

## **Lavender decline is caused by several genetic variants of the stolbur phytoplasma in south eastern France**

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Lavender decline has affected *Lavandula* sp. in south eastern France since the 1970s. The disease can be transmitted by *Hyalesthes obsoletus*, the vector of stolbur phytoplasma, but can be confused with damage due to heavy frost and drought. In order to ascertain the aetiological role of stolbur phytoplasma in the disease a large epidemiological survey was undertaken. The origin of the phytoplasma inoculum was obtained by genotyping the phytoplasma strains detected. Twenty lavender fields both planted with *Lavandula angustifolia* and *Lavandula* hybrids were surveyed and sampled during spring and early fall 2008. Disease incidence ranged from 1% to 68% at spring and increased from 17% to 99% during fall. In the same time the mean severity was significantly increased. DNA was extracted from 15 diseased lavender plants per field and tested by a Taqman realtime PCR assay with an internal analytical control to detect false negative (Pelletier *et al.*, *Vitis* 48, 87-95. 2009). Results indicate that 37% of the diseased lavenders were positive for stolbur infection at spring whereas the proportion of positives reached 46% at fall 2008. The phytoplasma strains detected in lavender were submitted to *secY* genotyping (Fialova *et al.*, *J. Pl. Pathol.*, 91, 411-416. 2009). Over 45 strains analyzed 17 *secY* different genotypes were evidenced. Only three genotypes accounting for 16 samples corresponded to genotypes commonly found in France in wild plant reservoirs and in the vineyards, where only these three genotypes are detected. The 14 remaining genotypes were specific to lavender. This study confirms the role of stolbur phytoplasma in the etiology of lavender decline and demonstrates that the epidemics mainly propagate from lavender to lavender. In addition an important genetic diversity characterizes the phytoplasma populations associated with the disease.