

Eucalyptus Pine Pathogen Interactions

EPPI

OBJECTIVE

The EPPI Programme was initiated in 2007 as a subsidiary of Forest Molecular Genetics (FMG) Programme with the aim of investigating the genomics and molecular biology of defense responses of forest trees to various pathogens.

APPROACH

- *Arabidopsis thaliana* is used to model plant-pathogen interactions in *Eucalyptus* or *Pinus* in order to understand and identify resistance mechanisms that can be manipulated in trees.
 - We undertake a genomics approach to perform gene discovery in *Arabidopsis*, *Eucalyptus* and *Pinus*.
- Candidate genes are functionally characterised in model systems such as *Arabidopsis* and *Poplar*

Research Team 2010:

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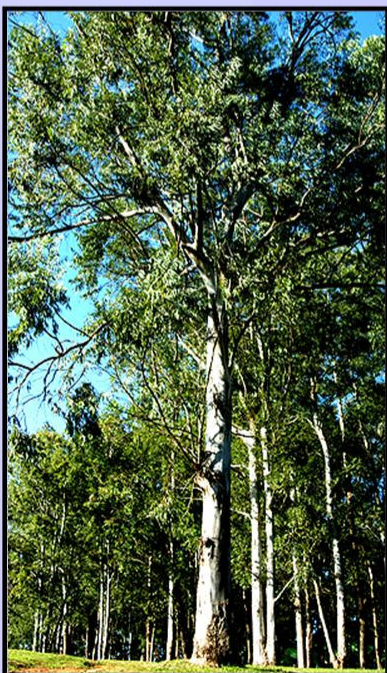
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FOCUS AREAS

- Development of tree pathosystems and gene discovery
 - Induced resistance in pine
- Understanding the defense response against:
 - 1) bacterial wilt disease,
 - 2) *Phytophthora cinnamomi* and
 - 3) insect pests such as *Leptocybe invasa*.

TECHNOLOGIES

- Reverse Transcriptase-quantitative PCR (RT-qPCR) profiling
 - Microarrays
- Illumina digital gene expression profiling (DGE) and RNA-Seq
 - Quantitative trait loci (QTL) mapping
 - Expression QTL mapping (eQTLs)
 - RNAi knockdown technology
- T-DNA knockouts and over-expression strategies.

