Table S1. Accession numbers of potyviruses used for sequence analysis in this study

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| Scientific name | Abbreviation | Accession number |
| *African eggplant mosaic virus*  | AEMV | MF997470 |
| *Algerian watermelon mosaic virus* | AWMV | EU410442 |
| *Apium virus Y*  | ApVY | HM363516 |
| *Arracacha mottle virus* | AMoV | DQ925486 |
| *Artichoke latent virus\** | ArLV | KP405232 |
| *Asparagus virus 1*  | AV1 | KJ830760 |
| *Banana bract mosaic virus*  | BBrMV | DQ851496 |
| *Barbacena virus Y*  | BarVY | KU685505 |
| *Basella rugose mosaic virus*  | BaRMV | DQ821938 |
| *Bean common mosaic necrosis virus*  | BCMNV | U19287 |
| *Blackeye cowpea mosaic virus*  | BlCMV | AJ312437 |
| *Bean yellow mosaic virus*  | BYMV | D83749 |
| *Beet mosaic virus*  | BtMV | AY206394 |
| *Begonia flower breaking virus*  | BFBV | MN592680 |
| *Bidens mosaic virus*  | BiMV | KF649336 |
| *Bidens mottle virus*  | BiMoV | AF538686 |
| *Blue squill virus A*  | BSVA | JQ807999 |
| *Brugmansia mosaic virus* | BruMV | JX867236 |
| *Brugmansia suaveolens mottle virus*  | BsMoV | AB551370 |
| *Callistephus mottle virus*  | CalMoV | KX013584 |
| *Canna yellow streak virus*  | CaYSV | GQ421689 |
| *Carrot thin leaf virus*  | CTLV | JX156434 |
| *Catharanthus mosaic virus*  | CatMV | KP343681 |
| *Celery mosaic virus*  | CeMV | HQ676607 |
| *Chilli ringspot virus*  | CRSV | JN008909 |
| *Chilli veinal mottle virus*  | ChiVMV | AJ237843 |
| *Clover yellow vein virus*  | ClYVV | AB011819 |
| *Cocksfoot streak virus* | CSV | AF499738 |
| *Colombian datura virus*  | CDV | JQ801448 |
| *Costus stripe mosaic virus*  | CoSMV | MK286375 |
| *Cowpea aphid-borne mosaic virus*  | CABMV | AF348210 |
| *Cucurbit vein banding virus*  | CVBV | KY657266 |
| *Cyrtanthus elatus virus A*  | CEVA | JQ723475 |
| *Daphne mosaic virus*  | DapMV | DQ299908 |
| *Daphne virus Y*  | DVY | KU556609 |
| *Dasheen mosaic virus*  | DsMV | AJ298033 |
| *Dendrobium chlorotic mosaic virus*  | DeCMV | MK241979 |
| *Dioscorea mosaic virus*  | DMV | MH206616 |
| *Donkey orchid virus A*  | DOVA | JX156422 |
| *East Asian Passiflora distortion virus* | EAPDV | LC379162 |
| *East Asian passiflora virus*  | EAPV | AB246773 |
| *Freesia mosaic virus*  | FreMV | FM206346 |
| *Fritillary virus Y*  | FVY | AM039800 |
| *Gloriosa stripe mosaic virus*  | GSMV | EF427894 |
| *Gomphocarpus mosaic virus*  | GoMV | LC228573 |
| *Habenaria mosaic virus*  | HaMV | AB818538 |
| *Hardenbergia mosaic virus*  | HarMV | HQ161081 |
| *Hippeastrum mosaic virus*  | HiMV | JQ395040 |
| *Hyacinth mosaic virus*  | HyaMV | KY828925 |
| *Impatiens flower break virus*  | IFBV | KU981084 |
| *Iris severe mosaic virus* | ISMV | KT692938 |
| *Japanese yam mosaic virus*  | JYMV | AB027007 |
| *Jasmine virus T* | JVT | KT222674 |
| *Johnsongrass mosaic virus*  | JGMV | Z26920 |
| *Keunjorong mosaic virus*  | KjMV | JF838187 |
| *Konjac mosaic virus*  | KoMV | AB219545 |
| *Leek yellow stripe virus*  | LYSV | AJ307057 |
| *Lettuce Italian necrotic virus*  | LINV | KP769852 |
| *Lettuce mosaic virus*  | LMV | X97705 |
| *Lily mottle virus*  | LMoV | AJ564636 |
| *Lily virus Y*  | LVY | MF543013 |
| *Lupinus mosaic virus*  | LuMV | EU847625 |
| *Maize dwarf mosaic virus*  | MDMV | AJ001691 |
| *Mashua virus Y*  | MasVY | MH680824 |
| *Mediterranean ruda virus*  | MeRV | MF953305 |
| *Moroccan watermelon mosaic virus*  | MWMV | EF579955 |
| *Narcissus degeneration virus*  | NDV | AM182028 |
| *Narcissus late season yellows virus*  | NLSYV | KC691259 |
