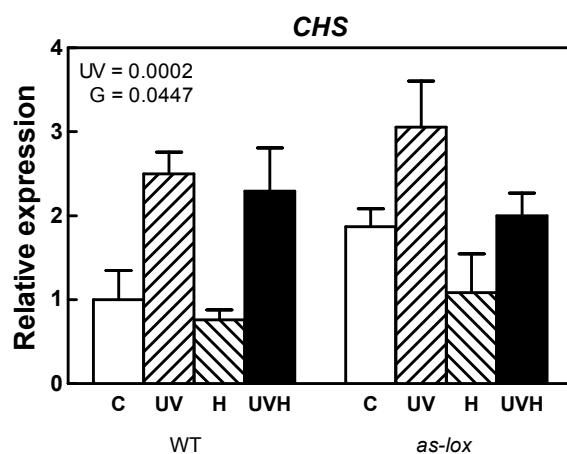


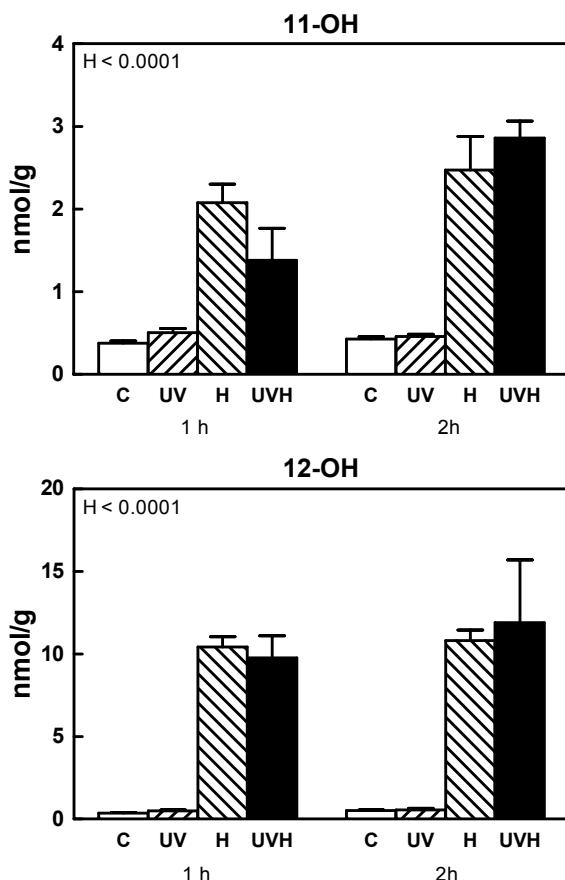
**Figure S1.** HPLC profiles of methanolic leaf extracts obtained from glasshouse-grown WT and *as-lox* *N. attenuata* plants exposed to control conditions, simulated herbivory, UV-B radiation, or MeJA.

A- Chromatograms of methanol extracts from leaves of WT and *as-lox* plants, showing peaks identified as caffeoylputrescine (CP), chlorogenic acid (C), a chlorogenic acid isomer (CI), an unknown compound related to dicaffeoylspermidine (U), dicaffeoylspermidine (DS) and rutine (R).

