

DISEASE NOTES



First Report of Stolbur Phytoplasma Associated With *Anethum graveolens* in Serbia

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Dill (*Anethum graveolens* L.) is an annual herbaceous plant cultivated in Serbia mainly as spice crop. Its leaves and seeds are used in food processing. Plants with symptoms resembling those caused by phytoplasmas were seen first on seed crop margins (0.5 ha) at the Bački Petrovac locality (45°21'38" N; 19°35'30" E) in the second half of July 2014. Red color was initially observed on leaves and later on flowers. Affected plants exhibited stunted growth and poor seed formation. Phytoplasma infection spread during the growing season, reaching an incidence of 5% in August. Plant tissue was sampled at the end of August 2014; 15 reddened leaves and 15 symptomless leaves (3 leaves per plant) were collected and analyzed as follows. Total nucleic acid was extracted from leaves using the CTAB method. Direct PCR and nested PCR were performed using universal primer pairs P1/P7 and R16F2n/R2 (Lee et al. 1998) to amplify a portion of 16S to 23S rRNA operon and 16S rDNA fragments (1.8 and 1.2 kb, respectively). All samples were retested using primers STOL11f2/r1 (Daire et al. 1997) followed by STOL11f3/r2 (Clair et al. 2003), which are

specific for stolbur. Consequently, a 720-bp fragment was amplified. The expected amplicon was obtained with all the samples in which the presence of phytoplasma was ascertained with universal P1/P7 and R16F2n/R2 primers. Both amplicons were detected in all symptomatic plants; however, DNA from control plants yielded no amplicons. The obtained sequence (GenBank Accession No. KT281866) showed 99% identity with '*Ca. Phytoplasma solani*' (JQ977746 host, *Convolvulus arvensis*; country, Germany) and Lavender decline stolbur phytoplasma (AF447596, France). These data demonstrated association of stolbur phytoplasma with reddening and stunted growth of *A. graveolens* plants in Bački Petrovac, which represents the first report of stolbur phytoplasma in Serbia. Stalk reddening and a complete loss of production of *A. graveolens*, associated with a subgroup 16SrXII-A of phytoplasma, was also reported in Italy ([Boccardo et al. 2002](#)).



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