

Supplementary information

The Characterization of the Tobacco-Derived Wild Tomato Mosaic Virus by Employing Its Infectious DNA Clone

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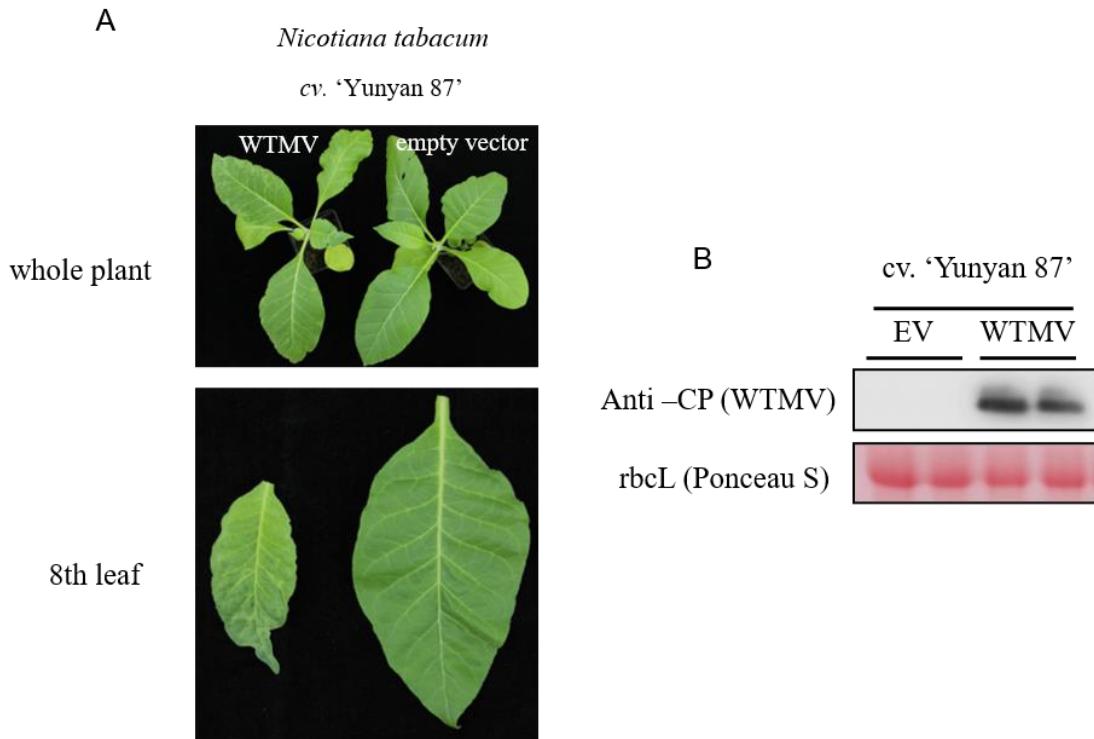
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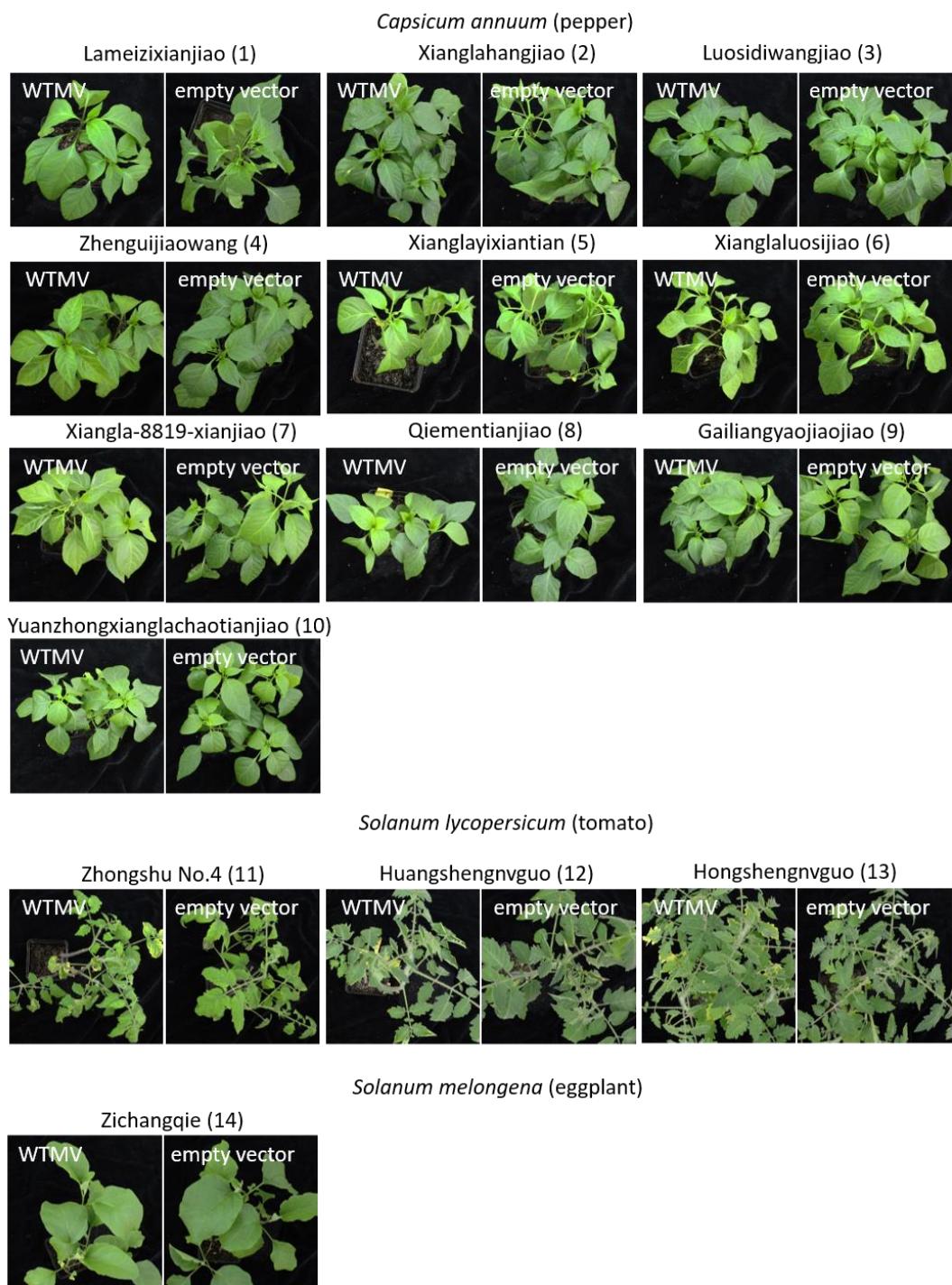
