

STUDY ON THE ORIGIN OF CACAO SWOLLEN SHOOT VIRUS AND ITS DISPERSAL ON CACAO TREES IN WEST AFRICA.

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BACKGROUND and OBJECTIVES

Cacao swollen shoot virus (CSSV) is a member of the family Caulimoviridae, genus Badnavirus naturally transmitted to *Theobroma cacao* by several mealybug species. Typical symptoms of the disease on cocoa trees are red vein banding of young leaves, mosaic on older leaves and swelling of the orthotropic shoots. The virus, restricted to West Africa whereas the cacao tree originates from the Western Hemisphere, could therefore most probably have an indigenous origin on the West African subcontinent. The disease has caused enormous economic damage in Ghana since the 1930s but was only restricted to small areas in Togo and Côte d'Ivoire until recently. Now, renewed outbreaks in the main producing areas in Côte d'Ivoire, Ghana and Togo cause serious problems. The knowledge of the viral biodiversity in the different outbreaks will in turn help to provide a better understanding of the development of the epidemics, and of the evolution of viral populations and may permit to retrace the emergence and dispersal of CSSV.

MATERIAL and METHODS

Prospections were made over several successive years in Ivory Coast, Togo and Ghana. Virus variability was studied by PCR amplification with CSSV primers, direct sequencing, sequence alignment and phylogenetic studies.

RESULTS

CSSV diversity is genetically structured in twelve groups according to the diversity in the first part of ORF3 and the 20% threshold of nucleotide divergence. However, according to ICTV recommendations which consider the nucleotide diversity in the RTase region, we could describe at least seven different species.

CONCLUSIONS

The high variability observed within CSSV populations compared to its very short evolutionary history on cocoa trees, suggests the existence of many emergences from native hosts to cacao trees in the various countries of West Africa. Moreover, based on the geographical dispersal of the different species, we could propose the existence at different times of parallel emergences in each of the West African countries.

Building bridges between disciplines for sustainable management of plant virus diseases



13th International Plant Virus Epidemiology Symposium
6-10 June 2016, Avignon, FRANCE

Programme and Abstracts