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DISEASE NOTES

First Confirmed Report of *Iris yellow spot virus* in Onion Nurseries in Zacatecas, Mexico

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ABSTRACT

Onion (*Allium cepa* L.) is an important vegetable crop in Mexico and is grown on about 44,000 ha with an annual production of 1,238,000 tonnes. *Iris yellow spot virus* (IYSV), an important viral pathogen of onion worldwide (Bag et al. 2015; Pappu et al. 2009), was serologically detected in onion plants in the state of Zacatecas in 2010 (Velásquez-Valle and Reveles-Hernández, 2011); however, it was not verified by molecular methods. There was little or no information on the characterization of the viral genome of IYSV infecting onion in Mexico. Based on symptomatic plants, incidence and severity of the disease have varied from year to year. A survey of onion nurseries carried out during January 2014 in the Zacatecas region revealed that 16 out of 18 onion nurseries had at least one plantlet with IYSV-associated lesions (yellow to tan, elongated lesions, mostly isolated, some showing green areas within the extended lesion); no differences in number or size lesions were noticed between purple and white varieties. IYSV was detected using DAS-ELISA (Agdia Inc., Elkhart, IN) in samples from diseased plants collected in these 16 onion nurseries. Incidence ranged from 8.3 to 85% in nurseries with white varieties, while in purple varieties (mainly Mata-Hari) the disease incidence varied from 40 to 73.3%. Adults of *Thrips tabaci* Lind. were identified in all 18 onion nurseries surveyed. Five onion plants with symptoms indicative of IYSV infection were collected from a commercial field located in the municipality of Fresnillo, central Zacatecas, and separately tested by DAS-ELISA for IYSV presence; positive results were obtained for all five plants. Total nucleic acids were extracted from a combined sample of the five plants and RT-PCR and specific primers were used to amplify the nucleoprotein (N) gene of IYSV. The amplicon was cloned and sequenced. Sequence comparison showed more than 99% nucleotide sequence identity with the corresponding region of IYSV isolates from the United States. In silico RFLP analysis showed that the IYSV isolate from Zacatecas, Mexico (Mexican), belongs to the NL

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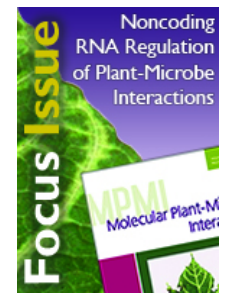
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genotype (Iftikhar et al. 2014). Phylogenetic analysis based on N gene sequence showed that the Mexican isolate formed a close cluster with those from Texas and New Mexico. The widespread occurrence of IYSV in onion nurseries highlights the need for implementing an integrated management program to reduce the disease incidence.

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