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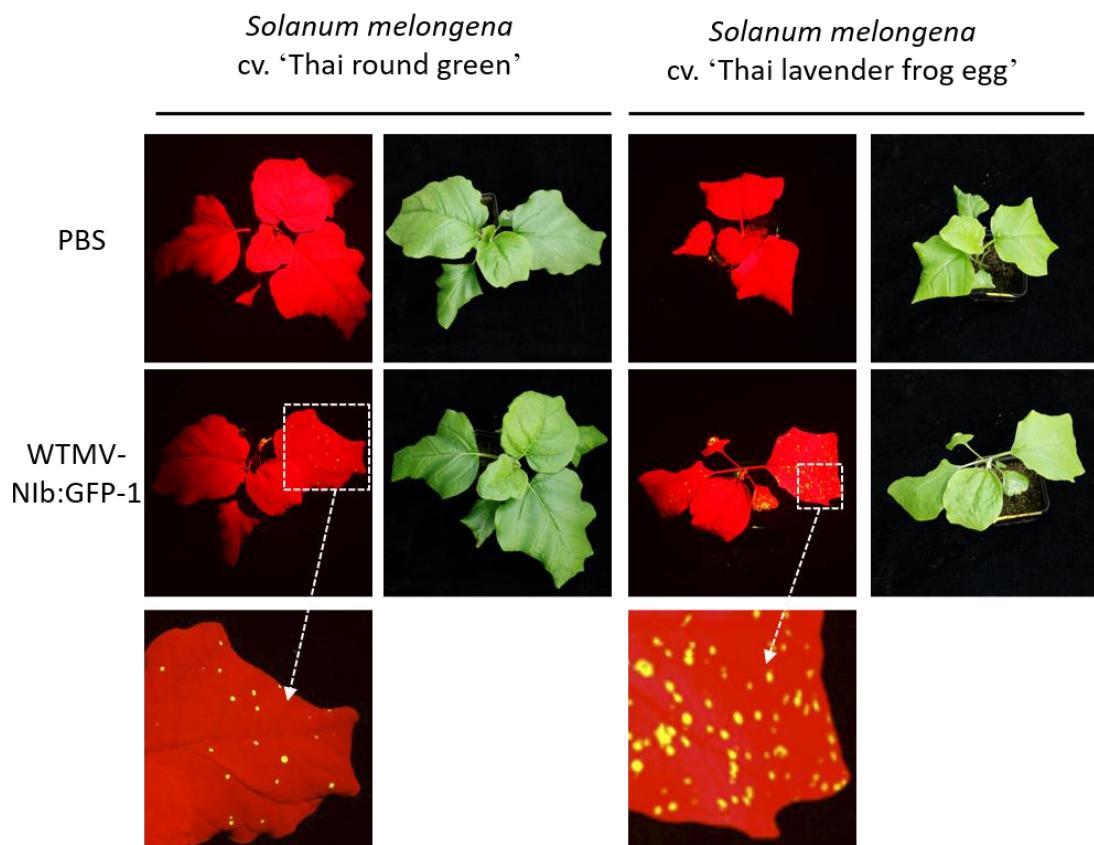
Supplementary Figure S1. Alignment of the partial genome of various WTMV isolates. Full or partial genome sequences of WTMV were aligned with Clustal W (gap-opening penalty = 10, gap-extension penalty = 5). The common region of the aligned WTMV sequences is shown.



