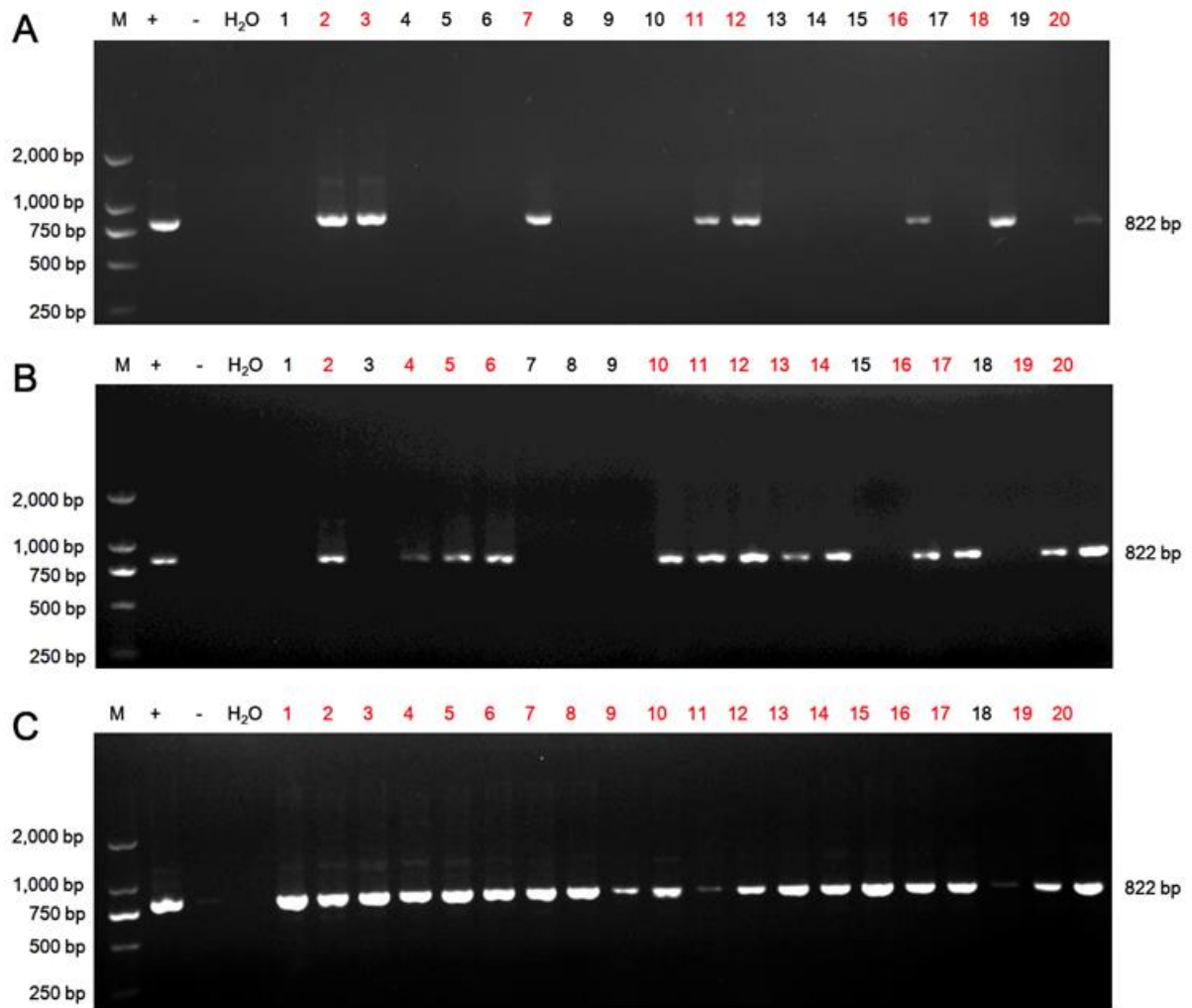


**Figure S1.** Sensitiveness of detection of *Citrus tristeza virus* (CTV) cDNA in host samples through conventional PCR with the universal primer set Uni-f/r. The primers were designed based on *p27* gene of CTV using Primer3web v.4.1.0. Cycle threshold values of each sample are indicated in Table S2, tested by Taqman qPCR based on CTV *p20* gene (Liu et al. 2008). Numbers in red indicate CTV-positive samples.



**Figure S2.** *Citrus tristeza virus* (CTV) detection in cDNA extractions of *Diaphorina citri* from orchards in Qingyuan, Guangdong (A), Ganzhou, Jiangxi (B), and Zhaoqing, Guangdong (C), P.R. China. Primer set Uni-f/r was designed based on *p27* gene of CTV (Liu et al. 2008) using Primer3web v.4.1.0. Numbers in red indicate CTV-positive samples.



**Figure S3.** Representative pictures of symptoms of *Citrus tristeza virus* (CTV) infection in *Citrus × Limon* plants after 210 days exposure to CTV-positive *Diaphorina citri*, in comparison to healthy plants after exposure to the CTV-negative psyllids. CTV-positive plants are on the left-hand side, while CTV-free plants are shown on the right-hand side. (A) Crown diameter and plant height; (B) Young shoots; (C) Leaf shapes; (D) Mature leaf colors.

