



**VIII International
Scientific Seminar
of Plant Protection
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**"The transition of the Cuban Agriculture
to Sustainability"**

April 10-14, 2017.
Palace of Conventions in Havana, Cuba



DEAR (A) S COLLEAGUES:

The Plant Health Research Institute (INISAV) and the Directorate of Plant Health of the Ministry of Agriculture, are pleased to invite you to the VIII International Scientific Seminar of Plant Protection, "The transition of the Cuban Agriculture to Sustainability", to be held from 10 to 14 April 2017 in Havana, Cuba.

As in its previous editions, this Seminar aims to be a specialized and inclusive forum to discuss the latest scientific outcomes and innovative experiences in areas of plant health that we have identified as being of mutual interest to Cuba and other countries.

Professors, researchers, graduate students, entrepreneurs, governmental agents and executives will have a unique opportunity to share their experiences and demands, and at the same time discuss about the future of plant health in the context of the transition towards a sustainable and resilient agriculture to climate change, among other emerging concerns.

Simultaneously there will be a trade fair in order to promote products and technologies and to identify future business and innovation collaborations.

You will have also the opportunity to experience the Cuban culture through its capital, Havana, particularly the "Old Havana" considered a World Heritage Site. You will also have the opportunity to enjoy the Viñales Valley in Pinar del Rio or Varadero beach Matanzas which are located just a few kilometers west and east from Havana city respectively.

For more information and updates you can access the site [http: www.inisav.cu](http://www.inisav.cu) or you can contact the organizing committee via e-mail: seminariointernacional2017@inisav.cu

Dra. Marlene M. Veitía Rubio
Director of INISAV

Ing. Gilberto Hilario Díaz López
Director of Plant Health

Especially dedicated to:

*Dr. Jorge Gomez Souza, Entomologist. UCLV.
Dr. Gonzalo Dierksmeier Corcuera, Chemist. INISAV*

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Plant Health Directorate (DSV)
Cuban Ministry of Agriculture (MINAG)
Palace of Conventions in Havana, Cuba

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International Organization for Biological Control (OICB)
Latin American Scientific Society of Agroecology (SOCLA)
University of Florida (UF)
Center for International Cooperation in Agronomic Research for Development (CIRAD)

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THEMATIC AREAS

Room 3. Arthropod, mollusk and mammal plant pests and their management.

- » Diagnosis, variability and pest surveillance
- » Bioecology, nuisance and monitoring
- » Genetic resistance
- » Control methods
- » Management of cropping and production systems

Room 5. Workshops.

- » "First Scientific Meeting between INISAV, University of Florida and University of Havana".
- » Nematodes: diagnosis and management.
- » Biopesticides and pest bioregulators. Legislation and regulation. Impact on production systems.

Room 9. Round tables.

- » Pesticides and chemical analogues. Waste, quality and impact to the environment. Remediation methods. Legislation and regulation.
- » Food Security and Food Safety
- » Weeds and management. Biologic control.
- » Quality management system
- » Environment and Climate Change.
- » Information and Communication. Plant Health extension.

Room 11. Impacts of phytopathogens on production and their management

- » Etiology, variability and diagnostic systems.
- » Epidemiology, surveillance and early detection
- » Emerging and high risk pathogens impacts to food sustainability.
- » Genetic resistance and pathogen/host interaction.
- » Cultural management, antagonists, natural substances and soil health.
- » Plant pathogens Integrated management in cropping systems.

Room 8. IV Latin American and Caribbean Symposium.

“Acari Biodiversity: Use, Protection and Conservation”

Themes to be addressed:

- » Taxonomy, phylogeny and related topics.
- » Bioecology and Management.
- » Mites as vectors of diseases in man, animals and plants.
- » Mites as invasive pests.
- » Methods and techniques of work.
- » Facilitation mechanisms of Information (Database, collections, etc.)
- » Teaching undergraduate and graduate.