| *Narcissus yellow stripe virus*  | NYSV | AM158908 |
| *Noni mosaic virus*  | NoMV | MN114634 |
| *Onion yellow dwarf virus* | OYDV | AJ510223 |
| *Ornithogalum mosaic virus*  | OrMV | JQ807997 |
| *Panax virus Y*  | PanVY | GQ916624 |
| *Papaya leaf distortion mosaic virus*  | PLDMV | BD171712 |
| *Papaya ringspot virus*  | PRSV | X67673 |
| *Paris mosaic necrosis virus*  | PMNV | MF509898 |
| *Paris virus 1*  | ParV1 | MN549985 |
| *Passiflora mottle virus*  | PaMoV | MH286883 |
| *Passion fruit woodiness virus*  | PWV | HQ122652 |
| *Pea seed-borne mosaic virus*  | PSbMV | D10930 |
| *Peanut mottle virus*  | PeMoV | AF023848 |
| *Pecan mosaic-associated virus*  | PMaV | KT633868 |
| *Pennisetum mosaic virus*  | PenMV | AY642590 |
| *Pepper mottle virus*  | PepMoV | M96425 |
| *Pepper severe mosaic virus*  | PepSMV | AM181350 |
| *Pepper veinal mottle virus*  | PVMV | DQ645484 |
| *Pepper yellow mosaic virus*  | PepYMV | AB541985 |
| *Peru tomato mosaic virus*  | PTV | AJ437280 |
| *Platycodon mild mottle virus*  | PlaMMV | MH779625 |
| *Pleione flower breaking virus*  | PlFBV | MH376747 |
| *Plum pox virus* | PPV | AJ243957 |
| *Pokeweed mosaic virus*  | PkMV | JX291161 |
| *Potato virus A potato virus A*  | PVA | AJ296311 |
| *Potato virus V potato virus V*  | PVV | AJ243766 |
| *Potato virus Y potato virus Y*  | PVY | U09509 |
| *Potato yellow blotch virus*  | PYBV | JX294310 |
| *Saffron latent virus*  | SaLV | KY562565 |
| *Scallion mosaic virus*  | ScaMV | AJ316084 |
| *Shallot yellow stripe virus*  | SYSV | AJ865076 |
| *Sorghum mosaic virus*  | SrMV | AJ310197 |
| *Soybean mosaic virus*  | SMV | D00507 |
| *Sudan watermelon mosaic virus*  | SuWMV | KY623505 |
| *Sugarcane mosaic virus* | SCMV | AJ297628 |
| *Sunflower chlorotic mottle virus*  | SCMoV | GU181199 |
| *Sunflower mild mosaic virus*  | SMMV | JQ350738 |
| *Sunflower ring blotch virus*  | SuRBV | KX856009 |
| *Sweet potato feathery mottle virus*  | SPFMV | D86371 |
| *Sweet potato latent virus*  | SPLV | KC443039 |
| *Sweet potato virus 2*  | SPV2 | JN613807 |
| *Sweet potato virus C*  | SPVC | GU207957 |
| *Sweet potato virus G*  | SPVG | JQ824374 |
| *Tamarillo leaf malformation virus*  | TLMV | KM523548 |
| *Telosma mosaic virus*  | TelMV | DQ851493 |
| *Thunberg fritillary mosaic virus*  | TFMV | AJ851866 |
| *Tobacco etch virus*  | TEV | M11458 |
| *Tobacco mosqueado virus*  | TMosqV | KT834407 |
| *Tobacco vein banding mosaic virus*  | TVBMV | EF219408 |
| *Tobacco vein mottling virus*  | TVMV | X04083 |
| *Tomato necrotic stunt virus*  | TNSV | JQ314463 |
| *Turnip mosaic virus*  | TuMV | AF169561 |
| *Ugandan passiflora virus* | UPV | MK110656 |
| *Vanilla distortion mosaic virus*  | VDMV | KF906523 |
| *Verbena virus Y* | VVY | EU564817 |
| *Watermelon mosaic virus*  | WMV | AY437609 |
| *Wild melon banding virus*  | WMVBV | KY623506 |
| *Wild onion symptomless virus*  | WoSV | LC159494 |
| *Wild potato mosaic virus*  | WPMV | AJ437279 |
| *Wild tomato mosaic virus*  | WTMV | DQ851495 |
| *Wisteria vein mosaic virus*  | WVMV | AY656816 |
| *Yam mild mosaic virus*  | YMMV | JX470965 |
| *Yam mosaic virus*  | YMV | U42596 |
| *Yambean mosaic virus*  | YBMV | JN190431 |
| *Zantedeschia mild mosaic virus*  | ZaMMV | AY626825 |
| *Zea mosaic virus*  | ZeMV | JQ692088 |
| *Zucchini shoestring virus*  | ZSV | KU355553 |
| *Zucchini tigre mosaic virus*  | ZTMV | KC345607 |
| *Zucchini yellow mosaic virus*  | ZYMV | AF127929 |

\**Artichoke latent virus* belonging to the genus *Macluravirus* is used as an outgroup.