



Table S1. List of the primers and probes used for LAMP, RPA and real-time PCR.

Gene	Organism	Primer	Sequence (5'-3')	Technique	Reference
16 rRNA*	Flavescence dorée phytoplasma	16S-F3	CGTGTCGTGAGATGTTAGGTTAAG	LAMP	Kogovšek <i>et al.</i> , 2005
		16S-FL	ACCATTACGTGCTGGCAACTAG		
		16S-FIP	TATCCCCACCTTCCTCCAATGTTTAAT TCTAAAACGAACGCAACCCC		
		16S-B3	CGCGATTACTAGCGATTCCAG		
		16S-BL	GCTACAAACGTGATACAATGGCTA		
		16S-BIP	TCAAATCATCATGCCCCTTATGATCT GGCAGACTTCAATCCGTACTGAGACT A		
<i>map</i>	Flavescence dorée phytoplasma	mapFD-F	TCAAGGCTTCGGBGGTTATA		Pelletier <i>et al.</i> , 2009
		mapFD-R	TTGTTTTAGAAGGTAATCCGTGAACTA C		
		mapFD-FAM	FAM-TTGTATTTTCAGTGAATGAAG		
mitochondria l 16S mtDNA	<i>Scaphoideus titanus</i>	Stit16S_F	CTCCCCATTAAAATTACGCTGTT	real-time PCR	Gallmetzer <i>et al.</i> , 2020
		Stit16S_R	CATGTATATTTGATCCTTTTGGAAAGTA AG		
		Stit16S_P	NED-TCCCTAAGGTAATTTTG		
chloroplast <i>trnL</i> -F spacer	Grapevine	VITIS_F	AAATTCAGGGAAACCCTGGAA		Pelletier <i>et al.</i> , 2009
		VITIS_R	CCCTTGTTGTTTTCGGAAA		
		VITIS_NED	NED-CTGAGCCAAATCC		

*Primers used in LAMP 2 assay, while in LAMP 1 and RPA assays the primers are not publicly available and are provided in commercial kits.

Table S2. Flavesence dorée phytoplasma (FDp) detection in laboratory-reared *Scaphoideus titanus* crude extracts by LAMP and real-time PCR assays.

Isolate	Host/pathogen*	Stage	LAMP Tp (min±SD)	Real-time PCR Ct±SD
St_114	<i>Scaphoideus titanus</i> reared on bean infected by FDp-D	Adult	6.28±0.16	30±4
St_115			5.41±0.09	24.8±0.5
St_116			7.15±0.01	24.14±0.07
St_117			7.46±0.01	24.77±0.21
St_118			7.6±0.4	24.13±0.28
St_129			nd	nd
		Mean value±SD	6.8±0.9	25.5±2.4
St_119		5 th instar	6.18±0.11	25.54±0.18
St_120			6.8±0.4	24.78±0.12
St_121			11.5±0.4	33.5±0.9
St_122			7.7±0.4	24.01±0.14
St_123			7.22±0.09	23.4±0.4
St_130			nd	nd
		Mean value±SD	7.9±2.1	26±4
St_131		4 th instar	9.04±1.05	28.1±0.8
St_132			8.0±0.4	27.8±0.8
St_133			7.14±0.09	24.6±0.9
St_134			7.12±0.03	24.5±0.4
St_167			nd	nd
St_179			nd	nd
		Mean value±SD	7.8±0.9	26.2±2.0
			nd	
St_124			nd	nd
		Adult		
St_125	<i>S. titanus</i> reared on bean infected by FDp-C		6.28±0.13	24.7±0.8
St_126			6.05±0.04	24.5±0.4
St_127			6.1±1.2	nd
St_128			7.73±0.20	25.6±1.0
St_168			nd	nd
		Mean value±SD	6.5±0.8	24.9±0.6
St_173		5 th instar	nd	nd
St_174			nd	nd
St_175			nd	nd
St_176			10.9±0.5	nd
St_177			nd	nd
St_178			nd	nd
		Mean value±SD	10.9±0.5	nd
St_169		4 th instar	nd	nd
St_170			11.55±0.21	nd
St_171			nd	nd
St_172			nd	nd
St_180			nd	nd
St_181			nd	nd
		Mean value±SD	11.55±0.21	nd
St_73	<i>S. titanus</i> reared on the healthy grapevine	Adult	nd	nd
St_74			nd	nd
St_86		5 th instar	nd	nd

St_87		nd	nd
St_91	4 th instar	nd	nd
St_98		nd	nd

* For each sample, the mean values of Time to positive (Tp) and threshold cycle (Ct) are reported and referred to five-fold diluted crude extracts for both assays. SD = standard deviation; nd = not detected.

Table S3. In laboratory detection of Flavescence dorée phytoplasma (FDp) from crude extracts of field-captured *Scaphoideus titanus* and infected grapevine plants by LAMP and real-time PCR assays.