General Program:

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00-10:30		KEYNOTE	Field day	KEYNOTE	KEYNOTE
10:30-11:00		Coffee break		Coffee break	Coffee break
11:00-13:00		Sessions		Sessions	Sessions
13:00-14:30	Accreditation	Lunch		Lunch	
14:30-17:00	Official opening. Welcome cocktail	Sessions		Sessions	Official Closing and Farewell lunch
17:00-19:00					



SPECIAL SESSIONS:

*“First Scientific Meeting between INISAV, University of Florida and University of Havana “.
Workshop on pests in sugar cane crop.*

*IV Latin American and Caribbean Symposium.
“Acari Biodiversity: Use, Protection and Conservation”*

ABSTRACT SUBMISSION GUIDELINES METHOD: ORAL AND POSTERS

- » Presentation can be in English or Spanish
- » Abstracts should be restricted to 250-300 words (excluding title, authors' names and institutions) in a single paragraph and using single line spacing, Arial Narrow 9 point font and be justified.
- » Use paper Letter size (8½ x 11). The text should fit in a box of 15 cm wide by 12 cm long (see examples below).
- » The title should be capitalized, except scientific names, and in bold 10-point font. Title must be in English and Spanish.
- » The authors will be placed after the title including the first name initial and last name using a 9-point font. If authors are from several institutions they should be indicated by a number in superscript. The author submitting the contribution will be indicated by underlining the name and include his/her email.
- » The name of all institutions will be included in numerical order including their address.
- » The abstract must include: a brief introduction of the topic, objective of the study, brief materials and methods, statistical analysis, results and conclusions. No references are included.
- » Scientific names should be written in italics.
- » All units must be submitted in metric system and do not use words for numbers.
- » For better indexation include up to five keywords (that may not be included in the title).
- » Abstracts not meeting the requirements will be automatically rejected.

MICROBIAL ENDOPHYTES TO IMPROVE BANANA PRODUCTIVITY AND REDUCING LOSSES CAUSED BY FUSARIUM WILT OF BANANA

MICROORGANISMOS ENDÓFITOS PARA MEJORAR LA PRODUCTIVIDAD DEL BANANO Y REDUCIR PÉRDIDAS OCASIONADAS POR LA MARCHITEZ POR FUSARIUM DE LOS BANANOS

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Durante los años 1930-1960 la marchitez por *Fusarium oxysporum* f. sp. cubense raza 1 (FocR1), causó la pérdida de miles de hectáreas de bananos 'Gros Michel' (AAA) en Latinoamérica y el Caribe y determinó el reemplazo de este cultivar por clones resistentes del subgrupo Cavendish. El patógeno es un problema aún para los productores que cultivan variedades susceptibles para autoconsumo y venta local. Se condujeron estudios sobre la diversidad funcional de microorganismos endófitos de *Musa* spp. y su posible aplicación para mejorar el rendimiento del cultivo y reducir pérdidas causadas por la marchitez por *Fusarium*. Estudios *in vitro* revelaron que 15 bacterias y 22 hongos endófitos, aislados de tejidos sanos de *Musa* spp., inhibieron el crecimiento micelial de FocR1 entre 20 y 58% y 40-52%, respectivamente. Cuatro aislamientos endófitos de *Trichoderma asperellum*, retrasaron por dos semanas la aparición de síntomas de la enfermedad invernadero y redujeron significativamente los síntomas de amarillamiento (29-35%), marchitez (39-46%) y decoloración del rizoma (39-50%), en comparación con el testigo. Resultados de parcelas experimentales establecidas en CORBANA, Costa Rica, mostraron el potencial productivo de plantas de 'Gros Michel' inoculadas con estos endófitos y fertilizadas únicamente con abono orgánico. El aislado GM15 (*T. asperellum*) presentó los mejores resultados en el crecimiento de las plantas (3,22 m), una producción más precoz (372 días) y mayor peso promedio de racimos (32 kg) comparado al testigo (3,17 m, 386 días, 31 kg). De 180 plantas evaluadas, sólo una presentó síntomas de enfermedad, lo que podría atribuirse a baja presión de inóculo en el suelo. Se están desarrollando en Costa Rica estudios con aplicaciones combinadas de estos microorganismos, enclado y aplicaciones frecuentes de materia orgánica, como estrategia para incrementar la productividad del cultivo y reducir las pérdidas ocasionadas por Foc.

Palabras clave: mal de Panamá, *Trichoderma*, Gros Michel, microorganismos promotores de crecimiento.

FIRST REPORT OF CUSHION GALL OR GREEN POINT BALL OF COCOA BY *Albonectria rigidiuscula* (*Fusarium decemcellulare*) IN CUBA.

