S2 Table. Full-length nucleotide sequence identities (%) of citrus tatter leaf virus isolates in this study and capilloviruses from NCBI GenBank database.

Isolate	Host		Geographic Origin	Isolation Year	GenBank Accesssion Number	GenBank Deposit Year	Clade	Cluster	AGSV-YTG	ASGV-HH	ASGV-CHN	ASGV-241KP	ASGV-P-209	ASGV-Nagami	CTLV-ASGV-2-HJY	CTLV-MTH	CTLV-IPPN122	CTLV-L	ASGV-Li-23	ASGV-FKSS2	ASGV-N297	ASGV-AC	ASGVp12	ASGV-Ac	ASGV-Matsuco	CTLV-Ponkan8	CTLV-Pk	CTLV-TL113	CTLV-TL114	CTLV-TL112	CTLV-LCd-NA-1	CTLV-HJY	CTLV-Kumquat1	CTLV-Shatang Orange	CTLV-XHC	CTLV-ML	CTLV-TL111	CTLV-TL110	CTLV-TL103	CTLV-TL101	CTLV-TL100	CTLV-TL102	CTLV-TL104	CTLV-TL115	ASGV-Kiyomi	CTLV-ASGV-1-HJY	PBNLSV	ASGV-kfp	ASGV-HT	CVA
AGSV-YTG	Apple	*Malus domestica*	China	2012	KJ579253	2014																																												
ASGV-HH	Pear	*Pyrus pyrifolia* cv. 'Huanghua'	China	2009	JN701424	2012			84.52																																									
ASGV-CHN	Apple	*Malus domestica*	China	2011	JQ308181	2013			83.23	90.54																																								
ASG-241KP	Apple	*Malus domestica*	Japan	1992	D14995	2008			86.78	87.12	86.34																																							
ASGV-P-209	Apple	*Malus domestica*	Japan	1993	NC001749	2018		I	86.78	87.12	86.34	100.0																																						
ASGV-Nagami	Kumquat	*Fortunella margarita* (Lour.) Swing.	Japan	2016	LC184612	2017			87.06	87.06	85.92	92.96	92.96																																					
CTLV-ASGV-2-HJY	Citrus- Huang Jin Mi You	*Citrus maxima* (Burm.) Merrill	China	2016	MH144343	2018	A		86.26	87.23	85.97	92.36	92.36	93.02																																					
CTLV-MTH	Citrus- Ponkan Mandarin	*Citrus reticulata* Blanco	China	2013	KC588948	2013			86.63	86.49	85.78	91.07	91.07	91.42	90.84																																				
CTLV-IPPN122	Citrus- Sa Tou Satsuma	*Citrus unshiu* (Macf.) Marc.	China	1992	MH108986	2018			84.52	84.57	83.72	86.06	86.06	86.54	87.23	86.82																																				
CTLV-L	Lily	*Lilium longiflorum*	Japan	1993	D16681	2008			83.04	84.09	83.12	82.98	82.98	82.95	83.11	83.45	83.48																																			
ASGV-Li-23	Apple	*Malus domestica*	Japan	1997	AB004063	2000		II	82.78	84.08	83.03	82.97	82.97	82.97	83.17	83.27	83.41	98.47																																		
ASGV-FKSS2	Citrus	*Citrus junos* Sieb. ex Tanaka	Japan	2014	LC143387	2016			83.37	84.89	83.54	83.44	83.44	83.68	83.85	84.13	83.96	94.90	94.70																																		
ASGV-N297	Citrus- Satsuma	*Citrus unshiu* (Macf.) Marc.	Japan	1987	LC184610	2017			82.98	84.43	83.35	83.27	83.27	83.68	83.68	84.06	83.38	94.24	94.04	95.27																																	
