

First Report of *Candidatus Phytoplasma aurantifolia* -Related Strains Infecting Potato (*Solanum tuberosum* L.) in Jordan.

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Potato (*Solanum tuberosum* L. ‘Spunta’, Solanaceae) is an important economic crop in Jordan. In November 2013, potato plants showing symptoms of leaf reddening, aerial and abnormally small and deformed tubers, suggestive of possible phytoplasma infection, were observed in three potato fields with disease incidence of 3 to 5% in the Jordan Valley region. Leaf samples were collected from 14 symptomatic and five asymptomatic potato plants. Total genomic DNA was extracted by a cetyltrimethylammonium bromide protocol (Doyle and Doyle 1987). The 16S rRNA gene was partially amplified using the phytoplasma universal primer pairs P1/P7 followed by nested polymerase chain reaction (PCR) with primer pair R16F2n/R16R2 (Deng and Hiruki 1991; Gundersen and Lee 1996). DNA extracts of three symptomatic potato samples showed positive results for phytoplasma infection, yielding a specific PCR amplicon around 1.25 kbp. No phytoplasma was detected in asymptomatic potato plants that were sampled from the same field. PCR products from the three positive samples were cloned into pGEMT-Easy vector, sequenced (Macrogen, Amsterdam, The Netherlands) and analyzed through BLAST search. The sequences (GenBank accession nos. MH085230, MH085231, and MH085232) from Jordan shared 99% identity with sequences of ‘*Candidatus Phytoplasma aurantifolia*’ from Thailand (JN006076 and JN006079) and China (JQ923433). Furthermore, the identity among all Jordanian phytoplasma strains of this study was 99%. Additionally, a virtual restriction fragment length polymorphism was done for (sub)group classification (iPhyClassifier, <http://plantpathology.ba.ars.usda.gov/cgi-bin/resource/iphyclassifier.cgi>, Beltsville, MD, Zhao et al. 2009) and confirmed the identity of the phytoplasma as a member of subgroup 16SrII. Phylogenetic analysis (BioNumerics, Applied Math, Belgium) based on partial 16S rRNA gene sequences of representative phytoplasma strains placed the Jordanian potato phytoplasma strains in a single distinct cluster together with ‘*Ca. P. aurantifolia*’ subgroup 16SrII. Taken together, these results confirmed the unique occurrence of ‘*Ca. P. aurantifolia*’-related strains in potato in Jordan Valley. The presence of potatoes infected by a member of the subgroup 16SrII phytoplasma in Jordan may have serious epidemiological implications on this crop. Our results will open an avenue to future studies on the spread and impact of this phytoplasma and its potential insect vectors. To the best of our knowledge, this is the first report of ‘*Ca. P. aurantifolia*’-related strains infecting potato in Jordan.