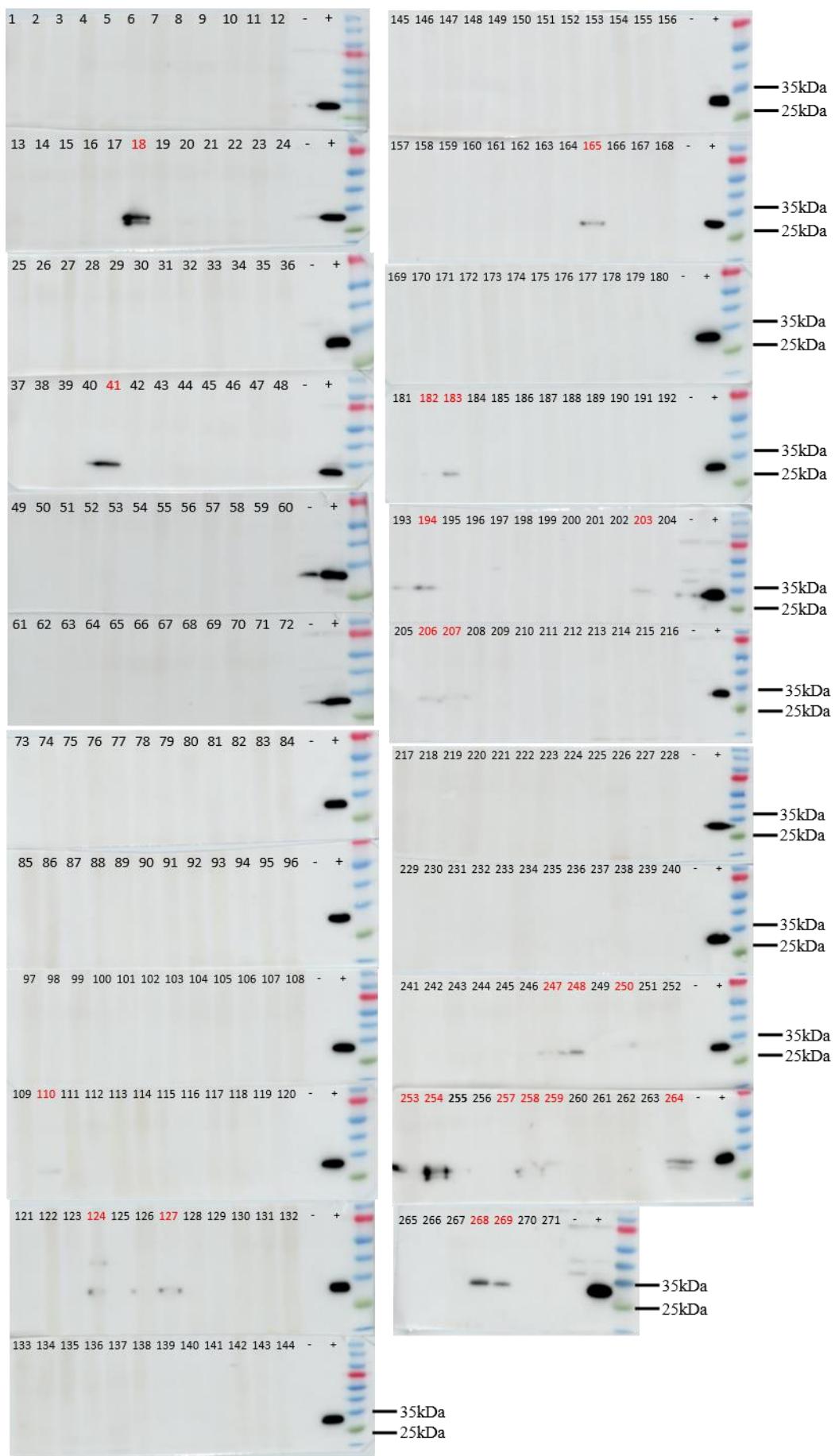
Supplementary Figure S2. WTMV infection on *N. tabacum* cv. ‘Yunyan 87’. (A) *N. tabacum* cv. ‘Yunyan 87’ plants were agroinfiltrated with a WTMV infectious clone or the pCB301-304-CEN empty vector. The plant inoculated with WTMV showed severe systemic symptoms. Images were taken one-month post-agroinfiltration. Upper photograph: the whole plant of WTMV or empty-vector inoculated tobacco. Lower photograph: the eighth leaf of tobacco plants in corresponding treatment. (B) Western blotting analysis of upper leaves of tobacco plants in both treatments. Polyclonal antibodies of WTMV coat proteins were used to detect the presence of WTMV infection. Ponceau S stained rubisco large subunit (rbcL) is used as a loading control.



