New Disease Reports

First report of *Sugarcane streak mosaic virus* in Iran

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Sugarcane is one of the most economically important crops in south-western Iran and viral diseases such as those caused by *Sugarcane mosaic virus* (SCMV) have caused yield losses in some fields. A survey was conducted in Khuzestan province to investigate the distribution of sugarcane diseases caused by luteoviruses, poaceviruses and potyviruses. During September to November 2014, symptoms associated with SCMV, *Sugarcane streak mosaic virus* (SCSMV) and *Sorghum mosaic virus* infection were observed in some sugarcane fields. These symptoms included interveinal chlorotic specks, streaks or stripes on the leaves (Fig. 1). Symptom-bearing leaf samples were collected, transferred to the laboratory on ice, and then freeze-dried. Total RNA was extracted using a phenol:chloroform-based method (Damaj *et al*., 2009). With the aim of detecting SCSMV, RT-PCR was performed using specific primers (SCSMV-F; 5'-GGCAAGTYGAGTAYATGTCGCA-3' and SCSMV-R; 5'-GTGGTGTGTAYCTCATCATCTGC-3') designed to amplify 570 bp from the nuclear inclusion B and coat protein gene sequences. Amplified fragments of the expected size were sequenced and deposited in GenBank (Accession Nos. KR868693 and KR920050). A BLASTn search showed more than 90% identity with other isolates (AM749393 and GQ388116).

SCSMV was first reported in the USA by Hall *et al*. (1998) and subsequently detected in Asia (He *et al*., 2014). This is the first report of SCSMV in Iran. Symptoms were observed on all cultivars surveyed (cp48-103,cp69-62 and cp57-614) andin approximately 20% of the area under cultivation. The most severe symptoms were seen on cv. cp57-614 with about 70% of the leaf area exhibiting symptoms. In addition these plants were shorter and had smaller stem diameters compared to healthy plants.

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References

Damaj MB, Beremand PD, Buenrostro-Nava MT, Riedel B, Molina JJ, Kumpatla SP, Thomas TL, Mirkov TE, 2009. Reproducible RNA preparation from sugarcane and citrus for functional genomic applications. *International Journal of Plant Genomics* **2009**, Article ID 765367, 13 pages. http://dx.doi.org/10.1155/2009/765367

Hall JS, Adams B, Parsons TJ, French R, Lane LC, Jensen, SG 1998. Molecular cloning, sequencing, and phylogenetic relationships of a new potyvirus: Sugarcane streak mosaic virus, and a reevaluation of the classification of the Potyviridae. *Molecular Phylogenetics and Evolution* **10**, 323-332. http://dx.doi.org/10.1006/mpev.1998.0535

He Z, Li W, Yasaka, R, Huang Y, Zhang Z, Ohshima K, Li S, 2014. Molecular variability of sugarcane streak mosaic virus in China based on an analysis of the P1 and CP protein coding regions. *Archives of Virology* **159**, 1149-54. http://dx.doi.org/10.1007/s00705-013-1854-9

Figure 1

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