

# Ralstotracing

## Epidemiological surveillance of *Ralstonia solanacearum*, causal agent of bacterial wilt of solanaceous crops, in the South-West Indian Ocean islands and Eastern Africa, diversity and genetic structure of populations

### ABSTRACT

Epidemiological surveillance of plant pathogens allowing identification of emerging clones escaping control strategies and tracing of bacterial strains are of great importance for integrated plant protection. *Ralstonia solanacearum* is the causal agent of bacterial wilt one of the most damaging plant bacterial diseases worldwide.

**Keywords :** Agroecology, Plant, Genomics, Bio-aggressor, Operation/adaptation, epidemiology, Genetic diversity, Method/tool/technic, South west indian ocean, 1. Exclu de la photothèque

**Year :** 2014

**Project number :** 1403-011

**Type of funding :** AAP OS

**Project type :** AAP

**Research units in the network :** BGPI-PHIM IPME-PHIM

**Start date :** 2015-04-01

**End date :** 2017-03-31

**Flagship project :** no

**Project leader :** Stephane Poussier

**Project leader's institution :** CIRAD

**Project leader's RU :** PVBMT

**Budget allocated :** 180000 €

**Total budget allocated ( including co-financing ) :** 180000 €

**Funding :** Labex

### GOAL

Analyze the genetic diversity of *R. solanacearum* in South-West Indian Ocean (SWIO) islands and Eastern Africa.

Characterize the evolutionary forces that shape populations of *R. solanacearum* in these geographic areas.

Evaluate genetic resources for resistance to bacterial wilt (mainly for potato).

Validate molecular diagnostic tools available or under development. And, set-up an epidemiological surveillance network involving international research and education institutions, professional actors in the agricultural world, and a start-up.

### ACTION

Field surveys in each country (collection of populations).

Molecular characterization of strains.

Genetic structure analysis of populations at different spatial and temporal scales.

Evaluation of genetic resources for resistance to bacterial wilt.

Development and validation of diagnostic tools. And, organization of kick-off and closing meetings and training sessions for knowledge sharing and capacity building both on *R. solanacearum* and the

technologies.

## RESULTS

Complete overview of epidemiological situation of *R. solanacearum* in the SWIO islands and Eastern Africa.

Identification of the migration routes of *R. solanacearum*.

Identification of bacterial wilt resistance sources.

Development and adaptation of new effective and reliable diagnostic tools for *R. solanacearum*.

New epidemiosurveillance network. And, strengthening cooperation between Labex Agro Units, ANSES, CGIARs, SWIO institutions.