Disease Note

THE FIRST REPORT OF A 16SrXII-A PHYTOPLASMA ASSOCIATED WITH TOMATO BIG BUD DISEASE IN IRAN

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In 2013 surveys, up to 7.5% incidence of big bud disease was observed in tomato fields of Kazerun area (Fars province, Iran). The main disease symptoms were big bud, little leaf, flower virescence, phyllody, proliferation and sterility. To investigate the phytoplasma presence, total DNAs extracted from four symptomatic and four symptomless tomato plants were tested by nested PCR using P1/P7 primer pair followed by R16F2n/R16R2 primers (Lee et al., 1998). Amplicons of ca. 1.8 and 1.2 kb, respectively were amplified in samples of symptomatic plants but not of symptomless ones. Four P1/P7 amplicons from symptomatic tomato plants were cloned and sequenced. The obtained 16S rDNA sequences showed 100% sequence identity with each other and a representative of these sequences deposited in GenBank (Accession No. KX098490). BLAST search using full length 16S rRNA gene sequence revealed that Kazerun tomato big bud (KTBB) sequence showed 100% identity with a ‘Candidatus Phytoplasma solani’ strain (AF248959), representative of 16SrXII-A subgroup. Computer-simulated restriction analysis using rPsyClassifier showed that the RFLP profile of KTBB 16S rDNA F2nR2 fragment was identical (similarity coefficient 1.00) to the reference pattern of 16SrXII-A (AF248959). Phylogenetic analysis revealed that KTBB phytoplasma clustered with16SrXII group phytoplasmas closest to 16SrXII-A subgroup reference strain (AF248959). To our knowledge this is the first report of a 16SrXII-A phytoplasma associated with TBB disease in Iran. 16SrXII-related phytoplasmas have been previously reported from grapevine (Salehi et al., 2014) and Cannabis sativa (Vali Sichani et al., 2011) in Iran.


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FIRST REPORT OF PECTOBACTERIUM CAROTOVORUM subsp. BRASILIENSE CAUSING BLACKLEG AND SOFT ROT OF POTATO IN TURKEY

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In the summer of 2015, potato plants exhibiting blackleg symptoms were surveyed in 10 commercial fields in Amasya province in the Black Sea Region of Turkey. Average disease incidence was approximately 11% in the surveyed area, but could reach up to 40%. Stem tissue of diseased plants was homogenised and extract was plated on Nutrient Agar (Himedia, India). After 24 h incubation at 28°C single colonies were purified on Luria Agar (Himedia, India) or Crystal Violet Pectate (CVP) medium (Hyman et al., 2001). A total of nine strains that were cavity forming on CVP, gram-negative, catalase positive and facultative anaerobic with pectinolytic ability, produced a 434 bp product with pel gene specific primers Y1/Y2 (Darrasse et al., 1994) designed for Pectobacterium spp. One of these strains (A4G1) produced a 322 bp fragment typical for Pectobacterium carotovorum subsp. brasiliense using the subspecies specific primers (Br1/Br1) in the PCR assay (Duarte et al., 2004). Blastn analysis with a 1402 bp partial 16S rDNA gene sequence of strain A4G1 (GenBank Accession No. KX548227) showed 99% similarity to the 16S rDNA of P. carotovorum subsp. brasiliense strain 1001 (JF926759) at the nucleotide level. Phylogenetic tree analysis based on the Maximum Likelihood method, using 16S rDNA sequences available in GenBank, clustered the two strains together. Surface sterilized whole potato tubers (cv. Marabel) were stabbed with a sterile pipette tip and inoculated with the same morphology as original cultures on the NA plates.

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