

## DISEASE NOTE

**FIRST REPORT OF A “*CANDIDATUS*  
*PHYTOPLASMA SOLANI*” RELATED  
STRAIN ASSOCIATED WITH A DISEASE  
OF *DATURA STRAMONIUM* IN GREECE**

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Jimsonweed (*Datura stramonium*), family Solanaceae, a common weed in spring crops in Greece, includes two botanical varieties (var. *stramonium* and var. *tatula*). During a field trial at the Aristotle University Farm (40°32'N 22°59'E, 6 m asl), in which four accessions of *D. stramonium* were tested for growth rate and alkaloid content, phytoplasma-like symptoms were observed. Initially, the affected plants showed interveinal chlorosis of the upper leaves, stunting and flower malformation, whereas at maturity they did not form normal fruits and developed leaf necrosis. To investigate the possibility of a phytoplasma infection, DNA was extracted from leaf samples of symptomatic and apparently healthy plants of both varieties according to Psifidi *et al.* (2010). A nested PCR was performed using two universal primer sets specific to the phytoplasma 16S rRNA gene: P1/P7 (Schneider *et al.*, 1995) followed by R16F2n/R16R2 (Gundersen and Lee, 1996). The expected ca. 1,200 bp product, amplified exclusively from symptomatic plants of both varieties, was cloned and sequenced. BLAST analysis revealed 99% similarity with sequence AF248959 of stolbur phytoplasma (16SrXII group, *Ca. Phytoplasma solani*). Sequences from both varieties were identical, indicating infection by the same phytoplasma strain and were deposited in EMBL-EBI (accession Nos HE598778 and HE598779). Diseased plants of var. *tatula* and *stramonium* showed 49-69% and 38% reduction of the above-ground fresh weight, respectively, compared to healthy plants, hence making the phytoplasma an important pathogen of jimsonweed, which constitutes a reservoir plant in the field. This is, to our knowledge, the first report of a *Ca. Phytoplasma solani*-related disease in jimsonweed in Greece.

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## DISEASE NOTE

**FIRST REPORT OF *PHYTOPHTHORA*  
*LACUSTRIS* IN INDIA**

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*Phytophthora nicotianae*, *P. palmivora* and *P. citrophthora* are the major *Phytophthora* species involved in citrus decline in India (Naqvi, 2006). Here we report for the first time *Phytophthora lacustris* (formerly *P. taxon salixsoil*) from India. It was isolated (isolate NRCPh112) from the rhizosphere of a citrus orchard in Sriganganagar (Rajasthan, India) in March 2011. *P. lacustris* was reported causing severe damages and mortality in *Prunus persica* orchards in Italy (Nechwatal *et al.*, 2012). In liquid culture sporangia were non-caducous, non-papillate, ovoid to obpyriform, with an average (15 sporangia) length x breadth of 43.7×34 µm and an l/b ratio of 1.28. Internal and external proliferation of sporangia and hyphal swellings were observed, while chlamydospores were not produced. Isolate NRCPh112 induced selfing of an A1 isolate of *P. nicotianae* when paired on carrot agar thus functioning as 'silent A2' mating type while all known *P. lacustris* isolates from Australia, Europe and the USA are of 'silent A1' mating type. Colony morphology at 25±1°C was petaloid or chrysanthemum-like on V8A juice agar (Hi-Media Biosciences, India) whereas uniform wooly colonies were formed on potato dextrose agar (PDA). The average daily growth rate at 25°C on V8A, PDA and corn meal agar (CMA) was 7.9, 5.9 and 7.1 mm per day, respectively. On CMA optimum and maximum temperature for growth were around 25 and 37°C, respectively. *P. lacustris* has similar morphology as *Phytophthora gonapodyides* but was identified by sequence analysis of the ITS (accession No. JQ424900),  $\alpha$ -tubulin (JQ520346) and translation elongation factor 1 $\pm$  (JQ520347) gene regions. The ITS sequence of isolate NRCPh112 showed 99% similarity with *P. lacustris* isolate ICMP16270 from New Zealand [JF804803; Nechwatal *et al.* (2012)].

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