencia plenaria / *Plenary lecture*

The experience of Brazil and EMBRAPA in editing plant genomes

Francisco Aragao

EMBRAPA, Brasil

10:30 - 11:00 RNAi-based Technologies for Management of Plant Viral Diseases

Basavaprabhu Patil

ICAR-Indian Institute of Horticultural Research, India

11:00 - 11:30 Merienda / *Coffee break*

11:30 - 12:00 Twenty years (2005-2025) of experience in the development of sugarcane transgenic events at ITANOA (EEAOC-CONICET)

Atilio Pedro Castagnaro

ITANOA, Argentina

12:00 - 12:30 Platform to improve maize and sugarcane using biotechnology and traditional methods

Pilar Tellez

CIGB, Cuba

12:30 - 13:00 Comprehensive approach to the soybean genetic improvement program by biotechnological methods at the CIGB

Gil Enríquez

CIGB, Cuba

13:00 - 13:30 Fronteras biotecnológicas en la producción de vainilla: avances en conservación, mejoramiento genético y procesamiento para una producción sostenible

Miguel Angel Esquivel Pérez

Instituto de Investigaciones de Ingeniería Agrícola, Cuba

13:30 - 15:00 Almuerzo / *Lunch*



Sala Melia Internacional I / Room Melia Internacional I

Sesión: Uso de las plantas como Biorreactores para la Producción de fármacos/ *Session: Use of plants as biorreactors for the pharmaceuticals production.*

15:00 - 15:30 Developing Mutant-Resistant Monoclonal Antibodies Effective Against All SARS-CoV-2 Variants Using Plant Biotechnology

Qiang "Shawn" Chen

Arizona State University, USA

15:30 - 16:00 Bridging Synthetic Biology and Molecular Farming: a copper sensor and geminivirus-based Processors for engineering gene circuits in plants

Elena García Pérez

Earlham Institute, United Kingdom (online)

16:00 - 16:30 Update on the approach to plant molecular farming at the CIGB

Abel Hernández

CIGB, Cuba

16:30 - 17:00 Updated Critical Analysis of the Potential of Transgenic Plants and Plant Cells for the Production of Monoclonal Antibodies and Recombinant Proteins.

Rodolfo Valdes Veliz

CIGB, Cuba

17:00 - 17:30 GBS-based genotyping and morphoagronomical characterization of cacao accessions from Cuban gene bank reveal their potential for breeding and production

Angel Rafael Ramírez Ramírez

Universidad de Guantanamo, Cuba

Martes 10 / Tuesday 10

Sala Melia Internacional I / Room Melia Internacional I

Sesión: Modelos de interacción planta-ambiente y uso de herramientas bioinformáticas avanzadas / *Session: Plant-environment interaction models and the use of advanced bioinformatics tools.*

08:30 - 09:30 Conferencia plenaria / Plenary lecture

Effect of Environmental conditions on Virus Infections, Gene Silencing and their implications on Virus Induced Gene Silencing (VIGS)

Basavaprabhu Patil

ICAR-Indian Institute of Horticultural Research, India



09:30 - 10:00 Rhizosphere bacteria for growth stimulation and increasing stress resistance of plants of the family Solanaceae
Ananyeva Iryna
Institute of Microbiology NAS, Belarus

10:00 - 10:30 Endophytic bacteria for increasing stress resistance of alfalfa *Medicago sativa*
Fedorenchik A.A.
Institute of Microbiology NAS, Belarus

10:30 - 11:00 Mechanism of copper accumulation in the marine alga *Ulva compressa* (Chlorophyta)
Alejandra Moenne
Universidad de Santiago de Chile, Chile

11:00 - 11:30 Merienda / Coffee break

11:30 - 11:50 Metabolization of polycyclic and linear hydrocarbons in the marine macroalga *Ulva lactuca* (Chlorophyta)
Alberto Gonzalez
Universidad de Santiago de Chile, Chile

11:50 - 12:10 Construcción de un modelo metabólico a escala genómica del hongo *Leucoagaricus gongylophorus* LEU18496 para el análisis de sus capacidades metabólicas a partir de datos ómicos.
Freddy Castillo Alfonso
Universidad Autónoma Metropolitana, México

12:10 - 12:30 Study of the secondary metabolite profile in *Trichoderma* spp. strains with antifungal activity using LC-MS technique
Beatriz Fernández Millares
Universidad de la Habana, Cuba

12:30 - 12:50 Epidemiology-based management strategies for citrus Huanglongbing
Renato B. Bassanezi
Fundecitrus, Araraquara SP, Brazil