**Table S1.** Host plants with different species used in each experiment about CTV acquisition, persistence and transmission by *Diaphorina citri*<sup>a</sup>

| Experiment details  | Plant species        |   | No. of host plants                                       | Purposes of the experiment  |
|---|----------------------|---|--|---|
|   | English name         | Latin name  |  |   |
| Acquisition (Orchard surveys)                                 | ‘Shatangju’ mandarin | <i>Citrus reticulata</i> Blanco ‘Shatangju’           | 20   | To determine whether <i>D. citri</i> can carry CTV universally to the three most common orchard species infected with CTV   |
|   | ‘fingered citron’    | <i>C. medica</i> L. var. <i>sarcodactylis</i> Swingle | 20   |   |
|   | Sweet orange         | <i>Citrus × aurantium</i> var. <i>sinensis</i> L.     | 20   |   |
| Acquisition (Laboratory condition)                            | ‘Shatangju’ mandarin | <i>Citrus reticulata</i> Blanco ‘Shatangju’           | 10 (CTV+ <i>D. citri</i> ),<br>3 (CTV- <i>D. citri</i> ) | Further investigate the ability of <i>D. citri</i> obtaining CTV, and provide high CTV-positive or -negative psyllids samples for the next experiment               |
| Persistence in <i>D. citri</i> (Laboratory condition)         | ‘Shatangju’ mandarin | <i>Citrus reticulata</i> Blanco ‘Shatangju’           | 12 (5-day IAP),<br>8 (15-day IAP)                        | The persistence of CTV in <i>D. citri</i> were checked considering the effects between two preferential host species of <i>D. citri</i>                             |
|   | Orange jasmine       | <i>Murraya paniculata</i> (L.) Jack                   | 8 (5-day IAP),<br>8 (15-day IAP)                         |   |
| Transmission of CTV by <i>D. citri</i> (Laboratory condition) | ‘Shatangju’ mandarin | <i>Citrus reticulata</i> Blanco ‘Shatangju’           | 12 (CTV+ <i>D. citri</i> ),<br>3 (CTV- <i>D. citri</i> ) | Transmission efficiency of CTV by <i>D. citri</i> were described under laboratory conditions using three species of Rutaceae family with different tolerance to CTV |
|   | Orange jasmine       | <i>Murraya paniculata</i> (L.) Jack                   | 8 (CTV+ <i>D. citri</i> ),<br>3 (CTV- <i>D. citri</i> )  |   |
|   | ‘Eureka’ lemon       | <i>Citrus × limon</i> var. <i>limon</i> (L.) Burm. f. | 6 (CTV+ <i>D. citri</i> ),<br>3 (CTV- <i>D. citri</i> )  |   |

<sup>a</sup> Legend: CTV+: CTV-positive; CTV-: CTV-negative; IAP: inoculation access periods.

**Table S2.** Viral load thresholds for the detection of *Citrus tristeza virus* (CTV) in *Diaphorina citri* cDNA samples used in this study, from correlating RT-qPCR quantitative estimations with a visual band detection by PCR <sup>a</sup>

| Sample number      | Ct value            | Relative titer  | Conventional PCR band detection |
|--------------------|---------------------|-----------------|---------------------------------|
| 1                  | 25.49 ± 0.04        | 6738.40 ± 10.25 | +                               |
| 2                  | 25.88 ± 0.50        | 5801.12 ± 8.36  | +                               |
| 3                  | 26.46 ± 0.04        | 4026.16 ± 8.55  | +                               |
| 4                  | 27.06 ± 0.05        | 2794.89 ± 20.16 | +                               |
| 5                  | 27.55 ± 0.02        | 1339.57 ± 7.89  | +                               |
| 6                  | 27.84 ± 0.11        | 1137.76 ± 8.32  | +                               |
| 7                  | 28.50 ± 0.04        | 994.22 ± 9.64   | +                               |
| 8                  | 29.17 ± 0.01        | 708.57 ± 7.96   | +                               |
| 9                  | 29.34 ± 0.01        | 578.38 ± 6.10   | +                               |
| 10                 | 29.69 ± 0.08        | 441.29 ± 3.59   | +                               |
| 11                 | 30.64 ± 0.04        | 247.78 ± 2.91   | +                               |
| 12                 | 31.12 ± 0.05        | 174.28 ± 1.06   | +                               |
| 13                 | 31.94 ± 0.05        | 105.55 ± 0.86   | +                               |
| 14                 | 32.97 ± 0.06        | 58.92 ± 0.33    | +                               |
| 15                 | 33.81 ± 0.09        | 29.67 ± 0.24    | +                               |
| 16                 | 34.90 ± 0.05        | 16.53 ± 0.34    | +                               |
| 17                 | <u>35.88 ± 0.05</u> | 4.84 ± 0.26     | +                               |
| 18                 | <u>36.86 ± 0.10</u> | 1.51 ± 0.08     | -                               |
| 19                 | 37.86 ± 0.06        | 0.30 ± 0.04     | -                               |
| 20                 | 38.48 ± 0.02        | 0.18 ± 0.01     | -                               |
| Positive           | 27.50 ± 0.04        | 1113.18 ± 7.41  | +                               |
| Negative           | 37.49 ± 0.07        | 0.46 ± 0.07     | -                               |
| ddH <sub>2</sub> O | N/A                 | N/A             | -                               |

