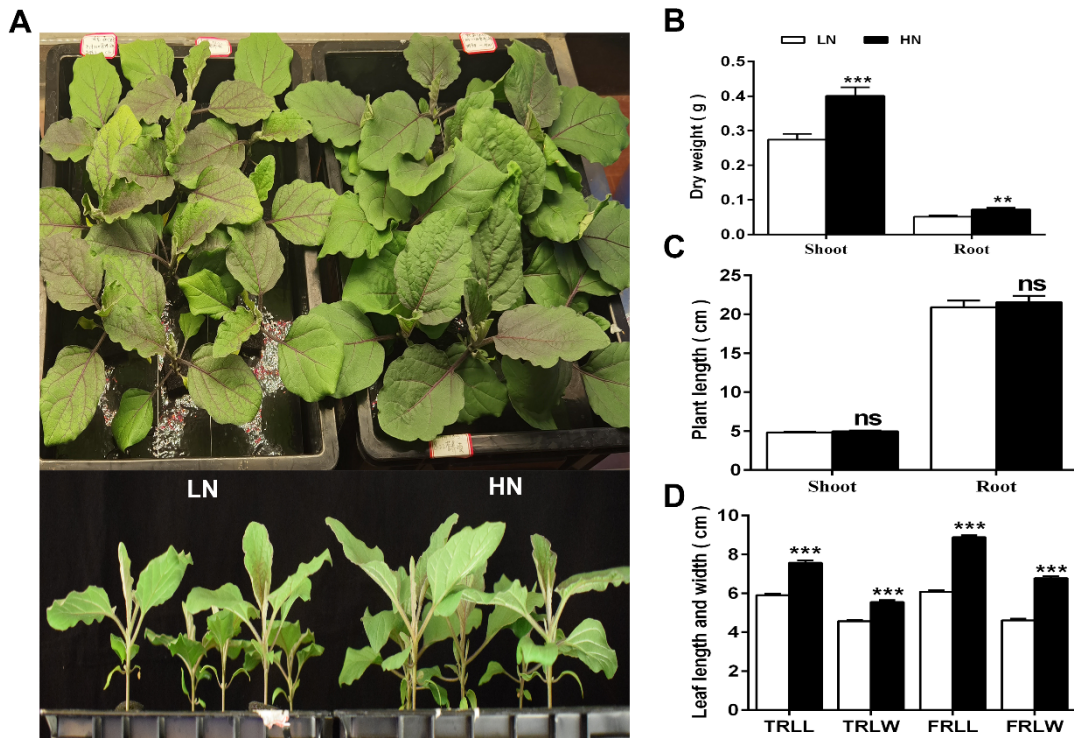*Supplementary Material*

Nitrogen Deficiency Enhances Eggplant Defense against

Western Flower Thrips via the Induction of the Jasmonate Pathway

Supplementary Figure S1. Effect of nitrogen supply levels on eggplant growth. (A) Seedling morphology after nitrogen treatment. Fifteen-day-old seedlings were transplanted to nutrient solution containing 0.25mM Ca(NO₃)₂ (LN) or 2.5 mM Ca(NO₃)₂ (HN) and cultured for 5 days, and seedling morphology was taken. The dry weight (B), plant length (C) and leaf length and width (D) of eggplant shoot and root were determined. Mean ± SE based on 15, 15 and 20 biological duplications for dry weight, plant length and leaf length and width, respectively. Asterisks (*) indicate a significant difference from the indicated samples at *** P < 0.01 or *** P < 0.001 by Student's t-test*, ns