12:50 - 13:10 Tracing microRNA targets in tomato plants infected with begomoviruses
Alejandro Fuentes Martínez
CIGB, Cuba

13:10 - 13:30 MicroRNA Analysis of Transgenic Tomato Plants Under Different Environments
Ricardo Bringas
CIGB, Cuba



13:30 - 15:00 Almuerzo / Lunch

Sala Melia Internacional I / Room Melia Internacional I

Sesión: Diagnóstico de enfermedades en plantas / *Session: Diagnosis of diseases in plants.*

15:00 - 16:00 Conferencia plenaria / Plenary lecture

A century of diagnostic improvements in a sugarcane pathology changing context: from symptom observation to molecular assays

Philippe Charles Emile Rott

CIRAD, France

16:00 - 16:30 Metagenomic Revolution: The Contribution of the VANA Approach and High-Throughput Sequencing Technologies (Illumina and Nanopore) for the Detection of Emerging Plant Viral Diseases

Denis Filloux

CIRAD, France

16:30 - 17:00 The development of next generation sequencing and specific e-probes for pathogen diagnosis in sugarcane

Claudia Jill Kaye

Sugar USA, USA

17:00 - 17:30 Non-invasive imaging of salicylic and jasmonic acid activities in planta

Anastasia V Balakireva

Planta LLC, Russia

17:30 - 18:00 Loop-mediated isothermal amplification (LAMP) reaction as viable PCR substitute for diagnostic applications in agriculture

Lianet Rodríguez Cabrera

CIGB, Cuba

Miércoles 11 / Wednesday 11

Sala Melia Internacional I / Room Melia Internacional I

Sesión: Actualización tecnológica en la producción de semillas de maíz y soja. Desarrollo de Agronegocios / *Session: Technological update in the production of corn and soybean seeds. Agribusiness Development.*

08:30 - 09:30 Conferencia plenaria / Plenary lecture

Hito e impactos del mejoramiento genético, la biotecnología y las buenas prácticas en la producción sostenible de soja.

Rodolfo Rossi

ACSOJA, Argentina



09:30 - 10:00 Estrategia y modelo de negocios de la industria semillera del maíz en el sur - sureste de México

Humberto Castro
Reycol Seeds, México

10:00 - 10:30 Application and Development of Innovation in Grain Seed Production. Business Model Propose.

Lincidio Pérez Sánchez
CIGB, Cuba

10:30 - 11:00 Shandong Lukang Heber Biotech Cuban-Chinese Joint Venture, a collaborative experience in agrobiotechnology

Marisela Suarez Pedroso
Heber Biotech, Cuba (online)

11:00 - 11:30 Merienda / Coffee break

11:30 - 12:00 Comportamiento de las variedades transgénicas de soya en el Occidente de Cuba

Rodolfo Ortiz Pérez
INCA, Cuba

12:00 - 12:30 Contribution of CENATOX to the estimation of environmental risk of genetically modified crops.

Odette Cecilia Beiro Castro
CENATOX, Cuba

12:30 - 13:00 Regulación de las Nuevas Técnicas de Mejoramiento (NBTs)

Martin Lema
Universidad de Quilmes, Argentina

13:30 - 15:00 Almuerzo / Lunch

Sala Melia Internacional I / Room Melia Internacional I

13:30 – 18:00 Posters Discussion

Jueves 12 / Thursday 12

Sala Melia Internacional I / Room Melia Internacional I

Sesión: Uso de Bioproductos en la agricultura/ *Session: Use of Bioproducts in agriculture.*

08:30 - 09:30 Conferencia plenaria / Plenary lecture

Potential of the National Academy of Sciences of Belarus in the field of chemical sciences for bioagrotechnologies

Aleksei Trukhanov
National Academy of Sciences of Belarus

09:30 - 10:00 Pesticide Effects of Highly Stable Green Synthesized Silver Nanocomposites to be Used in Organic Tomato Crops

Luis E. Trujillo

Universidad de las Fuerzas Armadas ESPE, Ecuador

10:00 - 10:30 A project for the validation of the efficiency of a nanobiopesticide for commercial use in agriculture

Carlos María Noceda

Universidad de las Fuerzas Armadas ESPE, Ecuador

10:30 - 11:00 Desarrollo de Bioinsumos- Caso AGROSAVIA -COLOMBIA

Martha Isabel Gómez Alvarez

Agrosavia, Colombia

11:00 - 11:30 Merienda / Coffee break

11:30 - 11:55 HeberNem: characteristics and uses.

Jesus Mena Campos

CIGB, Cuba.

