**Supplemental Figures S1-S3, Tables S1 and S2.**

**High flavonoid-producing tomato reduces whitefly phloem-feeding efficiency by inducing reactive oxygen species accumulation and callose deposition**

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**Figure S1. The activity of ROS-scavenging enzymes** **in high flavonoid-producing NIL-PH and low flavonoid-producing NIL-GH tomato leaves in response to whitefly infestation.** The enzyme activity of CAT (a), SOD (b), and APX (c) was determined in NIL-PH and NIL-GH tomato leaves at 0, 24, and 48 h after whitefly infestation. Values are means ± SEs (*n* = 6).



**Figure S2. Expression analysis of callose synthase genes in response to whitefly infestation.** Transcript levels of *Cals2*, *Cals3*, *Cals5*, *Cals9, Cals10* and *Cals11* in NIL-PH and NIL-GH tomato leaves at 0, 24, and 48 h after whitefly infestation were analyzed using quantitative real time (qRT)-PCR. Values are the means ± SEs (*n* = 4).



**Figure S3. Expression analysis of callose degradation genes in response to whitefly infestation.** Transcript levels of *GLU1*, *GLU3*, *GLU5*, *GLU6, GLU7* and *GLU13* in NIL-PH and NIL-GH tomato leaves at 0, 24, and 48 h after whitefly infestation were analyzed using quantitative real time (qRT)-PCR. Values are the means ± SEs (*n* = 4).



**Table S1. Feeding behavior parameters for whiteflies on leaves of high flavonoid-producing NIL-PH and low flavonoid-producing NIL-GH tomato plants during a 8-h recording.**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **NIL-PH** | **NIL-GH** |
| Total duration of non-probing (min) | 182.6± 15.8\* | 130.6± 11.2 |
| Total duration of probing (min) | 108.2 ± 9.8 | 158.4 ± 13.2\* |
| Number of probes | 77.5 ± 8.6 | 92.8 ± 9.2 |
| Total duration of stylet pathway (min) | 138.4 ± 11.5\* | 96.2 ± 9.5 |
| Number of stylet pathway | 14.2 ± 5.2 | 12.8 ± 5.0 |
| Time from start to first probe (min) | 18.4 ± 5.6\* | 6.2 ± 2.2 |
| Time from first probe to first phloem ingestion (min) | 162.8 ± 13.6\* | 120.2 ± 10.8 |
| Number of probes before first phloem ingestion | 40.2 ± 6.8 | 32.6 ± 5.8 |
| Total duration of watery salivation (min) | 0.86 ± 0.18 | 1.68 ± 0.28\* |
| Number of watery salivation | 6.6 ± 0.8 | 8.7 ± 1.6 |
| Total duration of phloem ingestion (min) | 38.6 ± 6.2 | 86.5 ± 8.6\*\* |
| Number of phloem ingestion | 9.6 ± 1.2 | 10.2 ± 1.4 |

Values are means ± SE. For each parameter, an asterisk indicates a significant difference between the two plant genotypes according to the Student’s *t*-test (\**P* < 0.05, \*\**P* < 0.01).

**Table S2. Primers used in this study.**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Accession No. | Forward primer(5’→3’) | Reverse primer(5’→3’) |
| *SlRBOH1* | LOC543571 | CATTTGATTTGGGACA | CTTCAACAAACTCCTCC |
| *SlCALS2* | LOC101254331 | TGATGTCACAATGTCAGGCAGTT | GCCAGTTTCGTCAATCTCGTC |
| *SlCALS3* | LOC101263837 | CTCCAGTTATCCTTGTTTATTTC | TTTTTAGGTTGCTCACTCTTCTC |
| *SlCALS5* | LOC101249782 | TACATTCAAGTTGGAAAGGGGCGA | GCATACGGAAGAAATCAAAGCGAT |
| *SlCALS7* | LOC101249281 | TTGTGTTCAATCCGTCTGGTTT | GTTTTAGATGTTCCTGCTCCCC |
| *SlCALS9* | LOC101263540 | CAAGAAAATGGGGATGTGGAAGT | CGGGTTTGAAATGTTGAAATGAA |
| *SlCALS10* | LOC101258056 | ATCCAAAAATAGATGAGAAGGT | GCAGAAGTAGAGTGAAACAAGA |
| *SlCALS11* | LOC101249601 | TTTAGCGTCTTGACCCCTTACT | CTCTCGTCCTTCATTCCTTCTG |
| *SlCALS12* | LOC101243903 | ACCCTGCTGTTCTCCGTCGGTTCC | CGGCGGTGGTCAGATGAGTTATGC |
| *SlGLUB* | LOC543987 | ATGAAATCAGCCCTGTTAC | TTCCTAAATGAACCCTGTG |
| *SlGLU1* | LOC101250269 | CCAGGAAGCAAGAAAGTAAGCA | AAGCACAAGGCAACACCAAATA |
| *SlGLU3* | LOC101267699 | GACAGGTTCTGGAACGGTGTT | ATTTGGGTCATAGCAAGGATT |
| *SlGLU5* | LOC101254079 | AACCTAATGCTGGTCGAGTTG | TGTTTCCGCAATCACAATCTC |
| *SlGLU6* | LOC101257963 | CTGTTGATGCCTATCTGTTTAG | GCCAAGATTTAGCGAGTATTT |
| *SlGLU7* | LOC101257166 | AACCTAATGCTGGTCGAGTTG | TGTTTCCGCAATCACAATCTC |
| *SlGLU13* | LOC101261689 | CCGCTATACAACCTAGCCAACC | TTCTAACGCCAACTCCTCCAA |
| *SlActin* | LOC101260631 | AGGCAGGATTTGCTGGTGATGATGCT | ATACGCATCCTTCTGTCCCATTCCGA |
| *SlUBI* | LOC101256912 | TCGTAAGGAGTGCCCTAATGCTGA | CAATCGCCTCCAGCCTTGTTGTAA |