

Use of indicator plants for the early detection of *X. fastidiosa*

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MATERIALS AND METHODS

Inoculum drop (10-50 μ L)



Prunus domestica



Prunus avium



Nerium oleander



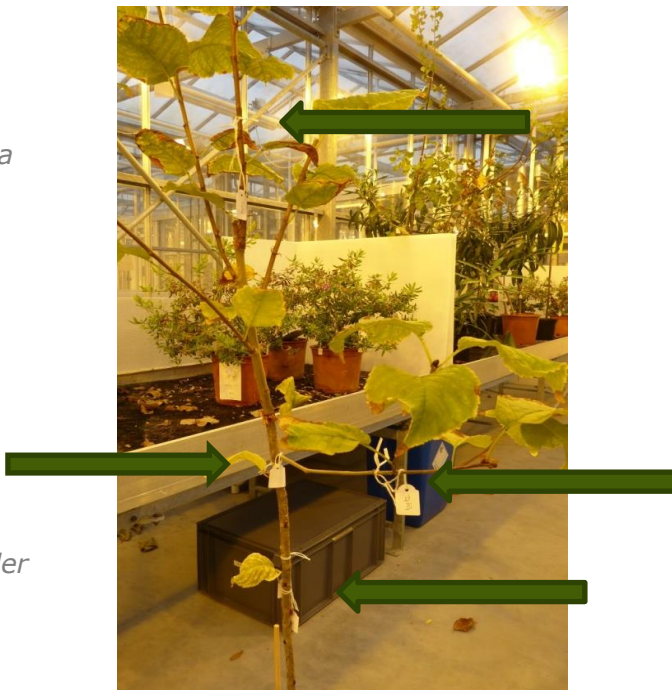
Polygala myrtifolia



Repeated rounds inoculation



Repeated rounds inoculation



26°C during day/20°C during night/RH 75%/16 h daylight

MATERIALS AND METHODS



Prunus domestica



Prunus avium



Nerium oleander



F15

Two independent experiments (F15 and F12)
F15: 1st inoculation spring 2017
F12: 1st inoculation autumn 2017



Polygala myrtifolia



F12

Greenhouse compartments
BPG-II and BPG-III
restriction level



Duration of experiments: 20-22 months after 1st artificial inoculations.

Final sampling: from each individual plant in a destructive way

Testing: the real time PCRs (Harper et al., 2010; erratum 2013 and Quyang et al., 2013)

Strain code	Equivalent	Xf subspecies	Xf ST	Isolated from	Geographic origin	Year
CFBP 8495	PD 7202	<i>pauca</i>	ST 53	<i>Coffea arabica</i>	Costa Rica	2015
CFBP 8498	PD 7211	<i>pauca</i>	ST 73	<i>Coffea arabica</i>	Costa Rica	2015
CFBP 8416	PD 7375	<i>multiplex</i>	ST 7	<i>Polygala myrtifolia</i>	France	2015

Polygala myrtifolia



SYMPTOMS

Nerium oleander



Symptoms were observed in restricted number of inoculated plants, irrespective of the isolate used for inoculation, not only on the inoculated stems but also on non-inoculated stems of the plants indicating potential movement of *Xf* in the plant.

Prunus sp.



RESULTS

- During late spring inoculations, *X. fastidiosa* could be consistently detected, especially when isolate CFBP 8495 (*Xf* subsp *pauca*) was used for the inoculation, in *P. myrtifolia*, *N. oleander* and *P. domestica*, followed by isolate CFBP 8416 (*Xf* subsp *multiplex*).
- During late autumn inoculations, *X. fastidiosa* could not be confirmed in the majority of the individual plants included in this experiment, regardless of the plant species and the *X. fastidiosa* isolate used for the inoculation.
- Exception for the late autumn inoculations of *P. myrtifolia* with isolates CFBP 8416 and CFBP 8495.
- Overall, *P. myrtifolia* and alternatively, *N. oleander* are two very efficient indicator plants under confined conditions.

	20-22 months p. 1st i.	F15	F12
		Ct value	Ct value
CFBP 8498	<i>P. avium</i>	<i>n.d.</i>	<i>n.d.</i>
	<i>P. domestica</i>	<i>n.d.</i>	<i>n.d.</i>
	<i>N. oleander</i>	<i>n.d.</i>	35,67
	<i>P. myrtifolia</i>	34,62	36,79
CFBP 8495	<i>P. avium</i>	>38,36	<i>n.d.</i>
	<i>P. domestica</i>	28,82-34,83	<i>n.d.</i>
	<i>N. oleander</i>	31,77-32,70	34,87
	<i>P. myrtifolia</i>	29,01-35,25	24,98-26,43
CFBP 8416	<i>P. avium</i>	34,29	38,13
	<i>P. domestica</i>	35,74	35,42
	<i>N. oleander</i>	33,78-36,23	35,59
	<i>P. myrtifolia</i>	25,78-28,73	20,98-24,45
NC	<i>P. avium</i>	<i>n.d.</i>	<i>n.d.</i>
	<i>P. domestica</i>	<i>n.d.</i>	<i>n.d.</i>
	<i>N. oleander</i>	<i>n.d.</i>	<i>n.d.</i>
	<i>P. myrtifolia</i>	<i>n.d.</i>	<i>n.d.</i>
	<i>n.d. = not detected</i>		