

8-Comparative study of the prevalence and diversity of Banana streak viruses (BSV) in plantain interspecific hybrids in the Dominican Republic

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Banana and plantain (*Musa* spp.) are major staple food and cash crops in the Dominican Republic. However, production suffers from Black Sigatoka disease (BSD), a severe foliar disease caused by the fungus *Mycosphaerella fijiensis* Morelet. Several BSD-resistant interspecific *Musa acuminata*(A) x *Musa balbisiana*(B) banana and plantain hybrid varieties were introduced in the late 1990s in the Dominican Republic as an alternative to chemical control of *M. fijiensis*, especially plantain hybrid species FHIA21. However, it was later shown that *M. balbisiana*(B) progenitors harbor infectious endogenous sequences of Banana streak virus (eBSV) [1] and that these sequences can lead to spontaneous infections in created and natural interspecific hybrids, following abiotic stresses including cell culture and temperature differences [2].

In order to assess the risk of spreading BSV in the Dominican Republic through large scale distributions of created plantain interspecific hybrids, a preliminary survey was conducted in order to compare the prevalence and diversity of BSV species in hybrid FHIA21 (AAAB) and a local plantain cultivar, Macho X Hembra (AAB), which is a natural interspecific hybrid. Samples were collected in a selection of plots located in the main production area of plantain in the Dominican Republic and representative of the diversity of environmental and growing conditions (temperature, rainfall). All samples were indexed for the four main BSV species, including BSOLV, BSI_mV and BSGFV for which the existence of infectious eBSVs has been demonstrated. eBSV signatures were established for each sample group and correlated to indexing results. The presence of mealybugs (*Planococcus* spp.), which are BSV natural vectors, was monitored on each sampling site and taken into account in a multifactor analysis. Results show that the level of prevalence of some BSV species is significantly higher in FHIA21 than in Macho X Hembra, and suggest that this difference results from increased activation of infectious eBSVs in FHIA21.

Keywords: banana streak viruses; eBSV; activation; plantain; banana;

References

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