ASGV-AC	Apple	*Malus domestica*	Germany	2009	JX080201	2012			82.58	81.89	81.53	82.66	82.66	82.23	82.03	82.06	82.09	81.66	81.64	82.23	82.28																																
ASGVp12	Apple	*Malus domestica* cv. Red Chief	India	2011	HE978837	2015			82.12	81.16	80.90	81.76	81.76	81.42	80.99	81.49	81.42	80.84	80.87	81.47	81.42	97.31																															
ASGV-Ac	Actinidia	*Actinidia* sp.	China	2015	KX988001	2017			82.06	81.35	81.50	81.89	81.89	82.14	81.91	81.83	82.23	81.61	81.49	82.20	82.09	82.31	81.86																														
ASGV-Matsuco	Citrus	*Citrus tamurana*	Japan	2014	LC084659	2015			82.54	81.66	81.44	81.81	81.81	82.25	81.55	82.57	81.14	81.37	81.37	81.78	81.72	81.71	81.55	82.23																														
CTLV-Ponkan8	Citrus- Ponkan Mandarin	*Citrus reticulata* Blanco	Taiwan	2012	KY706358	2018			82.43	81.97	81.60	81.72	81.72	82.23	81.66	82.13	81.11	81.58	81.57	81.74	81.61	81.86	81.61	82.20	95.13																													
CTLV-Pk	Citrus- Ponkan Mandarin	*Citrus reticulata* Blanco	Taiwan	2012	JX416228	2012			82.43	81.97	81.60	81.72	81.72	82.23	81.66	82.14	81.12	81.57	81.57	81.74	81.61	81.86	81.61	82.20	95.13	100.0																											
CTLV-TL113	Citrus- Citron	*Citrus medica* L.	China	2014	MH108983	2018			82.35	82.01	81.60	81.64	81.64	82.15	81.66	82.08	81.18	81.49	81.46	81.75	81.54	81.98	81.73	82.26	95.05	99.43	99.43																									
CTLV-TL114	Citrus- Citron	*Citrus medica* L.	China	2014	MH108984	2018			82.26	81.83	81.40	81.93	81.93	82.29	81.98	82.60	81.51	81.52	81.47	81.91	81.71	81.97	81.93	82.57	93.88	96.18	96.18	96.35																							
CTLV-TL112	Citrus- Citron	*Citrus medica* L.	China	2014	MH108982	2018			82.30	81.71	81.60	82.07	82.07	82.60	81.94	82.37	81.58	81.60	81.61	81.95	81.78	82.29	81.92	82.49	93.51	93.27	93.27	93.75	92.67																					
CTLV-LCd-NA-1	Citrus- Sweet Orange	*Citrus sinensis* L. Osb.	Taiwan	2004	FJ355920	2008			82.14	81.46	81.41	81.66	81.66	82.32	81.58	82.01	81.26	81.28	81.29	81.66	81.43	82.11	81.72	82.43	94.24	93.95	93.93	94.47	93.42	98.73																					
CTLV-HJY	Citrus- Huang Jin Mi You	*Citrus maxima* (Burm.) Merrill	China	2016	MH144341	2018			82.24	81.55	81.29	81.89	81.89	82.29	81.68	82.29	81.35	81.15	81.17	81.40	81.25	81.81	81.69	82.52	94.19	93.88	93.88	93.81	94.75	94.11	95.01																				
CTLV-Kumquat1	Kumquat	*Fortunella margarita* (Lour.) Swing.	Taiwan	2004	AY646511	2004			82.41	81.54	81.20	81.87	81.87	82.17	81.74	82.38	81.37	81.43	81.30	81.65	81.55	81.83	81.59	82.25	94.11	93.96	93.95	93.87	95.52	94.31	95.10	97.18																			
