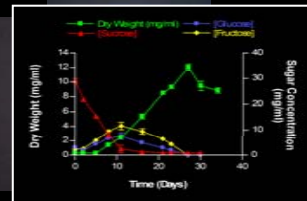




## Establishment of an *in vitro* elicitation system

Establishment of suspension cell cultures of *Olea europaea* var. *Galega Vulgar*

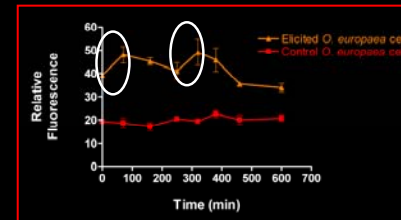
Development of the elicitation system:



cells  
and in appropriate  
with bacterial  
on

## ROS production

Spectrofluorimetric quantification using the fluorescent probe  $H_2DCFDA$



Two bursts of ROS production

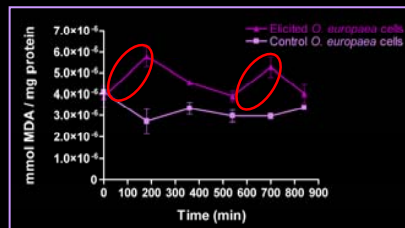
50 min  
300 min

Pattern characteristic of the Oxidative Burst of incompatible interactions

## Lipid peroxidation

Assessment of the amount of oxidative injury to the cells

MDA quantification using the TBA test



Two peaks in lipid peroxidation levels

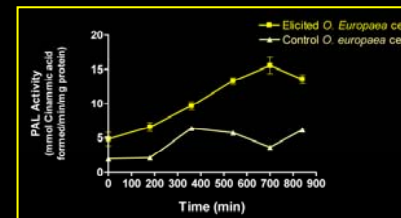
100 min  
600 min

Peaks occur immediately after ROS production bursts

## PAL Activity

First enzyme of the phenylpropanoid pathway

Spectrophotometrical quantification of trans-cinnamic acid formation



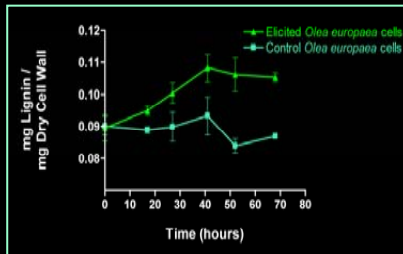
Significant increase in PAL activity in challenged cells

Indicates activation of defense mechanisms

## Lignin Content

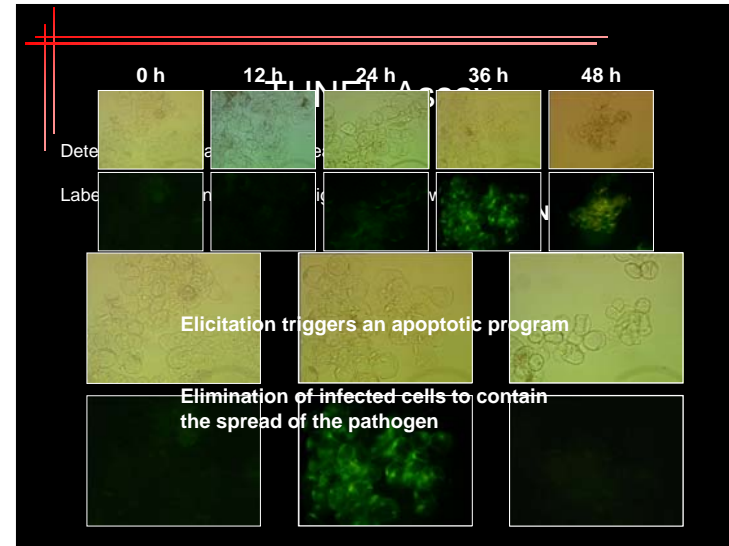
Main component of the cell wall

End product of the phenylpropanoid pathway



Elicited cells show higher lignin content in the cell wall

Reinforcement of the cell boundaries as a resistance process



## Conclusions

The interaction between the variety *Galega Vulgar* of *Olea europaea* and the bacteria *Pseudomonas savastanoi* is apparently incompatible

Increased levels of ROS production

Production of secondary metabolites essential to the resistance process

Reinforcement of the cell boundaries

Triggering of programmed cell death

## Acknowledgments

- Plant Biochemistry and Molecular Physiology Group

Prof. Teresa Lino Neto  
Prof. Alberto Dias

André Braga da Cruz is supported by Fundação para a Ciência e Tecnologia, grant ref. SFRH/BD/6654/2001