



BIODIVERSITY PRESERVATION of THE AGROFORESTRY ECOSYSTEMS in GUADELOUPE: ASSESMENT of CROP HEALTH STATUS and SANITATION

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CONTEXT:

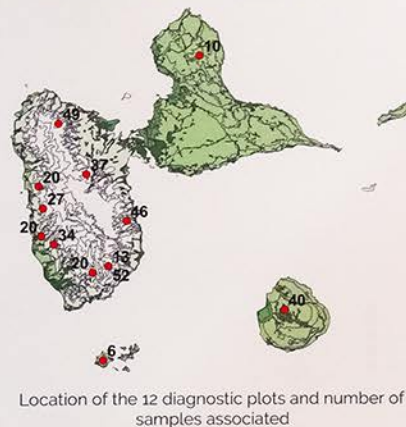
- Lack of scientific studies on viral infection and its damages over agroforestry crops in tropical context.

OBJECTIVES :

- Contribute to improving global knowledge on Guadeloupe's agroforestry by :
 - Identifying the different varieties of **yam** (*Dioscorea* spp.), **banana** (*Musa* spp.), **pineapple** (*Comosus comosus*) and **vanilla** (*Vanilla & pompona*) grown in the undergrowth
 - Visually characterizing the **global crop health**
 - Analyzing the **viral sanitary status of major crops** by molecular tests

Thanks to this study, the presence of several viruses infecting vanilla has been confirmed. Such studies are a first in Guadeloupe.

METHODOLOGY



Viral sanitary status

To test sanitary status for each species*

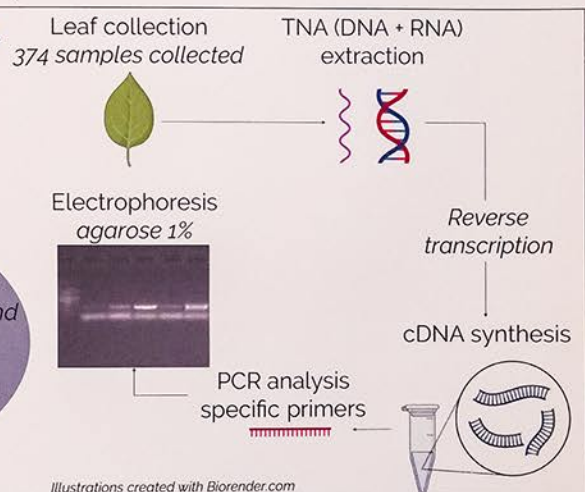
- ✓ Banana → 5 viruses
- ✓ Vanilla → 6 viruses
- ✓ Pineapple → 10 viruses
- ✓ Yam → 14 viruses

Global crop health

Visual observations
To identify pests and viral vectors and evaluate the global crop health



* For protocol details see <https://www.anses.fr>



PRELIMINARY RESULTS

Global crop health

The field investigations led to the discovery of symptomatic plants and several insects which could potentially transmit viruses:

- Mealybug (*Dismicoccus*)
- Green aphids (*Acyrtosiphon pisum*)
- Blue leafhopper (*Cicadella viridis*)

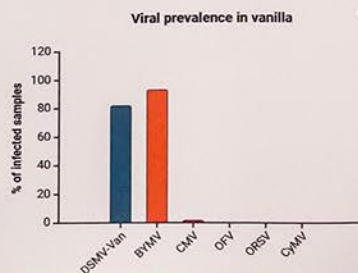


Vanilla leaf infested by mealybugs (*Dismicoccus neobrevipes*) showing a severe chlorotic spot

Viral sanitary status

3 out of 6 viruses tested were detected in 60 vanilla samples :

- 2 were highly prevalent: DSMV-Van and BYMV
- CyMV, OFV and ORSV were not detected
- Coinfection were found to be very common between BYMV and DSMV-Van.



PERSPECTIVES

- Assess further samples of vanilla, yam, banana and pineapple for presence of viruses in crops
- Evaluate the correlation between the viral status of crops and the symptom observations
- Introduction of elite varieties in *in vitro* collection of the biological resources center for tropical plants (BRC-TP) to preserve the crop diversity found in agroforestry ecosystems (sanitized for viruses if necessary)



Vanilla axillary bud *in vitro*

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