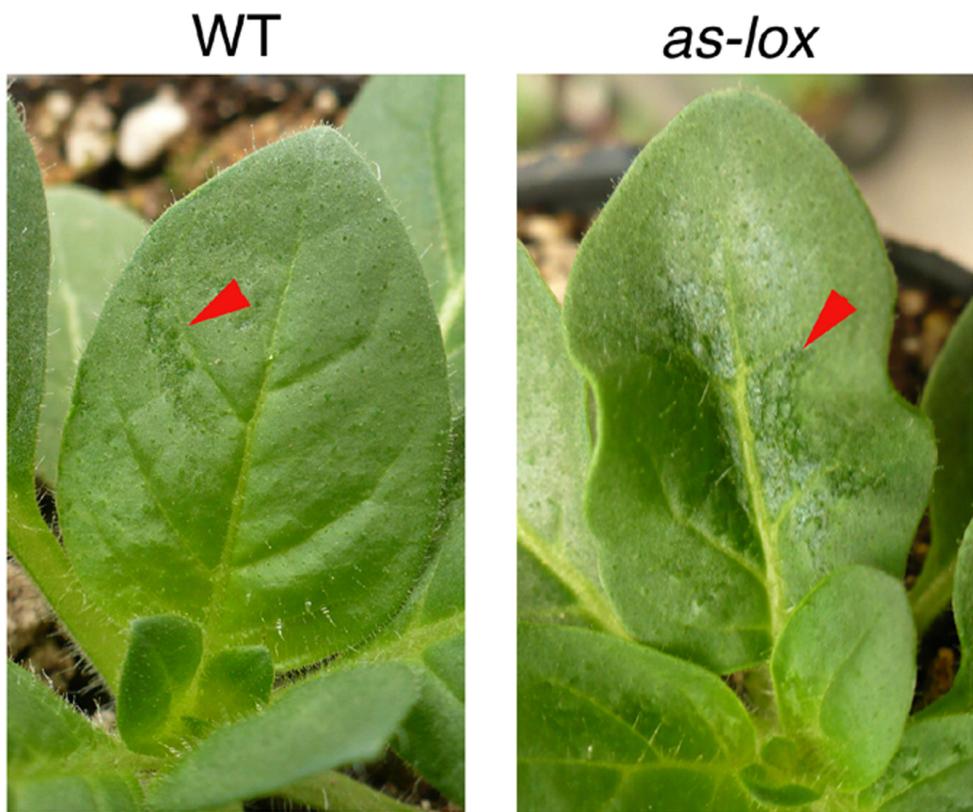
B- Chromatograms of methanol extracts from leaves of WT and *as-lox* plants exposed to MeJA (450  $\mu$ M), showing that in *as-lox* plants these compounds can be readily induced by exogenous jasmonate application.



**Figure S2.** Effect of UV-B and simulated herbivory on *CHS* gene expression in *N. attenuata* plants grown in the glasshouse. The experimental treatments resulted from a factorial combination of UV-B and simulated herbivory: C = natural daylight; UV = natural daylight supplemented with UV-B radiation; H = C + simulated herbivory (wounds treated with *Spodoptera frugiperda* regurgitate); UVH = UV + simulated herbivory (for details, see Materials and Methods). *CHS* gene expression was measured by qPCR 24 h after the H treatment. Each bar represents the mean + SE ( $n = 3$ ; each biological replicate is a pool of 3 individual plants).  $P$  values for the relevant terms of the factorial model are shown on the graph (3-way ANOVA; see Table S8 for the full ANOVA results).



**Figure S3.** Effect of UV-B and simulated herbivory on accumulation of hydroxilated jasmonates in *N. attenuata* plants grown in the glasshouse. The experimental treatments resulted from a factorial combination of UV-B and simulated herbivory: C = natural daylight; UV = natural daylight supplemented with UV-B radiation; H = C + simulated herbivory (wounds treated with *Spodoptera frugiperda* regurgitate); UVH = UV + simulated herbivory (for details, see Materials and Methods). Samples for jasmonate determinations were obtained 1 h and 2 h after the H treatment. Each bar represents the mean + SE (n = 3; each biological replicate is a pool of 10 individual plants). P values for the relevant terms of the model are shown on the graph (3-way ANOVA; see Table S9 for the full ANOVA results).



**Figure S4.** *as-lox* plants are more sensitive to high UV-B doses than WT plants. When exposed to high doses of UV-B, all *as-lox* plants developed visible alterations in foliar morphology, such leaf rolling, reduced growth, and leaf surface glazing (red arrows), whereas only slight signs of leaf damage could be observed in WT plants.

