

Workshop 2

Towards a more sustainable plant protection in the Indian Ocean region: a need for more science

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Recent pest introductions into Réunion

- Higher risk due to an increase of worldwide movements of plants and plant parts (free trade)
 - TYLCV/*Bemisia tabaci* biotype B
 - *Xanthomonas axonopodis* pv. *allii*
 - *X. axonopodis* pv. *dieffenbachiae*
 - *Plasmodiophora brassicae*
 - *Bactrocera zonata*
- A good knowledge of pathogens and pest at the regional scale = a key for protecting local agricultures

Regional Plant Protection Programme

- Coordinated by the Indian Ocean Commission
- 2003-2006
- Comoros, Madagascar, Mauritius, Réunion, Seychelles
- Topics
 - Development of a plant protection network
 - Harmonization of phytosanitary legislations
 - Quality control (pesticides, plant germplasm)
 - Applied research
 - Training


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Regional Plant Protection Network


- Improving communication between countries
- Improving knowledge of operators
- Updating lists of harmful organisms
- Improving pest risk analyses and control
- Allowing the setting of alerts and emergency measures
- Generating questions to open up new fields of research

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Plant pathology research topics (Réunion)


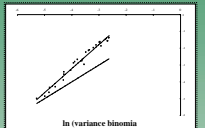


- Plant protection centre
- Molecular diagnostic
 - Sensitive and specific **detection** by PCR or hybridization
 - **Identification** and **taxonomy**
- Epidemiology
 - **Quantitative** epidemiology
 - **Molecular** epidemiology

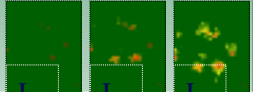
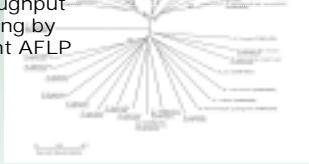


High throughput genotyping by fluorescent AFLP



Onion bacterial blight : a seedborne pathogen and seed-transmitted disease

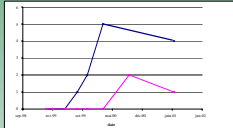



Bacterium responsible for onion blight
Xanthomonas axonopodis pv. *allii*

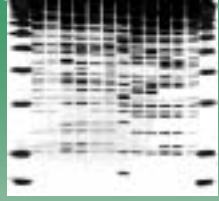
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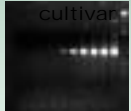
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Effect of partial resistance in mango on the spatial structure of bacterial black spot epidemics



Changes in population structure of *Xanthomonas* sp. pv. *mangiferaeindicae* on a partially resistant mango cultivar



Citrus canker
Anthurium blight
Bacterial wilt

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2006: plant protection on a regional basis

- Defining a list of major threats for regional agricultural systems
 - Based on commercial exchanges
 - Emerging pathogens
 - Pathogens for which control is difficult to achieve
 - Harmful pathogens of perennial hosts...
- Improving pest risk analyses
 - Efficient diagnostic techniques
 - Molecular epidemio-monitoring
 - Biology and epidemiology of pathogens