

# First Report of *Macrottilium* yellow spot virus in *Desmodium glabrum* in Brazil

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## DISEASE NOTES

R. S. Fontenele, R. Poppiel, and V. O. R. L. Matos, Embrapa Recursos Genéticos e Biotecnologia, Brasília, Brazil; F. Costa, Instituto Agronômico de Pernambuco, Recife, Brazil; J. C. Faria, Embrapa Arroz e Feijão, Goiânia, Brazil; and S. G. Ribeiro, Embrapa Recursos Genéticos e Biotecnologia, Brasília, Brazil.



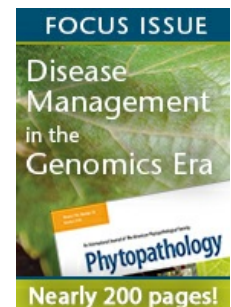
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## ABSTRACT

*Macrottilium yellow spot virus* (MaYSV) is a begomovirus (family *Geminiviridae*) described infecting common beans (*Phaseolus vulgaris*) and other leguminous noncultivated hosts in northeastern Brazil (Ramos-Sobrinho et al. 2014; Silva et al. 2012). In a recent virus survey in common beans and associated noncultivated plants in the state of Pernambuco, four *Desmodium glabrum* plants presenting yellow mosaic, leaf curling, rugosity, and leaf deformation symptoms were collected at the periphery of a bean field in Caruaru, in August 2013. Total DNA was extracted and a PCR reaction using universal degenerate begomovirus primers pAL1v1978 and pAR1c496 (Rojas et al. 1993) amplified fragments of the expected size of ~1.2 kb. The sequences of the amplicons were nearly identical, and BLASTn comparisons suggested the infection of the four plants by MaYSV. To obtain full-length viral DNA components, genomic DNA from two samples was

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amplified by rolling-circle amplification (RCA) (Inoue-Nagata et al. 2004) and concatemer products were digested with *HindIII* and *KpnI* restriction enzymes rendering ~2.6-kb fragments which were cloned into pBluescript II KS(+). Four independent DNA-A clones obtained from the two samples were sequenced using primer walking and had identities higher than 99% among them (GenBank Accession Nos. KT779561, KT779562, KT779564, and KT779565). Species Demarcation Tool (SDT) (v.1.0) (Muhire et al. 2014) analysis resulted in identities varying from 87 to 99% with DNA-A from different MaYSV isolates from common bean, lima bean, *Macroptilium lathyroides*, *Calopogonium mucunoides*, and *Canavalia* spp. collected in the states of Alagoas, Paraíba, and Sergipe (Silva et al. 2012), confirming that the *D. glabrum* plants were infected by MaYSV. DNA-B was amplified by PCR from total plant DNA using primers MaYSV-B-F (5'ACATACGTAATTGAAGACTGTTGGT3') and MaYSV-B-R (5'ACGTACGTAGAGTCTCAGCGTGATG3') overlapping in a *SnaBI* restriction site present in most MaYSV DNA-B cloned in our laboratory. The resulting ~2.6-kb PCR fragments were cloned into pTOPO2.1. Four DNA-B clones (KT779558, KT779559, KT779560, and KT779563) retrieved from the same plants from which DNA-A clones were obtained were completely sequenced. The DNA-B clones had identities ranging from 92 to 100% among them and shared 92 to 99% identity with genomic MaYSV DNA-B isolates from common bean and *Macroptilium* spp. *Desmodium glabrum* is a widely distributed neotropical plant occurring from Mexico to Argentina. In Brazil, *D. glabrum* can be found as invasive plants in northeastern, central, and southeastern regions in open fields, pasture areas, riparian forests, and also in anthropized and degraded areas. To date, MaYSV has been described only in Brazilian northeastern states; however, pervasive plants such as *D. glabrum* as well as other reported leguminous noncultivated MaYSV hosts may facilitate the spread of MaYSV to cultivated legume crops such as common bean and soybean in the main cultivated areas.



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