

Supplementary figures

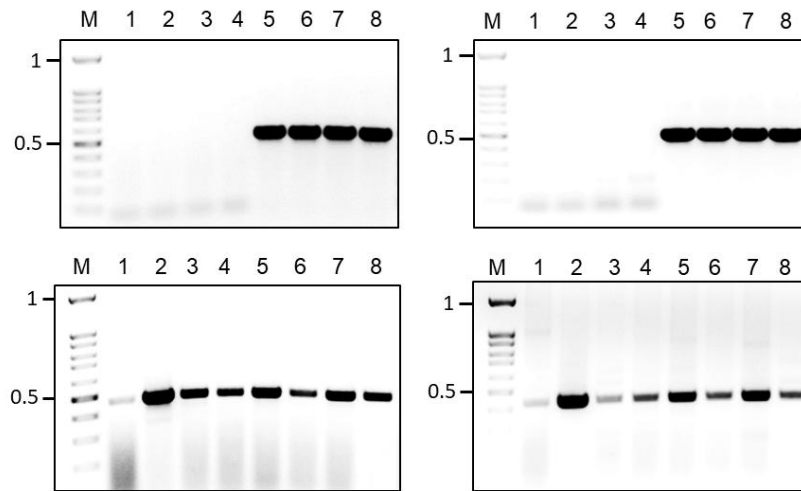


Figure S1. Detection of TRV Phlo RNA1 and 2 (upper panels) and PPV1 segments L and S (lower panels) in RNA samples from healthy (column 1-4) or symptomatic sages (columns 5-8). M: 100 bp DNA ladder. Numbers on the left indicate the 1 and 0.5 kb bands.



Figure S2. Alignment of the CP-preceding HPs from IFA65, Phlo, SYM and Mlo7.

Supplementary tables

Table S1. Description of RNA2s of TRV, PRV and PEBV isolates and their accession numbers.