means no significant difference. TRLL, the third real leaf length; TRLW, the third real leaf width; FRLL, the four real leaf length; FRLW, the four real leaf width.
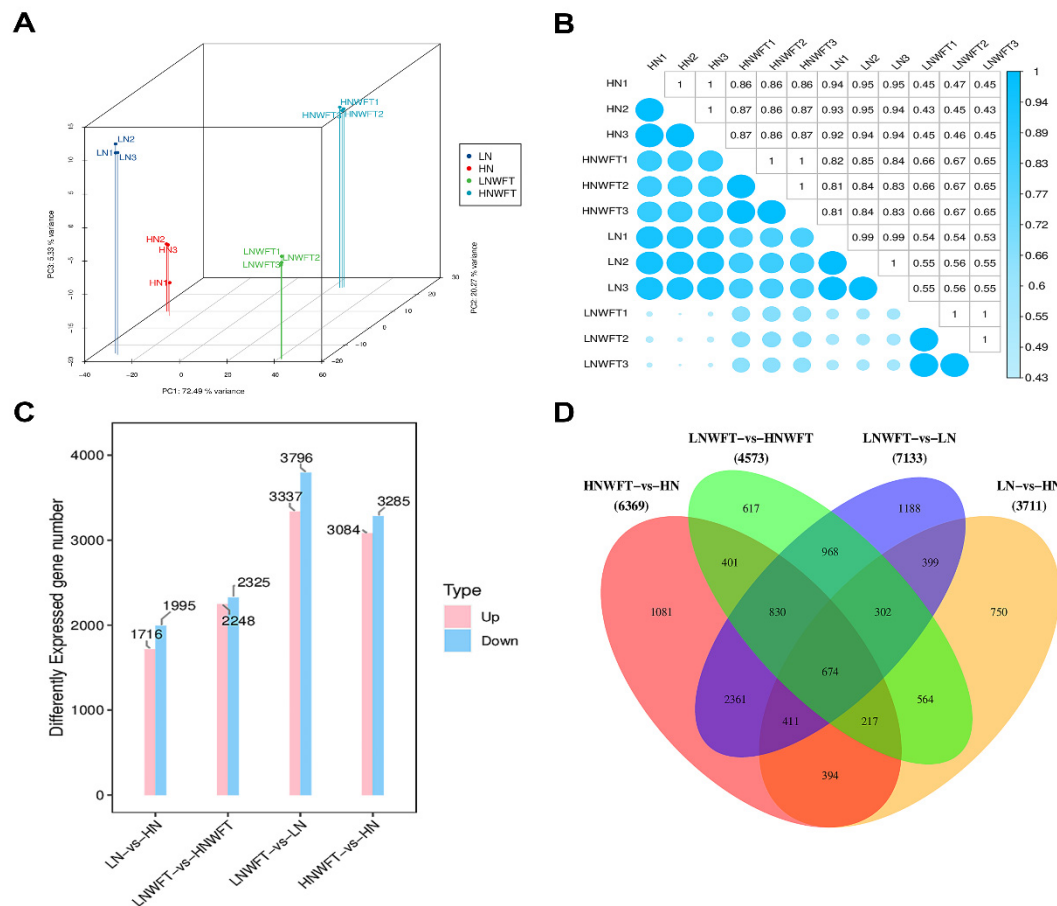
Supplementary Figure S2. Quality determination and differential gene analysis of RNA-Seq. The RNA-Seq metrics for quality control was shown as PCA analysis (A), correlation analysis (B) among LN, HN, LNWFT and HNWFT group. The overview of differential expressed gene under treatments was shown in (C). Venn diagram analysis of differential genes under treatment was shown in (D). LN, 0.25 mM $Ca(NO_3)_2$ cultured for 5 days; HN, 2.5 mM $Ca(NO_3)_2$ cultured for 5 days; LNWFT, 0.25 mM $Ca(NO_3)_2$ cultured for 5 days, then infested by *Frankliniella occidentalis* (WFT) for 24 h; HNWFT, 2.5 mM $Ca(NO_3)_2$ cultured for 5 days, then infested by WFT for 24 h.

