

RESUMEN DEL SEGUNDO SEMINARIO INTERNACIONAL DE SANIDAD AGROPECUARIA (SISA)

**Coexistence of «*Candidatus Phytoplasmas asteris*» and begomoviruses in Cuba:  
Case studies in Fabaceous crops**

**Coexistencia de «*Candidatus Phytoplasmas asteris*» y begomovirus en Cuba: Estudio de casos  
en cultivos de Fabáceas**

**Madelaine L. Quiñones<sup>I\*</sup>, Karel Acosta<sup>II\*\*</sup>, Loidy Zamora<sup>I</sup>, Ileana Miranda<sup>I</sup>, Berta Piñol<sup>I</sup>,  
Maria Elena Santos-Cervantes<sup>III</sup>, Jesús Méndez Lozano<sup>III</sup>, Norma Elena Leyva López<sup>III</sup>,  
Gloria Patricia Urquiza<sup>IV</sup>, Fabio Nascimiento Silva<sup>IV</sup>, Robert M. Leyva Martínez<sup>IV</sup>,  
Marelys Hidalgo<sup>I</sup>, Claudine Marcia Carvalho<sup>IV</sup>, Francisco M. Zerbini<sup>IV</sup>**

<sup>I</sup>Laboratorio de Virología Vegetal Molecular, Centro Nacional de Sanidad Agropecuaria (CENSA), Mayabeque, Cuba.

\*Email: [madeqp@censa.edu.cu](mailto:madeqp@censa.edu.cu)

<sup>II</sup>Universidad de Las Tunas, Las Tunas, Cuba. \*\*Email: [karelap@ult.edu.cu](mailto:karelap@ult.edu.cu)

<sup>III</sup>Laboratorio de biología molecular de patógenos de plantas, CIDIR-IPN Unidad Sinaloa. Sinaloa, México.

<sup>IV</sup>Departamento de Fitopatología, Universidade Federal de Viçosa, 36570-900 Viçosa, MG, Brasil.

<sup>V</sup>Unidad de Extensión, Investigación y Capacitación Agropecuaria de Holguín (UEICAH), Cuba.

The emergency of diseases caused by begomoviruses and phytoplasmas continues increasing. In Cuba, «*Candidatus Phytoplasma asteris*» affect diverse hosts and the begomoviruses have emerged among the principal pathogens limiting the production of solanaceous and bean crops. Nowadays, studies for their individual identification are leading. However, there are unknown aspects such as their coexistence, the indicators of their presence, as well as the molecular identity of the possible agent associated with the symptom complex. In the last years, the observation of diverse symptoms in the field, along with the incidence of whiteflies and high populations of leafhoppers, suggests the presence of mixed infections by these pathogens. Samples from symptomatic plants were analyzed. In bean crops, samples with predominant symptoms of golden yellow mosaic from the eastern and western regions of Cuba were collected. In soybean crops, samples showing diverse symptoms from the eastern region were evaluated. Technologies of nested PCR allowed detecting *Candidatus Phytoplasma asteris* in these plants. The RCA/RFLP's methodology made possible the characterization of complete genomes of begomoviruses present in these crops. High indexes of infection by both pathogens were observed in individual detection and in mixed infections. The statistical analysis showed a high probability of co-infection occurrence when the presence of phytoplasmas was detected in first instance. The high indexes in the coexistence of both entities suggest to detail into interaction studies among these that allow the design of major efficiency measures for the fabaceous crops management.