11:55 - 12:20 Biostimulation of *Pseudoxanthomonas indica* H32 on chard, chinesse cabbage and cucumber

Ileana Sánchez Ortiz

CIGB Camaguey, Cuba

12:20 - 12:45 Estudio de evaluación de efectividad biológica de un promotor de la brotación en tubérculos de papa Fianna

Edgar López

México

12:45 - 13:10 Bioestimulantes de oligosacarinas en la activación del crecimiento, la nutrición, el rendimiento y la protección antiestrés en soya.

Alejandro B. Falcón-Rodríguez

INCA, Cuba.

13:10 - 13:35 Valorization of agro-industrial waste: Use of citrus peels for agricultural pest control

José Manuel Pais Chanfrau

Universidad Técnica del Norte, Ibarra, Ecuador

13:35 - 15:00 Almuerzo / Lunch



Sala Melia Internacional I / Room Melia Internacional I

Sesión: Enzimas con uso en la Agro-industria/ Session: Enzymes used in Agro-industry.

15:00 - 15:30 KestoZyme: basis of an integral solution to the main constraints of the current fungal-based technology for short-chain FOS production from sucrose

Carmen Menendez
CIGB, Cuba

15:30 - 16:00 Kestozyme, an opportunity for the production of fructooligosaccharides in a circular economy in the environment of a sugarcane biorefinery

Enrique Pérez
CIGB SS, Cuba

16:00 - 16:30 Purification of fructooligosaccharides obtained from sucrose by a recombinant yeast expressing a mutated levansucrase.

Duniesky Martínez García
CIGB SS, Cuba

16:30 - 17:00 Removal capacity and enzyme stability, two variables influencing recombinant dextranase enzyme performance

Arianne Rubio Sánchez
ICIDCA, Cuba

17:00 - 17:30 Silage as Nature's Factory: Innovations in Food Production, Bioenergy, and Sustainable Solutions

Andrea Martínez
Dundalk Institute of Technology, Panama

Viernes 13 / Friday 13

Sala Melia Internacional I / Room Melia Internacional I

09:00 - 10:00 Conclusiones / Conclusions

Posters/Carteles

1. Avances en la obtención de cultivares mejorados de frijol común (*Phaseolus vulgaris* L.) para cosecha mecanizada. Víctor Daniel Gil Díaz y cols., Cuba.
2. Development of a platform for the evaluation *in vitro* of the activity of biological compounds on the growth of *Sporisorium scitamineum*. Javier Lezcano Laguna *et al.*, Cuba.
3. Efficient *Agrobacterium*-mediated transformation of soybean meristematic explants by phosphomannose isomerase/mannose selection. Alejandro Morales Basulto *et al.*, Cuba
4. Establishment of an efficient sugarcane transformation protocol using *Agrobacterium tumefaciens*. Ivis Moran Bertot *et al.*, Cuba.
5. Evaluation of the drought resistance potential of glyphosate-resistant transgenic soybeans. Raidell Saenz Padrón *et al.*, Cuba.
6. Expression of the artificial microRNA156 in soybean leaves using a simple and efficient agroinfiltration protocol. Natacha Soto Perez *et al.*, Cuba
7. Histidine-tagged defensin fusion construct for integration in tobacco plants as model. Kenia Tiel González *et al.*, Cuba.
8. *In vitro* propagation of Citrus spp. a tool for plant production and genetic improvement. María Ileana Oloriz Ortega *et al.*, Cuba.
9. Increasing genetic diversity in a seed bank of transgenic corn by traditional techniques. Davel Espinosa Martin *et al.*, Cuba.
10. Molecular characterization by RAPD markers of different plant varieties obtained by mutations. Ingrid Hernandez *et al.*, Cuba
11. Obtaining bean plants resistant to the herbicide LifeLine. Yadira Sánchez Guerra *et al.*, Cuba.
12. RNA interference-based resistance in transgenic tomato plants against geminiviruses. Natália Faustino Cury *et al.*, Brasil.
13. B3 transcription factors from *Nicotiana* spp. activate the β -phaseolin promoter *in N. benthamiana* vegetative tissue. Liliam de los Ángeles Rodríguez Deyá *et al.*, Cuba.
14. New products with a dermo-regenerative effect derived from sericin hydrolysate. Yuliet Herrera Aguila *et al.*, Cuba
15. Production of recombinant hemagglutinin from avian influenza in plants. Carlos Enrique González González *et al.*, Cuba.
16. Rapid production of bovine FSH protein in *Nicotiana benthamiana* leaves. Yanaysi Ceballo Cámara *et al.*, Cuba.
17. Characterization of a new isolate of Rhynchosia golden mosaic Yucatan virus (RhGMYuV) identified in soybean crop in Havana. Natacha Carlos Victoria *et al.*, Cuba.
18. Clustering and differential expression analysis of small RNAs; an expression profiling of microRNAs in greenhouse and in field cultivated transgenic tomato plants. Julio Enrique Duque Vizcaíno *et al.*, Cuba
19. Evaluación de genotipos de tabaco frente a *Peronospora tabacina* D. B. Adam. Identificación del fragmento BRM1 asociado a la resistencia del moho azul. Verónica Toledo Sampedro *et al.*, Cuba
20. Fusarioids pathogens Causing Wilting of chilli Peppers (*Capsicum* spp.) in Mexico. Frank Angel Díaz Leyva *et al.*, Mexico.
21. Artificial parthenogenesis: a strategy for obtaining transgenic lines in *Bombyx mori* L. (lepidoptera, bombycidae). Adileidy Ruiz Barcenás *et al.*, Cuba.
22. Design of a molecular method for the diagnosis of *Phyllosticta citricarpa*, based on the amplification of MAT genes. Ana Margarita Manzano León *et al.*, Cuba.