Supplementary Table S1. Real time PCR of differentially expressed genes from nitrogen sufficient and nitrogen deficient under WFT infestation for 24 h.

| | | qPCR | | RNA-Seq | |
Gene	Gene ID	Sequence (5′-3′)	FC	FC	*p* value
SmLOX1.4	smechr0800437	ggagggatcaaacttcctca attccttcaccgtctgttcg	6.57	3.23	9.26E-11
SmACX1	smechr0802140	catttcacaacttggcactgga ttagcacaggcaacagacatcc	4.33	2.90	8.77E-114
SmJAR1	smechr0400026	ccgagtcactgtcccatcca gaagagttcaggaatcaagccata	10.60	4.41	8.00E-120
SmMYC1	smechr0800006	gggcgtatgctatcttctgg tgttcttatcctcctcaccctta	2.64	2.24	6.09E-40
SmPAL1	smechr0500713	aatggcactgctgttggc cttgatacatcaatcagagggttg	12.42	10.64	0
SmSPI5	smechr0302523	ctttatgtttacttccctttgtgg aattgggttacctttcgtgtct	9.07	8.15	0
SmKTI5	smechr0502188	gtactacatacttcctgcccaca cagattgaacaaccgatgagg	42.57	25.70	1.79E-61

Supplementary Table S2. Primers of genes related to hormonal pathways are suitable for real-time qRT-PCR.

Gene	Gene ID	Sequence (5′-3′)	Tm(℃)	Amplicon size(bp)
SmActin	GU984779.1	tggtcggaatgggacagaag	59.9	191
		ctcagtcaggagaacagggt	59.9	
SmLOX6	Smechr0300720	ggtattttgatgcctgtcgttat	56.6	154
		aaatggttgcgtcattagagc	56.1	
SmAOS3	Smechr0100287	gttcaatgcttatggtgggatg	58.2	96
		tcatttgccagccgagtgt	57.6	
SmAOC	Smechr0202404	atcaagcacgaagaggagaag	58.0	129
		ggtgacggcgaggtaagtg	61.9	
SmOPR3	Smechr0700225	gcctcggcttagcagttgtt	59.9	184
		gtcccttggtatgcgttcct	59.9	
SmEDS1	Smechr0602466	gcctaagcgttatcggttcac	60.0	198
		acatcattgccaaggaggttac	58.2	
SmSABP2	Smechr0300521	ggtaggacatagcatgggtggc	63.8	116
		caagattaaggtgaggagcaggc	62.0	
SmWRKY53	Smechr0802466	caaatgctcgcgaacttaca	55.8	168
		ggaataacccccaaccaaat	55.8	
SmMPK3	Smechr0600486	aactcccgcaacatccac	57.3	231
		tctgttcttctcctatcccttg	58.2	
SmMPK7	Smechr0202318	cttattgcagcgaatgctca	55.8	176
		gcatcatctcccgaatcact	57.8	

Supplementary Table S3. Hormone quantitative standard curve linear equation and correlation coefficient of detected substance by LC-MS/MS analysis.

Index	RT	Equation	r	Weighting
JA	5.77	y = 0.08013 x + 0.00434	0.99908	$1/x$
H$_2$JA	6.14	y = 0.11283 x + 0.00364	0.99422	$1/x^2$
JA-Ile	6.30	y = 0.30959 x + 0.00153	0.99886	$1/x^2$
JA-Phe	6.36	y = 0.71968 x + 0.00763	0.99008	$1/x^2$
JA-Val	5.98	y = 1.04346 x + 0.00282	0.99763	$1/x^2$
OPDA	7.23	y = 1.88724 x + 0.05384	0.99026	$1/x^2$
MeJA	6.88	y = 0.60087 x + 0.01723	0.99959	$1/x$
SA	5.04	y = 0.10099 x + 0.01138	0.99994	$1/x$
SAG	3.57	y = 0.03450 x + 0.00254	0.99503	$1/x^2$

Supplementary Table S4. Quantitative measurements of hormones associated with jasmonic acid (JA) and salicylic acid (SA) were taken in eggplant leaves inoculated with WFT at 0, 3, 9 and 24 h.