Isolates	Location	Host (lab host)	Nucleotide	CP	2b
11r21	Poland	<i>Solanum tuberosum</i> (<i>N. tabacum</i>)	KF758797.1	AHG52766.1	AHG52767.1
20NR002	Canada	<i>Epimedium</i> sp.	MZ344592.1	UCJ01174.1	UCJ01175.1
AKK1	India	<i>Brassica oleracea</i>	-	UVC58662.1	-
Alstroemeria	Germany	<i>Alstroemeria</i> sp.	AY326439.1	AAR08141.1	-
BM	USA	<i>Solanum tuberosum</i>	AY166663.1	AAO37854.1	AAO37855.1
ByKt(LS)	Germany	<i>Solanum tuberosum</i>	KT033411.1	ALV82110.1	ALV82111.1
California	USA	<i>Solanum tuberosum</i>	MH614642.1	QDH82752.1	QDH82753.1
CeWGH	Germany	<i>Solanum tuberosum</i>	KX096037.1	AOW42045.1	AOW42047.1
Cot2	USA	<i>Solanum tuberosum</i>	AY166662.1	AAO37851.1	AAO37852.1
PV-0043	-	<i>Helianthus annuus</i> (<i>Nicotiana tabacum</i>)	MW854259.2	QYA72349.2	-
PV-1227	Germany	<i>Narcissus</i> sp. (<i>Nicotiana tabacum</i>)	MW854288.2	QYA72437.1	QYA72436.1
Da	Germany	<i>Solanum tuberosum</i>	MF061241.1	ATY48672.1	ATY48673.1
Db	Germany	<i>Solanum tuberosum</i>	MF061242.1	ATY48675.1	ATY48676.1
Deb57	Poland	<i>Solanum tuberosum</i> (<i>Nicotiana tabacum</i>)	KF758794.1	AHG52762.1	-
HaB	Germany	<i>Solanum tuberosum</i> (<i>Nicotiana benthamiana</i>)	KJ826366.1	AKA63705.1	AKA63706.1
I6	Italy	<i>Solanum tuberosum</i>	KT964816.1	AMW87043.1	AMW87045.1
IFA65	Italy	<i>Capsicum annuum</i> (<i>Nicotiana tabacum</i>)	ON156783.1	WCJ12590.1	-
JEO11-22	Burundi	<i>Solanum tuberosum</i>	MT537602.1	QYF10873.1	QYF10875.1
MI-1	USA	<i>Solanum tuberosum</i>	GQ903772.1	ACX54062.1	ACX54063.1
MPA	Germany	<i>Solanum tuberosum</i>	KT033408.1	ALV82098.1	ALV82100.1
Mlo7	Poland	<i>Solanum tuberosum</i>	KF758795.1	AHG52764.1	-
ON	Germany	<i>Onion</i>	Z97357.1	CAB10581.1	CAB10582.1
OR2	USA	<i>Solanum tuberosum</i>	AY166661.1	AAO37848.1	AAO37849.1
ORY	USA	<i>Solanum tuberosum</i> (<i>Nicotiana clevelandii</i>)	AF034621.1	AAC02063.1	AAC02064.1
PEBV-E116	The Netherlands	<i>Pisum sativum</i> (<i>Nicotiana clevelandii</i>)	AJ006500.1	CAA07067.1	CAA07068.1
PEBV-LyV66-91	Libya	<i>Vicia faba</i>	LC528623.1	BCA87381.1	BCA93639.1
PEBV-PV-298	The Netherland	<i>Pisum sativum</i> (<i>Chenopodium quinoa</i>)	MW854269.1	QYA72375.1	QYA72374.1
PEBV-SP5	UK	-	NC_001368.1	NP_040351.1	NP_040352.1
PRV-CAM2	Brazil	<i>Capsicum</i> sp.	LC639337.1	BCY26951.1	-
PRV-CAM	Brazil	-	NC_003670.1	NP_620037.1	-
PRV-Lavrinha	Brazil	<i>Solanum lycopersicon</i>	AB826686.1	BAN57344.1	-
PRV-Pivo4	Brazil	<i>Solanum lycopersicon</i>	AB826687.1	BAN57345.1	-
PSG	The Netherlands	<i>Solanum tuberosum</i>	-	P69470.1	-
PdC36-2	Portugal	<i>Paratrachodorus divergens</i>	DQ448618.1	ABE27893.1	ABE27894.1
PhB1-28	Portugal	<i>Paratrachodorus hispanus</i>	DQ448613.1	ABE27877.1	ABE27878.1
PmF-12	USA	<i>Paratrachodorus minor</i>	DQ448615.1	ABE27883.1	ABE27884.1
ppK20	Scotland	<i>Paratrachodorus pachydermus</i>	NC_003811.1	NP_620682.1	NP_620683.1
Rostock	Germany	<i>Solanum tuberosum</i>	AJ272198.1	CAB75405.1	-
Slu24	Poland	<i>Solanum tuberosum</i> (<i>Nicotiana tabacum</i>)	KF758796.1	AHG52765.1	-
SP	Germany	<i>Spinacia oleracea</i> (<i>Nicotiana clevelandii</i>)	AJ007293.1	CAB56545.1	CAB56546.1
SYM	UK	<i>Spinacia oleracea</i>	FR854197.1	CCA89314.1	-
TCM	The Netherlands	<i>Tulipa</i> sp.	-	P05072.1	P05078.1
Toya80	Japan	<i>Paeonia lactiflora</i>	LC553846.1	BCG52940.1	-
TpC30-12	Portugal	<i>Solanum tuberosum</i>	DQ448616.1	ABE27887.1	ABE27889.1
Umt1	USA	<i>Solanum tuberosum</i>	AY166660.1	AAO37845.1	AAO37846.1

Table S2. Accession numbers of the proteins used for the phylogenetic analyses of phenivirids.