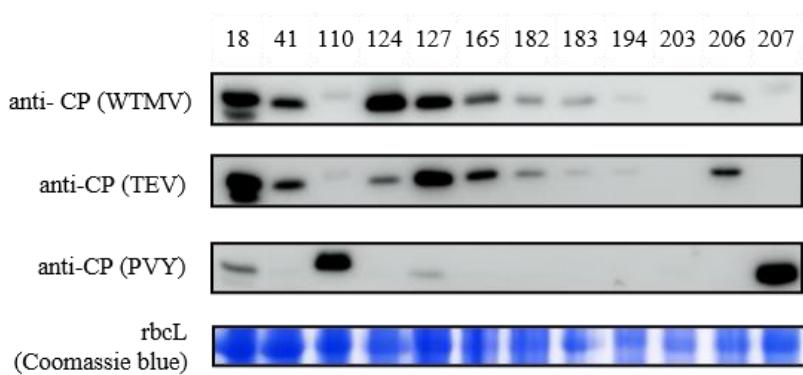
Supplementary Figure S3. Solanaceous plants inoculated with WTMV. Seedlings of the solanaceous plants agroinfiltrated with WTMV infectious clone or with pCB301-304-CEN empty vector. Images were taken 2 weeks after agroinfiltration. Variety names were listed above the corresponding photographs. The sources of the varieties are listed in Supplementary Table S1.



Supplementary Figure S4. Southeast Asian local *Solanum melongena* varieties inoculated with WTMV-Nlb:GFP-1. Seedlings of *S. melongena* cv. ‘Thai round green’ and cv. ‘Thai lavender frog egg’ were inoculated with WTMV-Nlb:GFP-1. WTMV infection was indicated by the EGFP fluorescence that appeared in systemic leaves two weeks after inoculation.



Supplementary Figure S5. Western blotting analysis of the samples collected from fields in Henan province. A total of 271 samples were subjected to whole protein extraction and Western blotting using polyclonal antibodies of WTMV coat protein. Each sample was numbered. Positive and negative controls are protein samples from WTMV-infected or healthy tobacco leaves, respectively. Red-colored numbers are those selected for further RT-PCR analysis.



Supplementary Figure S6. Cross-reactivity of different polyclonal antibodies on tobacco samples. Previously identified WTMV-positive tobacco leaf samples were subjected to whole protein extraction and Western blotting against polyclonal antibodies of the coat proteins of WTMV, TEV, or PVY. Coomassie blue stained rbcL is shown to indicate protein loading.

Supplementary Table S1 Plant variety sources.

Species	Variety (Translated name)	Variety (Chinese name)	Source
<i>Nicotiana benthamiana</i>	-	-	lab source
<i>Nicotiana tabacum</i>	Samsun NN	-	lab source
<i>Nicotiana tabacum</i>	Zhongyan 100	中烟100	lab source
<i>Nicotiana tabacum</i>	Yunyan 87	云烟87	lab source
<i>Solanum nigrum</i>	-	-	寿光欣欣然园艺有限公司(Shouguang Xinran Horticulture Co., Ltd.)
<i>Solanum torvum</i>	-	-	C.H VIET NAM Co., Ltd.
<i>Solanum melongena</i>	Thai round green	-	lab source
<i>Solanum melongena</i>	Thai lavender frog egg	-	lab source
<i>Capsicum annuum</i>	Lameizixianjiao	辣妹子线椒	河北省泊头市永红种子有限公司(Botou Yonghong Seed Co., Ltd.)
<i>Capsicum annuum</i>	Xianglahangjiao	香辣杭椒	河北省泊头市永红种子有限公司(Botou Yonghong Seed Co., Ltd.)
<i>Capsicum annuum</i>	Luosidiwangjiao	螺丝帝王杂交一代	隆之喜种业(宿迁)有限公司(Longzhixi Seed Industry (Suzhou) Co., Ltd.)
<i>Capsicum annuum</i>	Zhenguijiaowang	珍贵椒王	隆之喜种业(宿迁)有限公司(Longzhixi Seed Industry (Suzhou) Co., Ltd.)
<i>Capsicum annuum</i>	Xianglayixiantian	香辣一线天	隆之喜种业(宿迁)有限公司(Longzhixi Seed Industry (Suzhou) Co., Ltd.)
<i>Capsicum annuum</i>	Xiangluosijiao	香辣螺丝椒	河北省泊头市永红种子有限公司(Botou Yonghong Seed Co., Ltd.)
<i>Capsicum annuum</i>	Xiangla-8819-xianjiao	香辣8819线椒	沧州禾硕农业科技有限公司(Cangzhou Heshuo Agricultural Technology Co., Ltd.)
<i>Capsicum annuum</i>	Qiementianjiao	茄门甜椒	沈阳市博农种业有限公司(Shenyang Bonong Seed Industry Co., Ltd.)
<i>Capsicum annuum</i>	Gailiangyaojiaojiao	改良羊角椒	沧州禾硕农业科技有限公司(Cangzhou Heshuo Agricultural Technology Co., Ltd.)
<i>Capsicum annuum</i>	Yuanzhongxianglachaojianjiao	原种香辣朝天椒	沧州禾硕农业科技有限公司(Cangzhou Heshuo Agricultural Technology Co., Ltd.)
<i>Solanum lycopersicum</i>	Zhongshusihao	中蔬四号	酒泉锐峰高科生态农业发展有限责任公司(Jiuquan Ruifeng High Tech Ecological Agriculture Development Co., Ltd.)
<i>Solanum lycopersicum</i>	Huangshengnvguo	黄圣女果	酒泉锐峰高科生态农业发展有限责任公司(Jiuquan Ruifeng High Tech Ecological Agriculture Development Co., Ltd.)
<i>Solanum lycopersicum</i>	Hongshengnvguo	红圣女果	酒泉锐峰高科生态农业发展有限责任公司(Jiuquan Ruifeng High Tech Ecological Agriculture Development Co., Ltd.)
<i>Solanum melongena</i>	Zichangqie	紫长茄	酒泉锐峰高科生态农业发展有限责任公司(Jiuquan Ruifeng High Tech Ecological Agriculture Development Co., Ltd.)

