



First report of cucumber green mottle mosaic virus in cucumber greenhouse crops in Bulgaria

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Received: 5 October 2018 / Accepted: 24 October 2018 / Published online: 5 November 2018
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Cucumber (*Cucumis sativus*) is an important crop in Bulgaria. It is cultivated mainly in greenhouse and in open fields on more than 1200 ha. In 2015 virus-like symptoms such as severe mosaic, mottling, leaf deformation and fruit discoloration were observed in different cucumber hybrids in greenhouses in the areas of Simitly, Petrich, Harmanly and Parvomay of Bulgaria. The disease incidence ranged from 70 to 80% and yield losses were very high as a result of unmarketable fruits. Disease symptoms were also observed in the following years. In order to identify the etiological agent of the disease, five leaf samples were collected from each greenhouse for a total of 20 samples, and tested for the presence of cucumber mosaic virus, zucchini yellow mosaic virus, papaya ringspot virus, watermelon mosaic virus and cucumber green mottle mosaic virus (CGMMV) by using polyclonal antibodies in DAS-ELISA. Only CGMMV was detected in all the symptomatic cucumber samples tested. To further verify the presence of

CGMMV the same samples were also tested by RT-PCR with primer pair “CGMMV sense/CGMMV antisense” (Boubourakas et al. 2004), for the amplification of a product of approximately 332 bp in size. Also, two CGMMV isolates, one collected in 2015 and the other in 2018, were chosen for further sequence characterization. The sequences of the two Bulgarian isolates (accession numbers LR025215-LR025216) showed 99% nucleotide identity with pXT1 isolate (KY753929) from China. To our knowledge this is the first report of CGMMV in Bulgaria.

Reference

Boubourakas IN, Hatziloukas E, Antignus Y, Katis NI (2004) Etiology of leaf chlorosis and deterioration of the fruit interior of watermelon plants. *J Phytopathol* 152:580–588

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