First report of Sugarcane streak mosaic virus in Iran


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Received: 29 May 2015. Published: 19 Jul 2015.

Keywords: Khuzestan, nuclear inclusion B, coat protein

Sugarcane is one of the most economically important crops in southwestern 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) and in 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.

Acknowledgements
This work is financially supported by Sugarcane Research and Training Institute for the Development of Industries in Khuzestan, Iran.

References

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This report was published on-line at www.ndrs.org.uk where high quality versions of the figures can be found.

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