Supplementary Table S2 WTMV-positive tobacco samples collected from fields in Henan province.

Year	Number	Date	Location (location name in Chinese)
2020	#2	2020/6	Sanmenxia (三门峡)
2021	#41	2021/5/28	Xuchang, Xiangxian county, Wangluo town, shuanglouyan village (许昌, 襄县, 王洛, 双楼阁)
2021	#110	2021/6/22	Sanmenxia, Xiazhou district, Xiponao Village (三门峡, 陕州区, 西坡脑村)
2021	#124	2021/6/22	Luoyang, Yiyang county, Gaocun Village (洛阳, 宜阳, 高村)
2021	#127	2021/6/25	Xuchang, Xiangxian county, Wangluo town (许昌, 襄县, 王洛)
2021	#182	2021/6/30	Sanmenxia, lingbao city, wumu country (三门峡, 灵宝, 五亩乡)
2021	#183	2021/6/30	Sanmenxia, lingbao city, wumu country (三门峡, 灵宝, 五亩乡)

Supplementary Table S3 Primers used for virus detection

Target	Forward primer name	Forward primer sequence (5'-3')	Reverse primer name	Reverse primer sequence (5'-3')
WTMV	1275/WTMV/9131nt/F	CCGATATGTCAC TTGCGCGC	1277/WTMV/3-end/R	AACGCCAACAAAGGAATAATGC
CMV	218/CMV-fny/CP/NdeI/F	GCCATATGGACAAATCTGAA TCAACCAGTG	219/CMV-fny/CP/6xHis/EcoRI/R	CGGAATTCTTAATGATGATGATG ATGGTGGACTGGGAGCACTCCAG ACG
PYV	855/PYV-N/CP/6xHis/NcoI/F	ATGCCATGGGCACCATCATC ATCATCATAATGACACAATC GATGCAGGAGGAAG	856/PYV-N/CP/SalI/R	CCCGTCGACTCACATGTTCTGA CTCCAAGTAGAGTATGC
TEV	281/TEV/Frag3a/F	TTGGTTACATAGCAGAGGATG CTGGC	280/TEV/Frag2a/R	TGGAGATAGATAGTTCCAGGTG ATTGAAGTC
TMV	2652/TMV/check/F	GATCTAGCAAAGCGTCGTCT	2653/TMV/check/R	AATTTGCATCATCAGATATTCA G
β -tubulin	2497/Tobacco/ β -tubulin/qPCR/F	GGAGGTTACCGAGGCTGA	2498/Tobacco/ β -tubulin/qPCR/R	GCATGTAGTCTTCCAAAG