<sup>a</sup> Twenty samples were selected with cycle threshold (Ct) values (*p20* of CTV) ranging from 25.49 to 38.48; means are presented with standard deviations; *D. citri* collected from healthy *Murraya paniculata* were used as negative controls. Samples with values underlined fall in the ambiguous intermediate band detection range, thus were not used in further analyses. qPCR was performed using a DBI Taqman PCR Reagent Kit (Applied Biosystems) using the primer set and probe of qP20-f/r/p. qPCR was performed in three independent assays of each cDNA. Relative titers of CTV=copy numbers of CTV *p20* gene/ ng of total *D. citri* cDNA. Conventional PCR was performed using Uni-f/r primer set designed in this study based on *p27* gene of CTV using Primer3web v.4.1.0, the bands on the gel were indicated in Figure S1. N/A: not available.

**Table S3.** ELISA readings of *Citrus tristeza virus* (CTV) capsid proteins in host plants *Citrus reticulata* and *C. ×Limon* detected at 0 d and 210 days after Inoculation Access Period (IAP) by exposure to CTV-positive *Diaphorina citri*<sup>a</sup>

| Plant genotype       | Specimen ID        | 0 d                      |      |              | 210 d                    |      |              |
|----------------------|--------------------|--------------------------|------|--------------|--------------------------|------|--------------|
|                      |                    | <i>OD</i> <sub>405</sub> | S/N  | Test results | <i>OD</i> <sub>405</sub> | S/N  | Test results |
| <i>C. reticulata</i> | R1                 | 0.059                    | 1.11 | -            | 0.319                    | 6.93 | +            |
|                      | R2                 | 0.067                    | 1.26 | -            | 0.221                    | 4.80 | +            |
|                      | R3                 | 0.055                    | 1.04 | -            | 0.283                    | 6.15 | +            |
|                      | R4                 | 0.063                    | 1.19 | -            | 0.185                    | 4.02 | +            |
|                      | R5                 | 0.067                    | 1.26 | -            | 0.269                    | 5.85 | +            |
|                      | R6                 | 0.065                    | 1.23 | -            | 0.220                    | 4.78 | +            |
|                      | R7                 | 0.058                    | 1.09 | -            | 0.284                    | 6.17 | +            |
|                      | R8                 | 0.059                    | 1.11 | -            | 0.063                    | 1.37 | -            |
|                      | R9                 | 0.070                    | 1.32 | -            | 0.063                    | 1.37 | -            |
|                      | R10                | 0.064                    | 1.21 | -            | 0.064                    | 1.39 | -            |
|                      | R11                | 0.063                    | 1.19 | -            | 0.076                    | 1.65 | -            |
|                      | R12                | 0.056                    | 1.06 | -            | 0.064                    | 1.39 | -            |
|                      | CK(+) <sup>1</sup> | 0.121                    | 2.28 | +            | 0.310                    | 6.74 | +            |
|                      | CK(-) <sup>1</sup> | 0.053                    | 1.00 | -            | 0.046                    | 1.00 | -            |
| <i>C. ×Limon</i>     | L1                 | 0.064                    | 1.49 | -            | 0.102                    | 2.32 | +            |
|                      | L2                 | 0.077                    | 1.79 | -            | 0.100                    | 2.27 | +            |
|                      | L3                 | 0.057                    | 1.33 | -            | 0.105                    | 2.39 | +            |
|                      | L4                 | 0.070                    | 1.63 | -            | 0.091                    | 2.07 | +            |
|                      | L5                 | 0.067                    | 1.56 | -            | 0.103                    | 2.34 | +            |
|                      | L6                 | 0.070                    | 1.63 | -            | 0.075                    | 1.70 | -            |
|                      | CK(+) <sup>2</sup> | 0.113                    | 2.63 | +            | 0.265                    | 6.02 | +            |
|                      | CK(-) <sup>2</sup> | 0.043                    | 1.00 | -            | 0.044                    | 1.00 | -            |

<sup>a</sup> ELISA sample extracts were prepared in 1X General Extract Buffer (see the buffer formulations guide from Agdia, Inc. at [www.agdia.com](http://www.agdia.com) / [info@agdia.com](mailto:info@agdia.com)) from three young leaf midribs (each recorded as a separate repetition) from three different shoots. *OD*<sub>405</sub>: optical density at 405 nm; CK(+): CTV infected sample from which the virus was purified for the raising of antibodies; CK(-): healthy sample; S/N: *OD* ratio of specimen/negative. When the ratio reached > 2.00, the sample was considered positive.