CTLV-Shatang Orange	Citrus- Shatang Mandarin	*Citrus reticulata* Blanco	China	2011	JQ765412	2012	B		82.27	81.66	81.35	81.69	81.69	82.31	81.52	82.34	81.45	81.18	81.18	81.43	81.41	81.85	81.59	82.34	94.45	94.10	94.11	94.10	95.18	94.53	95.35	97.53	97.96																		
CTLV-XHC	Citrus- Sweet Orange	*Citrus sinensis* L. Osb.	China	2013	KC588947	2013			81.89	81.06	80.90	81.33	81.33	81.80	81.23	81.89	80.88	80.91	80.89	81.11	81.09	81.83	81.49	82.12	94.10	93.65	93.67	93.59	94.81	94.33	95.18	97.19	97.59	97.98																		
CTLV-ML	Citrus- Meyer Lemon	*Citrus limon* (L.) Burm.f. hyb.	FL, USA	2008	EU553489	2010			81.95	81.12	81.52	81.64	81.64	82.27	81.33	82.09	82.18	81.38	81.27	81.66	81.61	81.77	81.42	81.50	81.86	81.84	81.84	81.98	81.93	82.04	81.90	81.98	81.86	81.72	81.43																		
CTLV-TL111	Citrus- Meyer Lemon	*Citrus limon* (L.) Burm.f. hyb.	FL, USA	1964	MH108981	2018			81.95	81.12	81.52	81.64	81.64	82.27	81.33	82.09	82.18	81.38	81.27	81.66	81.61	81.77	81.42	81.50	81.86	81.84	81.84	81.98	81.93	82.04	81.90	81.98	81.86	81.72	81.43	100.0																	
CTLV-TL110	Citrus- Little Sweetie Satsuma	*Citrus unshiu* (Macf.) Marc.	CA, USA	1989	MH108980	2018			81.95	81.12	81.52	81.64	81.64	82.27	81.33	82.09	82.18	81.38	81.27	81.66	81.61	81.77	81.42	81.50	81.86	81.84	81.84	81.98	81.93	82.04	81.90	81.98	81.86	81.72	81.43	100.0	100.0																
CTLV-TL103	Citrus- Hirado Buntan Pummelo	*Citrus maxima* (Burm.) Merrill	Japan	1983	MH108978	2018			82.00	81.15	81.50	81.66	81.66	82.23	81.35	82.10	82.20	81.40	81.29	81.67	81.63	81.78	81.44	81.52	81.87	81.86	81.86	82.00	81.95	82.06	81.92	82.00	81.87	81.73	81.44	99.95	99.95	99.95														
CTLV-TL101	Citrus- Meyer Lemon	*Citrus limon* (L.) Burm.f. hyb.	CA, USA	1969	MH108976	2018			81.99	81.29	81.47	81.61	81.61	82.18	81.30	82.10	82.18	81.25	81.16	81.61	81.53	81.95	81.58	81.39	81.81	81.87	81.87	82.01	82.02	82.04	81.92	81.86	81.89	81.64	81.36	98.70	98.70	98.70	98.66												
CTLV-TL100	Citrus- Meyer Lemon	*Citrus limon* (L.) Burm.f. hyb.	TX, USA	1958	MH108975	2018		IV	82.04	81.29	81.53	81.84	81.84	82.32	81.47	82.17	82.10	81.30	81.23	81.77	81.81	81.95	81.55	81.55	81.86	81.93	81.93	82.07	82.03	82.12	81.98	81.97	81.89	81.69	81.41	98.52	98.52	98.52	98.47	98.98										
CTLV-TL102	Citrus- Meyer Lemon	*Citrus limon* (L.) Burm.f. hyb.	CA, USA	1958	MH108977	2018			82.23	81.35	81.64	81.95	81.95	82.40	81.67	82.18	82.40	81.49	81.40	81.93	81.83	81.98	81.56	81.50	81.83	81.92	81.92	82.04	82.01	82.30	81.87	81.98	82.00	81.73	81.43	97.99	97.99	97.99	98.01	98.56	98.33							