Supplementary Table S4 Primers used for vector construction

Target vector	PCR product used for vector assembling	Intermediate PCR product	Forward primer name	Forward primer sequence (5'-3')	Reverse primer name	Reverse primer sequence (5'-3')	Template for PCR
pCB301-WTMV	WTMV-frag1	WTMV-frag1a	1717/WTMV/5'-end/compatible/pCB3-01-linker/F	AGCTTCAATTGGAGAG GAAATAAAASACTTCMM AACACATAAGAAATC	1397/WTMV/79/rR	GTTCCCTTCAAGCGAATG	cDNA
		WTMV-frag1	44/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCCACTATCTTCCGAAG ACCCTCTCTATATAAGGA AGTCTATTCTATTGGAGAG	1397/WTMV/79/rR	GTTCCCTTCAAGCGAATG	WTMV-frag1a
	WTMV-frag2	WTMV-frag2	1396/WTMV/380nt/F	TAATGATGAAAGGAATC ATTCITGAG	1718/WTMV/Frag2a/R	CAGCATTGACCAATGAATC AAAGTG	cDNA
	WTMV-frag3	WTMV-frag3a	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	1727/WTMV/3-end/polyA/pCB301-linker/R	GAGGTGAGATGCCATGCC GACCCCTTTTTTTTTTTTT TTTTTTTTTTTTTTAAACGC CAACAAAGGAATAATGC	cDNA
		WTMV-frag3b	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	11/SMV-frag5a/R-2	CTCTCTGACCCAGTGGCT CTCCCTAGCCATCCGAGTG GACGTGCGTCTCTCGGAA TGCCCCAGGTCGGACCGGGA GGAGTGGAGATGCCATGC	WTMV-frag3a
		WTMV-frag3	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	12/SMV-frag5a/R-3	CCGGCAACAGGATCAATC TTAAGAACATTATTGCAA ATGTTGAACGATGGGGA AATTGAGCTCTCCGTGACC CAG	WTMV-frag3b
	WTMV-P1:GFP1-frag1	WTMV-P1:GFP1-frag1a	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	2338/WTMV/P1/R	TGAGAAATGAACCATACGC GTG	pCB301-WTMV
		WTMV-P1:GFP1-frag1b	2339/WTMVP1-GFP/F	GAGTTACACGGTATGGTT CATCTCTAGTGAGCAAGGG CGGAGGAGC	2341/GFP-FDVRHQSR	GGCTCTGATGCTAAAGTC GAACATGTTACAGCTCGTCC ATGC	pGD-C-EGFP
		WTMV-P1:GFP1-frag1c	2340/FDVRHQS-WTMVHC/F	ITCAGCGTTAGACATCAGAG CGCAGGTGAGAAGTTTGGG AAG	1400/WTMV/127nt/5RACE/R	AACCTAACGGCGTGTGGGA ACGATGG	pCB301-WTMV
		WTMV-P1:GFP1-frag1	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	1400/WTMV/127nt/5RACE/R	AACCTAACGGCGTGTGGGA ACGATGG	WTMV-P1:GFP1-frag1a, WTMV-P1:GFP1-frag1b, WTMV-P1:GFP1-frag1c
	WTMV-P1:GFP2	WTMV-P1:GFP1-frag2	2340/FDVRHQS-WTMVHC/F	ITCAGCGTTAGACATCAGAG CGCAGGTGAGAAGTTTGGG AAG	1718/WTMV/Frag2a/R	CAGCATTGACCAATGAATC AAAGTG	pCB301-WTMV
	WTMV-P1:GFP2	WTMV-P1:GFP1-frag3	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATCAATC TTAAGAAC	pCB301-WTMV
pCB301-WTMV-P1:GFP-1	WTMV-P1:GFP2-frag1	WTMV-P1:GFP2-frag1a	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	2429/WTMV/GFP-HCpro/R	CCAAAACCTCTACCTG AGATGATGGTTAACAGCT CCTTGACAGCTCGTCATG	pCB301-WTMV-P1:GFP-1
		WTMV-P1:GFP2-frag1b	2428/WTMV/HCpro/F	GAGGCTGTTAACCATCAATC ATCC	1400/WTMV/127nt/5RACE/R	AACCTAACGGCGTGTGGGA ACGATGG	WTMV-P1:GFP2-frag1a, WTMV-P1:GFP2-frag1b
	WTMV-P1:GFP2-frag1	WTMV-P1:GFP2-frag2	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	1718/WTMV/Frag2a/R	CAGCATTGACCAATGAATC AAAGTG	pCB301-WTMV
	WTMV-P1:GFP2-frag3	WTMV-P1:GFP2-frag3	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATCAATC TTAAGAAC	pCB301-WTMV