23. Expression, purification and characterization of the capsid protein of the PMWaV-2 viral variant for the development of an immunodetection method associated with the pineapple wilt in Cuba. Ana María Guillén García *et al.*, Cuba.
24. Noninvasive diapause disruption by corona discharge: applications in *Bombyx mori* L., transgenesis. Daily Hernández Hernández *et al.*, Cuba.
25. Obtaining biological reagents for the development of a method for diagnosing sugarcane leaf scald. Angélica Romero Martínez *et al.*, Cuba.
26. Obtaining positive controls for the detection of two polymorphic regions in Cuban strains of 'Candidatus Liberibacter asiaticus'. Camilo Paredes Tomás *et al.*, Cuba.
27. Biological tools to enhance Cuban coffee production. Eduardo Canales López *et al.*, Cuba
28. Changes in the Sensory Profile of Robusta Coffee Through Controlled Fermentations with Yeasts and the Use of Natural Additives. Rafael Marcos Pimentel Pérez *et al.*, Cuba.
29. Chemical macroelements in soils of protected cultivation houses treated with *Pseudoxanthomonas indica* H32. Raúl González Riis *et al.*, Cuba.
30. Effect of HeberNem-S Application on Papaya Cultivation Under Open-Field Conditions. Yanara de la Victoria Portell *et al.*, Cuba.
31. Effect of HeberNem-S application on papaya seedlings. Sandra María Arias López *et al.*, Cuba.
32. Effect of *Pseudoxanthomonas indica* H32 on the growth of *Beta vulgaris* var cicla in organoponic. Dulemy Carrazana Granado *et al.*, Cuba
33. Effectiveness of Cuban bioproducts on the acclimatization of plantain and sweet potato cultivars propagated by *in vitro* culture. Yoel Beovides García *et al.*, Cuba.
34. Effects of HeberNem-S on tobacco germination in seedbeds. Matilde Sotomayor Pérez *et al.*, Cuba.
35. Efficacy of *Pseudoxanthomonas indica* H32 for root-knot nematode (*Meloidogyne* spp.) control and growth promotion in protected horticultural crops. Ramón Franco Rodríguez *et al.*, Cuba.
36. Ensayos *in vitro* del efecto antagónico de diferentes cepas bacterianas frente a dos cepas de *Phytophthora parasitica* Breda de Haan. Rayza M. González R y cols., Cuba.
37. Good practices to establish agricultural bioassays. Yuniór López *et al.*, Cuba
38. Evidence of the safety of the HeberNem-S bioproduct for its national and international commercialization. Licette León Barreras *et al.*, Cuba.
39. Hebernem /Aikexian Product Technology Transfer. Introduction to China's Agricultural Production. Marisela Suarez Pedroso *et al.*, Cuba.
40. New strains with antagonistic activity against phytopathogens with potential for protection against abiotic stress. Danalay Somontes Sánchez *et al.*, Cuba.
41. Phylogenetic comparison of serine proteases from *Pseudoxanthomonas indica* H32 with those from other nematocidal microorganisms. Kimberly Aguilar Rodríguez *et al.*, Cuba.
42. Predictive models to optimize coffee sensory profiles through metabolic interactions in bean fermentation with microbial consortia. Yailen Valdes Ruiz *et al.*, Cuba
43. Recent progress in the synthesis of silk fibroin nanoparticles: a novel delivery system for bioactive molecules. Osmani Chacón Chacón *et al.*, Cuba.
44. Secondary metabolites and extracellular proteases contribute to the antagonistic action of indigenous *Trichoderma* strains against *Botrytis cinerea*. Annia Hernández Rodríguez *et al.*, Cuba.
45. Alternativas para el control del almidón en la industria azucarera. Héctor Luis Ramírez Pérez y cols., Cuba.
46. Bi-enzymatic transformation of sucrose for the diversified production of fructooligosaccharides. Odet Céspedes Hernández *et al.*, Cuba.

