First report of aster yellows phytoplasma infection of marigold plants in Hungary

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Published online: 28 March 2018
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French marigold (*Tagetes patula* L.) is a widely cultivated ornamental plant worldwide. In 2012 serious “phytoplasma-like” infections were found on marigold in Hungary. Leaves became colored and deformed, interveinal shortening and virescence were also observed. The disease is seriously threatening marigold plantations and breeding projects. DNA was extracted from petioles and phloem tissues of healthy and infected plants using a CTAB method (Ahrens and Seemüller, 1992). PCR assay was carried out employing the primer pair R16F2n/R16R2 (Lee et al. 1994). The purified PCR amplicons of 16S rDNA were sequenced using the fU5/rU3 primers. Alignment of sequences was performed with Clustal W (Thompson et al. 1994). Phylogenetic comparisons were performed with MEGA4. The sequences were compared to each other and to other reference sequences in the NCBI database. Phylogenetic analyses revealed a main clade of the Hungarian and other sequences belonging to the 16Sr I group.

The 16Sr DNA fragment sequence of the 800 bp amplicon of the isolate and that of a ‘*Ca. Phytoplasma asteris*’ reference isolate (HM467127) were used for the *in silico* digestion for further identification. Both sequences were digested *in silico*

with 11 restriction endonucleases. The restriction products were separated on a virtual gel generated by the pDRAW32 software. Based on all analyzed RFLP patterns our isolate proved to be part of the 16Sr I group and shows similarity with a ‘*Ca. P. asteris*’ isolate.

To our knowledge this is the first molecular identification of a natural ‘*Candidatus Phytoplasma asteris*’ infection in Hungarian marigold plantations.

References

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