	WTMV-Nlb:GFP-frag1	WTMV-Nlb:GFP-frag1	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	1718/WTMV/Frag2a/R	CAGCATTGACCAATGAATC AAAGTG	pCB301-WTMV
pCB301-WTMV-P1:GFP-2	WTMV-Nlb:GFP-frag2	WTMV-Nlb:GFP-frag2	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	2417/WTMV/Nlb/R	TTGATGCCCTAACATCAAAGT CATCATC	pCB301-WTMV
		WTMV-Nlb:GFP-frag3	2418/WTMV/2707/F	TCGTCCTGAGCACAGAG GGGGAGGAGCTGTG	2417/WTMV/Nlb/C	TTGATGCCCTAACATCAAAGT CATCATC	pCB301-WTMV
	WTMV-Nlb:GFP1-frag3	WTMV-Nlb:GFP1-frag3a	2419/WTMV/Nlb:GFP/F	GTAGATGATGACTTGTG AAAGGATCAATCAGGGGTG AGCAAGGGCGAGGAGCTG	2420/WTMV/GFP-CP/R	CAACGGTCTCCCGCTCTG ATGTCATACGCTCGTCATG C	pGD-C-EGFP
		WTMV-Nlb:GFP1-frag3	2421/WTMV/GFP-CP/F	CGACCGTAGACATCAGAGC GGGGAGGAGCTGTG	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	pCB301-WTMV
	WTMV-Nlb:GFP1-frag3	WTMV-Nlb:GFP1-frag3b	2419/WTMV/Nlb:GFP/F	GTAGATGATGACTTGTG AAAGGATCAATCAGGGGTG AGCAAGGGCGAGGAGCTG	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	WTMV-Nlb:GFP1-frag3a, WTMV-Nlb:GFP1-frag3b, WTMV-Nlb:GFP1-frag3c
		WTMV-Nlb:GFP1-frag3	2421/WTMV/2707/F	TCGTGCTGAGCAACCGAG C	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	pCB301-WTMV
	WTMV-Nlb:GFP2-frag3	WTMV-Nlb:GFP2-frag1	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	1718/WTMV/Frag2a/R	CAGCATTGACCAATGAATC AAAGTG	pCB301-WTMV
		WTMV-Nlb:GFP2-frag2	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	2417/WTMV/Nlb/R	TTGATGCCCTAACATCAAAGT CATCATC	pCB301-WTMV
		WTMV-Nlb:GFP2-frag3	2418/WTMV/2707/F	TCGTCCTGAGCACAGAG GGGGAGGAGCTGTG	2427/WTMV/DVRHQS-CP/R	CCGGTCTCCCGCTCTGATGT CTAACGCTG	pGD-C-EGFP
		WTMV-Nlb:GFP2-frag3	2421/WTMV/GFP-CP/F	CGACCGTAGACATCAGAGC GGGGAGGAGCTGTG	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	pCB301-WTMV
pCB301-WTMV-Nlb:GFP-1	WTMV-Nlb:GFP-frag1	WTMV-Nlb:GFP-frag1	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	1718/WTMV/Frag2a/R	CAGCATTGACCAATGAATC AAAGTG	pCB301-WTMV
		WTMV-Nlb:GFP-frag2	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	2417/WTMV/Nlb/R	TTGATGCCCTAACATCAAAGT CATCATC	pCB301-WTMV
	WTMV-Nlb:GFP2-frag3	WTMV-Nlb:GFP2-frag3a	2418/WTMV/2707/F	TCGTCCTGAGCACAGAG GGGGAGGAGCTGTG	2427/WTMV/DVRHQS-CP/R	CCGGTCTCCCGCTCTGATGT CTAACGCTG	pGD-C-EGFP
		WTMV-Nlb:GFP2-frag3	2421/WTMV/GFP-CP/F	CGACCGTAGACATCAGAGC GGGGAGGAGCTGTG	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	pCB301-WTMV
	WTMV-Nlb:GFP2-frag3	WTMV-Nlb:GFP2-frag3b	2424/WTMV/Nlb:GFP/F	GTAGATGATGACTTGTG AAAGGATCAATCAGGGGTG AAGGGCGAGGAG	2427/WTMV/DVRHQS-CP/R	CCGGTCTCCCGCTCTGATGT CTAACGCTG	pGD-C-EGFP
		WTMV-Nlb:GFP2-frag3	2421/WTMV/2707/F	TCGTGCTGAGCAACCGAG C	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	WTMV-Nlb:GFP2-frag3a, WTMV-Nlb:GFP2-frag3b, WTMV-Nlb:GFP2-frag3c
	WTMV-Nlb:GFP3-frag3	WTMV-Nlb:GFP3-frag3a	2424/WTMV/GFP-CP/F	GTAGATGATGACTTGTG AAAGGATCAATCAGGGGTG AAGGGCGAGGAG	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	pCB301-WTMV
		WTMV-Nlb:GFP3-frag3	2421/WTMV/2707/F	TCGTGCTGAGCAACCGAG C	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	pCB301-WTMV