Virus	Accronym	Genus	RP	N	MP
Alternaria tenuissima negative-stranded RNA virus 2	AtNSV2	"Mycobunyavirus"	QDB75016.1	DAZ92291.1	-
Apple rubbery wood virus 1	ARWV-1	<i>Rubodvirus</i>	AWC67522.1	AWC67524.1	AWC67523.1
Apple rubbery wood virus 2	ARWV-2	<i>Rubodvirus</i>	AWC67530.1	AWC67532.1	AWC67531.1
Armillaria bunya-like virus 2	AbIV2	<i>Lentinivirus</i>	WEA82902.1	WEA82904.1	WEA82903.1
Blackberry line pattern virus	BlaLPV	<i>Coguvirus</i>	WDD63195.1	WDD63197.1	WDD63193.1
Botrytis cinerea bocivirus 1	BcbV1	<i>Bocivirus</i>	QJT73693.1	QJT73691.1	QJT73692.1
Brassica campestris chinensis coguvirus 1	BCCoV1	<i>Coguvirus</i>	YP_010840811.1	YP_010840813.1	YP_010840812.1
Citrus concave gum-associated virus	CCGaV	<i>Coguvirus</i>	AYN78565.1	UCJ00928.1	YP_009407930.1
Citrus leaf flecking-associated virus	ClfaV	<i>Coguvirus</i>	QBZ68778.1	QBZ68780.1	QBZ68779.1
Citrus virus A	CvA	<i>Coguvirus</i>	QEU56214.1	QPF47543.1	QEU56215.1
Colletotrichum associated negative ssRNA virus	CaNSRV	<i>Laulavirus</i>	UYD21358.1	-	-
Cordyceps javanica negative-strand RNA virus 1	CjNRSV1	<i>Laulavirus</i>	WYM67035.1	WYM67037.1	WYM67036.1
Edgeworthia chrysantha mosaic-associated virus	ECMaV	<i>Coguvirus</i>	UZA34087.1	UZA34089.1	UZA34088.1
Entoleuca phenui-like virus 1	EnPLV1	<i>Entovirus</i>	YP_010086241.1	YP_010086242.1	YP_010086243.1
Fusarium asiaticum mycobunyavirus 1	FaMBV1	"Mycobunyavirus"	UNG44337.1	UNG44339.1	-
Fusarium sibiricum coguvirus 1	FScV1	<i>Bocivirus</i>	WCU24516.1	WCU24517.1	-
Grapevine Garan dmak virus	GGDV	<i>Rubodvirus</i>	QDZ17039.1	QDZ17041.1	QDZ17040.1
Grapevine Muscat rose virus	GMRV	<i>Rubodvirus</i>	QDZ17042.1	QDZ17044.1	QDZ17043.1
Guangxi phenui-like virus	GpIV	<i>Entovirus</i>	QYF49540.1	QYF49541.1	QYF49542.1
Grapevine associated cogu-like virus 2	GacIV2	<i>Laulavirus</i>	QIJ25707.1	QIJ25709.1	YP_010840129.1
Grapevine associated cogu-like virus 3	GacIV3	<i>Laulavirus</i>	YP_010840134.1	YP_010840133.1	YP_010840132.1
Hainan phenui-like virus 1	HplV1	<i>Entovirus</i>	QYF49532.1	-	-
Hainan phenui-like virus 2	HplV2	<i>Entovirus</i>	QYF49537.1	-	-
Hainan phenui-like virus 5	HplV5	<i>Entovirus</i>	QYF49556.1	-	-
Heartland virus	HV	<i>Bandavirus</i>	YP009047242.1	YP_009047244.1	-
Huangpi tick virus 2	HtV2	<i>Uukuvirus</i>	AJG39238.1	YP_009293592.1	-
Hubei diptera virus 3	HdV3	<i>Beidivirus</i>	YP009329894.1	YP_009329896.1	-
Hubei diptera virus 4	HdV4	<i>Hudivirus</i>	YP009330281.1	YP_009330280.1	-
Hubei diptera virus 5	HdV5	<i>Phasivirus</i>	YP009330277.1	YP_009330282.1	-
Hubei lepidoptera virus 1	Hlv1	<i>Hudovirus</i>	YP009330283.1	YP_009330256.1	-
Hubei sediment phenui-like virus 1	HsplV1	-	QYF49529.1	QYF49531.1	QYF49530.1
Inner Mongolia phenui-like virus 1	IMplV1	<i>Entovirus</i>	QYF49547.1	-	-
Inner Mongolia phenui-like virus 2	IMplV2	<i>Entovirus</i>	QYF49533.1	QYF49534.1	QYF49535.1
Jiangsu sediment phenui-like virus	JsplV	<i>Entovirus</i>	QYF49543.1	QYF49544.1	QYF49545.1
Laurel lake virus	LLV	<i>Laulavirus</i>	YP_009667028.1	YP_009667030.1	YP_009667029.1
Lettuce dieback associated virus	LDaV	-	QWM97856.1	QWM97858.1	QWM97857.1
Lentinula edodes negative-strand RNA virus 2	LeNSRV2	<i>Lentinivirus</i>	YP_010086265.1	QOX06039.1	QOX06040.1

