



First report of tobacco curly shoot virus infecting *Malvastrum coromandelianum* in China

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Tobacco curly shoot virus (TbCSV), a monopartite begomovirus in the family *Geminiviridae*, mainly infects tobacco and tomato and some weeds. To determine whether TbCSV infects *Malvastrum coromandelianum*, 26 samples of *M. coromandelianum* with typical foliar yellow vein symptom were collected from Sichuan and Guangxi provinces of China in 2016. Total DNA was extracted and subjected to PCR detection using degenerate primer PA/PB for geminiviruses (Deng et al. 2010). A 500 bp DNA fragment was amplified from all the samples. Then a fragment of ca. 1.0 kb was obtained from two (SC776 and GX121) of the 26 samples using TbCSV specific primers Y35F1/Y35 + 10R (Qing and Zhou 2009). Sequence alignment showed the highest identity with isolate TbCSV-[China: Sichuan118:2009], 99.5 and 99.7%, respectively. Based on the obtained sequences, a pair of primer TbCSV-full-F(5'-TGTGACTGGTGGACAATATG-3')/TbCSV-full-R(5'-GTTGCATGCCATTTCCGAAG-3') were designed for amplification of full length TbCSV DNA. The complete DNA sequences of isolates SC776 and GX121 were determined to be composed of 2747 and 2746 nucleotides (nts), respectively

(GenBank accession Nos MF977704 and MF977705) and shared the highest sequence identities (99.5 and 99.7%, respectively) with TbCSV-[China: Sichuan118:09]. With the universal abutting primer (Briddon et al. 2002) for betasatellite DNA, an amplicon of nearly 1300 bp was amplified from two samples. Sequence alignment showed that both betasatellites are 1354 nts in size (MF977706 and MF977707), and shared the highest identity (99.6 and 99.7%, respectively) with TbCSB-[China:Yunnan 35:01]. To our knowledge, this is the first report of TbCSV associated with betasatellite infecting *Malvastrum coromandelianum*.

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