CTLV-TL104	Citrus- Kobeni Mikan Tangor	*Citrus reticulata* x *Citrus sinensis*	China	1987	MH108979	2018			81.73	81.47	81.83	81.80	81.80	82.46	81.92	82.46	82.03	81.37	81.29	82.14	81.90	82.06	81.58	81.97	81.78	82.03	82.03	82.10	82.40	82.00	81.81	81.86	81.95	81.70	81.47	92.51	92.51	92.51	92.56	92.87	92.60	92.54						
CTLV-TL115	Citrus- Dekopon Tangor	*Citrus reticulata* x *Citrus sinensis*	Japan	2007	MH108985	2018			81.50	81.15	81.27	81.87	81.87	82.18	81.61	82.35	81.81	81.49	81.29	82.03	81.73	81.93	81.47	81.67	81.95	82.01	82.01	82.06	82.44	82.00	81.75	82.00	82.10	81.89	81.66	92.02	92.02	92.02	92.04	92.30	92.20	92.05	95.73					
ASGV-Kiyomi	Citrus	*Citrus unshiu x Citrus sinensis*	Japan	2016	LC184611	2017			81.58	81.32	81.40	81.92	81.92	82.30	81.67	82.40	81.90	81.49	81.29	82.06	81.86	82.23	81.64	81.61	81.92	81.97	81.97	81.98	82.37	81.95	81.73	81.97	82.14	81.89	81.72	92.34	92.34	92.34	92.39	92.65	92.50	92.34	95.95	98.70				
CTLV-ASGV-1-HJY	Citrus- Huang Jin Mi You	*Citrus maxima* (Burm.) Merrill	China	2016	MH144342	2018			82.60	81.86	81.50	82.49	82.49	82.54	82.34	82.32	82.35	82.00	81.92	82.29	82.37	82.68	81.78	82.12	80.77	80.94	80.94	80.92	81.31	81.46	80.88	81.03	80.88	80.91	80.74	81.78	81.78	81.78	81.80	81.82	81.87	82.03	82.81	82.49	82.57			
PBNLSV	Pear	*Pyrus pyrifolia*	South Korea	2004	AY596172	2004		Outgroup	80.30	79.83	80.00	79.76	79.76	79.77	79.86	79.86	80.08	80.44	80.44	80.63	80.63	80.09	79.88	80.43	79.40	79.03	79.04	78.95	79.37	79.23	78.95	79.41	79.01	78.99	78.82	79.39	79.39	79.39	79.38	79.59	79.55	79.75	80.12	79.53	79.39	79.32				
ASGV-kfp	Pear	*Pyrus pyrifolia*	China	2014	KR106996	2015			79.98	79.65	79.50	79.64	79.64	80.13	79.92	79.98	79.76	79.58	79.52	79.93	80.01	80.06	79.22	79.41	80.26	80.12	80.10	79.92	80.15	80.10	80.01	80.27	80.06	80.10	79.90	79.52	79.52	79.52	79.56	79.59	79.52	79.48	79.72	79.70	79.61	80.27	79.19			
AGSV-HT	Apple	*Malus* spp. Crabapple	China	2015	KU947036	2017			80.87	79.34	78.90	79.09	79.09	79.41	79.09	79.65	79.29	78.94	78.82	79.23	79.07	79.61	78.92	78.97	79.23	79.19	79.20	79.12	79.64	79.29	79.23	79.23	79.26	79.31	78.97	79.67	79.67	79.67	79.69	79.68	79.79	79.81	79.44	79.47	79.41	78.78	78.43	79.21	
CVA	Cherry	*Prunus avium* L. cv. Sam	Germany	1994	NC003689	2018			26.57	26.69	26.20	26.89	26.89	26.70	26.30	26.61	26.33	25.73	25.86	25.91	25.76	26.16	25.88	26.15	25.98	26.41	26.41	26.43	26.15	26.33	26.10	25.95	26.12	26.04	25.91	26.82	26.82	26.82	26.82	26.82	26.75	26.98	26.80	26.60	26.58	26.67	26.31	25.99	26.24

Abbreviation: CTLV: citrus tatter leaf virus; ASGV: apple stem grooving virus; PBNLSV: pear black necrotic leaf spot virus; CVA: cherry virus A