Index	Group	N	Mean	SE	P
H_2JA	LN0	3	0.87932	0.066177	
H_2JA	HN0	3	0.59965	0.023926	0.016479*
H_2JA	LN3	3	0.91857	0.046153	
H_2JA	HN3	3	0.54944	0.008996	0.001423**
H_2JA	LN9	3	0.68557	0.028366	
H_2JA	HN9	3	0.61768	0.039876	0.237631ns
H_2JA	LN24	3	0.77136	0.018745	
H_2JA	HN24	3	0.55493	0.064682	0.032474*
JA	LN0	3	0.26558	0.026563	
JA	HN0	3	0.09045	0.0031134	0.002812**
JA	LN3	3	3.5483	0.16502	
JA	HN3	3	0.30993	0.03227	0.000043***
JA	LN9	3	10.863	0.42256	
JA	HN9	3	1.1597	0.13134	0.000026***
JA	LN24	3	41.112	1.861	
JA	HN24	3	0.36513	0.037979	0.000026***
JA-Ile	LN0	3	0.020587	0.002103	
JA-Ile	HN0	3	0.0074667	0.00087891	0.004517**
JA-Ile	LN3	3	2.9708	0.25201	
JA-Ile	HN3	3	0.15826	0.016319	0.007734**
JA-Ile	LN9	3	4.2715	0.23624	
JA-Ile	HN9	3	0.34255	0.02287	0.003348**
JA-Ile	LN24	3	9.6662	0.15061	
JA-Ile	HN24	3	0.16707	0.018999	0.000205***
JA-Phe	LN0	3	0.038957	0.0040445	
JA-Phe	HN0	3	0.01008	0.0011225	0.002339**
JA-Phe	LN3	3	0.22266	0.02573	
JA-Phe	HN3	3	0.068657	0.0083645	0.004705**
JA-Phe	LN9	3	0.082487	0.0019584	
JA-Phe	HN9	3	0.12046	0.013347	0.048077*
JA-Phe	LN24	3	0.21823	0.0029016	
JA-Phe	HN24	3	0.020547	0.0019797	5.9682E-7***
JA-Val	LN0	3	0	0	
JA-Val	HN0	3	0	0	0
JA-Val	LN3	3	0.063427	0.0075762	
JA-Val	HN3	3	0.0028267	0.00023362	0.015203*

Index	Group	N	Mean	SE	P
JA-Val	LN9	3	0.11148	0.011894	
JA-Val	HN9	3	0.00939	0.00078143	0.001021**
JA-Val	LN24	3	0.37536	0.016825	
JA-Val	HN24	0	0.0051467	0.00046484	0.000025***
MeJA	LN0	0	0	0	0
MeJA	HN0	0	0	0	
MeJA	LN3	0	0	0	0
MeJA	HN3	0	0	0	
MeJA	LN9	3	0.29339	0.027095	
MeJA	HN9	3	0	0	0.008422**
MeJA	LN24	0	4.45	0.18713	
MeJA	HN24	0	0	0	0.001764**
OPDA	LN0	3	0.71137	0.053394	
OPDA	HN0	3	0.12473	0.0084118	0.007061**
OPDA	LN3	3	1.4097	0.14901	
OPDA	HN3	3	0.12571	0.012138	0.001010**
OPDA	LN9	3	0.88578	0.11306	
OPDA	HN9	3	0.27133	0.012071	0.031014*
OPDA	LN24	3	2.1564	0.23671	
OPDA	HN24	3	0.23775	0.022316	0.001281**
SA	LN0	3	50.919	1.2887	
SA	HN0	3	43.618	1.0607	0.011926*
SA	LN3	3	133.16	4.5977	
SA	HN3	3	59.584	2.4878	0.000148***
SA	LN9	3	488.3	6.7789	
SA	HN9	3	137.07	2.5638	0.000001***
SA	LN24	3	450.86	10.023	
SA	HN24	3	126.25	6.4854	0.000011***
SAG	LN0	3	3456.5	213.67	
SAG	HN0	3	407.7	17.739	0.004645**
SAG	LN3	3	1983.3	211.93	
SAG	HN3	3	304.86	33.015	0.001440**
SAG	LN9	3	3805.1	237.02	
SAG	HN9	3	738.59	42.776	0.004785**
SAG	LN24	3	3178.4	47.493	
SAG	HN24	3	543.14	45.024	0.000002***

Asterisks (*) indicate a significant difference from the indicated samples at * P < 0.05, ** P < 0.01 or *** p < 0.001 by Student's t-test, ns means no significant difference.