Melon chlorotic spot virus	MeCSV	Mechlorovirus	YP_009551587.1	YP_009551593.1	-
Mothra virus	MV	Mobuvirus	APJ35636.1	APJ35637.1	-
Muscari virus A	MvA	-	QDC21223.1	-	QDC21224.1
Pidgey virus	PGYV	<i>Pidchovirus</i>	AOX47534.1	AOX47532.1	-
Rhizoctonia cerealis lentinivirus	RcLV	<i>Lentinivirus</i>	WMI40092.1	-	-
Rice grassy stunt virus	RGSV	<i>Tenuivirus</i>	NP058528.1	NP_058536.1	-
Rice hoja blanca virus	RHBV	<i>Tenuivirus</i>	YP009449440.1	YP_009449448.1	-
Rice stripe virus	RSV	<i>Tenuivirus</i>	NP620522.1	P68560.2	-
Rift Valley fever virus	RVfV	<i>Phlebovirus</i>	YP_003848704.1	YP_003848707.1	-
Sanya phenivirus 1	SPV1	<i>Bocivirus</i>	UHM27566.1	UHM27568.1	UHM27567.1
Sclerotinia sclerotiorum phlebo-like virus 1	SsPLV1	"Mycobunyavirus"	AHE13863.1	-	-
Sichuan phenui-like virus 1	SplV1	<i>Entovirus</i>	QYF49536.1	-	-
Sichuan phenui-like virus 3	SplV3	<i>Entovirus</i>	QYF49552.1	QYF49553.1	QYF49554.1
Sichuan phenui-like virus 4	SplV4	<i>Entovirus</i>	QYF49557.1	-	-
Toscana virus	TV	<i>Phlebovirus</i>	AMY16465.1	QIQ30938.1	-
Trichoderma gamsii cogu-like virus 1	TgCLV1	<i>Bocivirus</i>	WJX09056.1	WJX09058.1	WJX09057.1
Valsa mali negative-strand RNA virus 1	VmNSV1	<i>Laulavirus</i>	WNA11489.1	WNA11491.1	WNA11490.1
Watermelon crinkle leaf-associated virus 1	WCLaV-1	<i>Coguvirus</i>	YP_010840816.1	YP_010840815.1	UTU07476.1
Wenzhou shrimp virus 1	WsV1	<i>Wenrivirus</i>	AJG39256.1	AJG39318.1	-
Wuhan horsefly virus	WhV	<i>Horwuvirus</i>	AJG39260.1	AJG39322.1	-
Yichang insect virus	YiV	<i>Goukovirus</i>	AJG39273.1	AJG39334.1	-
Yunnan phenui-like virus	YpIV	<i>Entovirus</i>	QYF49549.1	QYF49550.1	QYF49551.1
Tomato spotted wilt orthotospovirus	TSWV	<i>Ortospovirus</i>	BAD51468.1	APB89194.1	-
European mountain ash ringspot associated virus	EMARaV	<i>Emaravirus</i>	YP003104764.1	-	-