47. Determinación de las propiedades estructurales y operacionales del biocatalizador Quitina-Quitosa-Invertasa. Leissy Gómez Brizuela y cols., Cuba.
48. Estabilidad de β -mananasas en el extracto enzimático producido por *Bacillus subtilis* E44. Madyu Matos Trujillo y cols., Cuba.
49. Evaluation of competitive inhibitors on chimeric dextranucrase enzyme DSR-F- Δ SP- Δ GBD-CBM2a produced in *E. coli* JM109. Camila Rojas Cos *et al.*, Cuba.
50. Switching regioselectivity in the fructooligosaccharides synthesis by *Gluconacetobacter diazotrophicus* levansucrase. Ana Gabriela Martínez Peña *et al.*, Cuba.
51. Analysis of the inorganic components that affect the quality of irrigation water in the experimental plot. Dalgys Ercia Rodríguez-Mena *et al.*, Cuba.
52. Determination of heavy metals in original seed of transgenic corn and soybeans. Licette León Barreras *et al.*, Cuba.
53. Production and increase of liquid inoculant based on *Bradyrhizobium japonicum* to obtain 300 hectares of certified soybean seed. Camilo Ferrero García *et al.*, Cuba.
54. Protection of soil resources on the CIGB experimental plot. Leonardo González Herrera *et al.*, Cuba
55. Strategy for increasing soybean crop productivity. Claudia de la Caridad Viel Portuondo *et al.*, Cuba.
56. Biophysical-chemical monitoring of the soil from post-sowing to post-harvest of areas planted with hybrid corn H-Ame 15. Ana Cristina Noa Rodríguez *et al.*, Cuba
57. Considerations for non-regulation of transgenic soybeans carrying the GTS 40-3-2 transformation event in Cuba. Leyenis García Santos *et al.*, Cuba
58. Detección e identificación de Organismos Genéticamente Modificados: Un pilar para la seguridad alimentaria. Madeline Blanco de Armas y cols., Cuba.
59. Installation of soil-based techniques for environmental monitoring of genetically modified crops. Vivian Prevot Cazón *et al.*, Cuba.
60. International Standards and Regulatory Environment of Agricultural Products of the CIGB. Jesus Mena Campos *et al.*, Cuba.
61. Managing biosafety related to genetically modified crops through agricultural extension. Leyenis García Santos *et al.*, Cuba.
62. Monitoring and Surveillance System for Adverse Effects of Genetically Modified Organisms in Cuba. Marvis Esther Suárez Romero *et al.*, Cuba.
63. Sistema de Gestión y Acreditación de la PCR en tiempo real para la Detección e Identificación de Organismos Genéticamente Modificados en Soya para Alimento Humano y Animal. Arsenio Betancourt Bravo y cols., Cuba.
64. Surveys for monitoring the adverse effects of genetically modified crops. Yordanka Domínguez Linares *et al.*, Cuba
65. Toxicological profile of hybrid corn with the transgenic events MIR162 and TC1507. Licette León Barreras *et al.*, Cuba.
66. El impacto y uso de la inteligencia artificial: desafíos científicos-biotecnológicos para el logro de una agricultura sostenible. Oscar J. Villar Barroso y cols., Cuba
67. Enfoque ciencia-tecnología-sociedad en el proceso de investigación agrobiotecnológico: un desafío permanente. Yurama Cardet Chaveco y cols., Cuba.
68. Integrated management system with it platform for the agricultural research area at the Center for Genetic Engineering and Biotechnology. Ivon Menendez Valdés *et al.*, Cuba.
69. Key trends for the global agribusiness and biotechnology sector in business management and regulatory affairs. Adrian Griñan Cardet, Cuba.
70. Citrus disease management using plant elicitors. Meilyn Rodríguez Hernández *et al.*, Cuba.



BioCubagro2025
From biotechnological research to agricultural products

June, 8th - 13th
Varadero, Cuba

Notes/Notas