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Disease Notes



First Report on Natural Infection of *Paeonia tenuifolia* by 'Candidatus Phytoplasma solani' in Serbia

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Abstract

Peony (*Paeonia tenuifolia* L.) is a herbaceous perennial plant known for its beautiful and showy flowers. In Serbia it is native to the Deliblato Sands and is used as an ornamental and medicinal plant in folk medicine. This plant species has become a rarity and for that reason peony was introduced into a botanical collection near Backi Petrovac (northern Serbia), where it has been maintained since 1988. Reddening of lower leaves observed on 10% of plants (5 of 50) in the collection at flowering in May 2012 gradually progressed throughout affected plants by the seed maturation stage. Five leaves from each of three reddened and three symptomless plants were sampled at the end of July 2012. Total nucleic acid was extracted separately from individual leaves (30 samples) using the CTAB (cetyltrimethylammonium bromide) method (2). A nested PCR assay using universal primer pairs P1/P7, followed by R16F2n/R16R2 (4), amplified 16S rDNA fragments of 1.8 and 1.2 kb, respectively. DNA from all three reddened plants (15

samples) yielded 1.2-kb amplicons after nested PCRs. Restriction fragment length polymorphism (RFLP) patterns obtained by digestion of nested products with endonucleases AluI, TruI, HpaII, or HhaI (Thermo Scientific, Lithuania) (4) were identical to those of the STOL reference strain included for comparative purposes, indicating that symptoms were consistently associated with plant infection by '*Ca. Phytoplasma solani*' (Stolbur) phytoplasma. The 16S rDNA amplicons from two peony plants (1.2 kb from



sequences and GenBank sequences of Stolbur phytoplasma, subgroup 16SrXII-A phytoplasma, previously detected in maize (JQ730750) in Serbia and red clover (EU814644.1) in the Czech Republic. Phytoplasma associated diseases of other species of the genus *Paeonia* (*P. lactiflora* Pall. and *P. suffruticosa* Andrews) have been described elsewhere. Disease symptoms on *P. lactiflora* from Chile were associated with the phytoplasma that belongs to the ribosomal subgroup 16SrVII-A ('*Ca. Phytoplasma fraxini*') (1). Also, Stolbur phytoplasma from the 16SrXII group was detected on *P. suffruticosa* plants in China, manifesting yellowing symptoms (3). To our knowledge, this is the first report of naturally occurring Stolbur phytoplasma disease of *P. tenuifolia* L. in Serbia.

References: (1) N. Arismendi et al. Bull. Insectol. 64:S95, 2011. (2) X. Daire et al. Eur. J. Plant Pathol. 103:507, 1997. (3) Y. Gao et al. J. Phytopathol. 161:197, 2013. (4) I. M. Lee et al. Int. J. Syst. Bacteriol. 48:1153, 1998.



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