Isolate	Host/pathogen*	Stage	Locality and collection date	LAMP	Real-time PCR
				Tp (min±SD)*	Ct±SD**
St_140				10.4±0.4	24.27±0.15
St_141				12.6±2.3	35.3±1.0
St_142				17±5	35.6±0.8
St_143				17±5	nd***
St_144				nd	nd
St_145				12.5±2.5	35.8±0.4
St_146				nd	nd
St_147				nd	nd
St_148				16±4	nd
St_149				17±4	nd
St_150				18±4	nd
St_153				17±5	nd
St_154				nd	nd
St_155				nd	nd
St_156	<i>Scaphoideus</i> captured in vineyard	<i>titanus</i> infected	Giaglione (TO). August 2. 2021	nd	nd
St_157		Adult		13±3	nd
St_158				nd	nd
St_159				nd	nd
St_160				12.6±1.0	24.68±0.24
St_161				nd	nd
St_162				nd	nd
St_163				9.6±1.5	nd
St_164				nd	nd
St_165				nd	nd
St_166				12.5±2.5	35.3±0.5
St_A				12.42±0.21	33.6±1.8
St_C1				12.4±0.9	29.3±2.0
St_C2				nd	nd
St_C3				nd	nd
St_C4				nd	nd
St_C5				12.22±0.08	31.8±0.9
Mean value±SD				13.9±2.6	32±5
St_151				17±4	nd
St_142	<i>Scaphoideus</i> captured in vineyard	<i>titanus</i> infected	Giaglione (TO). August 2. 2021	nd	nd
St_C6		5 th instar		12.0±1.1	29.2±1.2
St_C7				12.4±0.7	29.9±0.8
St_C8				11.1±1.2	30.5±1.2

					Mean value±SD	13.1±2.5	29.9±0.7
St_152	Scaphoideus captured vineyard	in	titanus infected	4 th instar	Giaglione (TO). August 2. 2021	nd	nd
St_C9						nd	nd
St_C10						12.2±1.5	32.4±0.7
					Mean value±SD	12.0±1.5	32.4±0.7
St_B						16.21±0.24	34.4±1.5
St_F1						nd	nd
St_F2						12.3±1.1	28.8±0.9
St_F3						nd	nd
St_F4						nd	nd
St_F5						nd	nd
St_F6						17±6	32.6±0.4
St_F7						13.1±0.5	26.4±0.6
St_F8						nd	nd
St_F9						11.1±2.0	27.3±0.5
St_F10	Scaphoideus captured vineyard	in	titanus infected	Adul t	Giaglione (TO). September 3. 2021	nd	nd
St_F11						16.09	29.5±0.6
St_F12						nd	nd
St_F13						nd	nd
St_F14						11.38	25.11±0.43
St_F15						13.64	26.28±0.17
St_F16						nd	nd
St_F17						nd	nd
St_F18						nd	nd
St_F19						nd	nd
St_F20						nd	nd
St_F21						11.56	27.22±0.64
St_F22						10.09	24.32±0.58
					Mean value±SD	13.3±2.5	28±3
D1	Scaphoideus captured vineyard	in	titanus infected	Adult	Canale (CN). July 30. 2021	18.95±0.15	34.2±1.6
D2						12.70±0.12	32.4±0.7
D3						nd	nd
					Mean value±SD	16±4	33.3±1.2
D4						nd	nd
D5						10.4±0.4	27.3±0.6
D6						nd	nd
D7						8.7±0.9	26.0±0.8
D8						10.98±0.03	25.1±1.4
D9	Scaphoideus captured vineyard	in	titanus infected	5 th instar	Canale (CN). July 30. 2021	nd	nd
D10						10.03±0.11	30.5±0.4
D11						nd	nd
D12						9.6±0.4	31.1±0.9
D13						nd	nd
D14						12±4	27.8±1.1
E1						nd	nd
E2	10.3±1.2	26.67±0.29					
					Mean value±SD	10.4±1.2	27.8±2.3
E3				4 th instar	Canale (CN). July 30. 2021	nd	nd

E4						8.2±0.4	30.7±0.6
E5						nd	nd
E6						nd	nd
E7						9.8±0.8	29.9±1.9
E8						6.5±0.4	26.1±0.4
E9						nd	nd
E10						6.8±0.4	24.0±0.4
E11						nd	nd
E12						nd	nd
H1						17.2±0.8	32.2±0.9
H2						nd	nd
H3						nd	nd
H4						12.7±1.8	28.0±1.0
H5	<i>Scaphoideus</i>	captured	in	<i>titanus</i>	infected	nd	nd
H6		vineyard				nd	nd
Mean value±SD						10±4	28±3
G	Other leafhoppers				Giaglione (TO). September 3. 2021	nd	nd
K	Other leafhoppers				Giaglione (TO). September 3. 2021	nd	nd
St_80			Adult		Grugliasco (TO). September 3. 2021	nd	nd
St_81						nd	nd
St_86	<i>Scaphoideus</i>	captured	in	<i>titanus</i>	5 th instar	nd	nd
St_101		vineyard		healthy	Grugliasco (TO). September 3. 2021	nd	nd
St_97						nd	nd
St_98			4 th instar		Grugliasco (TO). September 3. 2021	nd	nd
SL1-10	Symptomatic	grapevine	-		Giaglione (TO). September 3. 2021	11.8±2.3	29.5±2.8
	leaves						
NSL1-10	Non-symptomatic	grapevine	-		Giaglione (TO). September 3. 2021	17±4	32±4
	leaves						
HL1-10	Healthy	grapevine	-		Grugliasco (TO). September 3. 2021	nd	nd
	leaves						

*Tp = Time to positive; **Ct = threshold cycle; ***nd = not determined.