pCB301-WTMV-RFP	WTMV-Nlb:GFP-frag1	WTMV-Nlb:GFP-frag1	1066/pCB301/upstream/F	ACGTAAGGGATGACGCCA ATCC	1718/WTMV/Frag2a/R	CAGCATTGACCAATGAATC AAAGTG	pCB301-WTMV
		WTMV-Nlb:GFP-frag2	1719/WTMV/Frag3a/F	TCATGATGGACTTGTGTC	2417/WTMV/Nlb/R	TTGATGCCCTAACATCAAAGT CATCATC	pCB301-WTMV
	WTMV-Nlb:GFP2-frag3	WTMV-Nlb:GFP2-frag3a	2418/WTMV/2707/F	TCGTCCTGAGCACAGAG GGGGAGGAGCTGTG	2427/WTMV/DVRHQS-CP/R	CCGGTCTCCCGCTCTGATGT CTAACGCTG	pGD-C-EGFP
		WTMV-Nlb:GFP2-frag3	2421/WTMV/GFP-CP/F	CGACCGTAGACATCAGAGC GGGGAGGAGCTGTG	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	pCB301-WTMV
	WTMV-Nlb:GFP2-frag3	WTMV-Nlb:GFP2-frag3b	2424/WTMV/GFP-CP/F	GTAGATGATGACTTGTG AAAGGATCAATCAGGGGTG AAGGGCGAGGAG	2427/WTMV/DVRHQS-CP/R	CCGGTCTCCCGCTCTGATGT CTAACGCTG	pGD-C-EGFP
		WTMV-Nlb:GFP2-frag3	2418/WTMV/2707/F	TCGTGCTGAGCAACCGAG C	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	WTMV-Nlb:GFP2-frag3a, WTMV-Nlb:GFP2-frag3b, WTMV-Nlb:GFP2-frag3c
	WTMV-Nlb:GFP3-frag3	WTMV-Nlb:GFP3-frag3a	2424/WTMV/GFP-CP/F	GTAGATGATGACTTGTG AAAGGATCAATCAGGGGTG AAGGGCGAGGAG	2427/WTMV/DVRHQS-CP/R	CCGGTCTCCCGCTCTGATGT CTAACGCTG	pGD-C-EGFP
		WTMV-Nlb:GFP3-frag3	2421/WTMV/2707/F	TCGTGCTGAGCAACCGAG C	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	WTMV-Nlb:GFP3-frag3a, WTMV-Nlb:GFP3-frag3b, WTMV-Nlb:GFP3-frag3c
	WTMV-Nlb:RFP-frag3	WTMV-Nlb:RFP-frag3a	2424/WTMV/GFP-CP/F	GTAGATGATGACTTGTG AAAGGATCAATCAGGGGTG AAGGGCGAGGAG	2427/WTMV/DVRHQS-CP/R	CCGGTCTCCCGCTCTGATGT CTAACGCTG	pGD-C-EGFP
		WTMV-Nlb:RFP-frag3	2421/WTMV/2707/F	TCGTGCTGAGCAACCGAG C	1067/SMV-frag5a/R-3-short	CCGGCAACAGGATTCAATC TTAAGAAC	WTMV-Nlb:RFP-frag3a, WTMV-Nlb:RFP-frag3b, WTMV-Nlb:RFP-frag3c
pCB301-TEV-GFP	TEV-GFP frag1	TEV-GFP frag1	277/TEV/Frag1a/pCB301-linker/F	aatgttcattttggggggaaaa CAAATCTCAACACAAACATAT ACAAAAAAGGGATGACGCCA ATCCCAACTATCTTCCGAAG ACCCTCTCTCTATATAAGGA AGTCTATTCTATTGGAGAG	278/TEV/Frag1a/R	CGTCCCCTGACCCCTCAA GCCTTTCAC	TEV-GFP
		TEV-GFP frag1	44/pCB301/upstream/F	CGTCCCCTGACCCCTCAA GCCTTTCAC	278/TEV/Frag1a/R	CGTCCCCTGACCCCTCAA GCCTTTCAC	TEV-GFP frag1-l
	TEV-GFP frag2	TEV-GFP frag2	279/TEV/Frag2a/F	CCATACATAATGCTCTGC AAATGCTCTCC	280/TEV/Frag2a/R	TTGGAGATAGATGTTCCA GGTGTATTGAGAATGTC	TEV-GFP
	TEV-GFP frag3	TEV-GFP frag3	281/TEV/Frag3a/F	CTTGGTTACATAGCAGAGGA TGCCTGC	282/TEV/Frag3a/R	CTGAAAATAAAGATCTCT GTGCTTGGAAATCTGTAATC	TEV-GFP
	TEV-GFP frag4	TEV-GFP frag4	283/TEV/Frag4a/F	GAGGGATGGCATGTATATAC CAAAGCTAGAG	284/TEV/Frag4a/R1	GGAGGTGGAGATGCCATGC CGACCCCTTTTTTTTTTTTT TTTTTTTTTTTTTTTTTTTT GCACATACAGGAGAAATTA GACCG	TEV-GFP
		TEV-GFP frag4	283/TEV/Frag4a/F	TCATGATGGACTTGTGTC	11/SMV-frag5a/R-2	CTCTCCCTGACCCCTG CTCCCTAGCCATCCGAGTG GACGTGCGTCTCCCTCGGA TGCCCCAGGTCGGACCGGGA GGAGTGGAGATGCCATGC	TEV-GFP frag4-1
	TEV-GFP frag4	TEV-GFP frag4	283/TEV/Frag4a/F	TCATGATGGACTTGTGTC	12/SMV-frag5a/R-3	CCGGCAACAGGATCAATC TTAAGAACATTATAAGGCAA ATGTTGAACGATGGGGA AATTGAGCTCTCCGTGACC CAG	TEV-GFP frag4-2