PRIMER REPORTE DE LAS AGALLAS DE COJINETE O AGALLAS DE PUNTO VERDE DEL CACAO POR *Albonectria rigidiuscula* (*Fusarium decemcellulare*) EN CUBA.

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In Cuba, 8900 ha of cocoa (*Theobroma cacao*) warrant the country production of chocolate by products. During national 2009-2010 cocoa diseases surveys, cushion galls and witches broom like symptoms were found in cocoa trees in Baracoa, Caujeri valley and Cienfuegos city locations. Symptoms consist in a disorganized meristem growth of caulinary primordia, developing to vegetative gnarl galls as small green points cushion balls with or without flower super production. Galls eventually develop as a witches broom with some 15-20 cm length offshoots that finally die and dry with an occasional white-grayish fungal mycelia surface growth. Branches with galls and pieces of galls tissues, were disinfected with 3% NaClO₃, placed in humid chambers and plated in water agar plus 100 µg/ml chloramphenicol. Fungal growths obtained were isolated on PDA media. On the surface of galls and the agar, growths of a *Fusarium* sp. with conspicuous macroconidia, tubular in shape, having straight and curved thick walls in both sides of the conidia, 3-9 septa, a hooked and rounded apical cell and a footed basal cell, 27-77 x 3-5 µm, developed from sporodochia and phialides. Microconidia develop in chains from monophialides in simple and ramified conidiophores, oval, 0-1 septa, 6-16 x 3-5 µm, with a plain papillae in the basal cell (23-40 µm). Chlamydsopores absent. Colonies in PDA have white cream mycelia with an intense rose pigment. Symptoms and fungus morphology are coincident with descriptions of cushion gall disease of cocoa and *Fusarium decemcellulare*, anamorph of *Albonectria rigidiuscula*. This is the first report of cushion gall disease of cocoa by *Albonectria rigidiuscula* in Cuba.

Key Words: disease; buba; witches broom like symptoms; gnarl galls

The posters will be presented in sizes 1 X 1 m.

The abstracts should be sent by e-mail to the Scientific Committee (Seminariointernacional2017@inisav.cu) in digital format before December 20, 2016. The Scientific Committee will review the abstracts and if necessary suggest edits to the authors. Final submissions should be returned to the Scientific Committee before January 25, 2017.



OFFICIAL LANGUAGES:

Spanish and English

REGISTRATION FEES:

Delegates 400.00 CUC

Speakers: 350.00 CUC

Students: 350.00 CUC

Companion, Spouse: 100.00 CUC

The registration fee for speakers and delegates include: folder, program, lunch, seminar reports and certificates of the event, welcome and closing activities.

The registration fee for accompanying persons includes: participation at the opening and closing sessions, welcome and closing activity

All information concerning prices, rules for participation, conditions for shipping goods, etc., may be obtained through the Department of Fairs and Exhibitions, Palace of Conventions in Havana.

Concurrently to the seminar, the main lobby of the Convention Center will host a fair which will be open to domestic and foreign scientific and educational institutions, companies, laboratories, groups and associations of agricultural producers, as well as specialized firms.

The price of the interior modular stand is of 110.00 CUC per m² for the duration of the event, and includes:

- » Stand with white modular panels 94.8 X 2.42 m.
- » Participation in all activities of the event.
- » Electricity consumption for up to 500 W
- » Label with the name of the institution.
- » Stand cleaning.
- » Certificate of participation.

The minimum rental stand is 9m² (3 X 3m).

If you want to make a free design, the price of the unassembled space is 100.00 CUC / m², this covers the whole period of the exhibition and includes:

- » Electricity consumption for up to 500 W.
- » Participation in all activities of the event.
- » Credentials according to the contracted m².
- » Stand cleaning.
- » Security of samples after the close of the exhibition.
- » Certificate of participation.

The minimum rental space is 9 m².

The location will be defined according to the order in which applications are received and with the approval of the Organizing Committee.

Facilities for renting audiovisual equipment, furniture and

other offers at the current rates at the time of recruitment, will be offered.

All information concerning prices, rules for participation, conditions for shipping goods, etc. can be obtained through the Department of Trade and Exhibition Palace of Conventions in Havana.

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