**Table S1:** ANOVA results for methanol extractable phenolic compounds.**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 Abs 320nm	48	0,92	0,90	293,09

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	1,01	7	0,14	63,00	<0,0001
UV	0,13	1	0,13	55,26	<0,0001
Herbivory	0,06	1	0,06	27,82	<0,0001
Genotype	0,76	1	0,76	335,01	<0,0001
UV*Herbivory	0,03	1	0,03	11,81	0,0014
UV*Genotype	6,3E-05	1	6,3E-05	0,03	0,8684
Herbivory*Genotype	0,02	1	0,02	10,87	0,0021
UV*Herbivory*Genotype	3,8E-04	1	3,8E-04	0,17	0,6867
Error	0,09	40	2,3E-03		
Total	1,10	47			

**Test:Tukey Alpha:=0,05 LSD:=0,05229**

Error: 0,0023 df: 40

UV	Herbivory	Means	n	
UV-	H-	-0,10	12	A
UV-	H+	0,03	12	B
UV+	H-	0,05	12	B
UV+	H+	0,08	12	C

Different letters indicate significant difference between means (p&lt;= 0,05)

**Test:Tukey Alpha:=0,05 LSD:=0,05229**

Error: 0,0023 df: 40

Herbivory	Genotype	Means	n	
H-	lox	-0,12	12	A
H+	lox	-0,10	12	A
H-	WT	0,08	12	B
H+	WT	0,20	12	C

Different letters indicate significant difference between means (p&lt;= 0,05)

**Table S2:** ANOVA results for leaf epidermal transmittance.

**RFUV Adaxial**

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
RFUV Adaxial	20	0,90	0,85	6,55

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	220420,67	7	31488,67	15,91	<0,0001
UV	13018,77	1	13018,77	6,58	0,0248
Genotype	20822,54	1	20822,54	10,52	0,0070
Block	186344,95	4	46586,24	23,54	<0,0001
UV*Genotype	234,41	1	234,41	0,12	0,7367
Error	23744,62	12	1978,72		
Total	244165,29	19			

**RFUV Abaxial**

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
RFUV Abaxial	20	0,94	0,90	7,42

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	3279480,58	7	468497,23	26,10	<0,0001
UV	459311,68	1	459311,68	25,59	0,0003
Genotype	1795406,93	1	1795406,93	100,02	<0,0001
Block	946439,35	4	236609,84	13,18	0,0002
UV*Genotype	78322,62	1	78322,62	4,36	0,0587
Error	215401,77	12	17950,15		
Total	3494882,35	19			

**Table S3:** ANOVA results for specific phenolic compounds.**Rutin**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LN Rutin	48	0,88	0,86	7,69

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	11,92	7	1,70	43,92	<0,0001
UV	9,87	1	9,87	254,59	<0,0001
Herbivory	0,05	1	0,05	1,28	0,2641
Genotype	0,32	1	0,32	8,25	0,0065
UV*Herbivory	1,42	1	1,42	36,60	<0,0001
UV*Genotype	0,16	1	0,16	4,09	0,0499
Herbivory*Genotype	0,01	1	0,01	0,16	0,6871
UV*Herbivory*Genotype	0,09	1	0,09	2,45	0,1256
Error	1,55	40	0,04		
Total	13,47	47			

**Test: Tukey Alfa=0.05 LSD=0.21544**

Error: 0.0388 df: 40

UV	Herbivory	Means	n	
UV-	H+	1.90	12	A
UV-	H-	2.31	12	B
UV+	H-	2.87	12	C
UV+	H+	3.15	12	D

Different letters indicate significant difference between means (p&lt;= 0,05)

**Test: Tukey Alfa=0.05 LSD=0.21544**

Error: 0.0388 df: 40

UV	Genotype	Means	n	
UV-	WT	1.97	12	A
UV-	lox	2.25	12	B
UV+	WT	2.99	12	C
UV+	lox	3.04	12	C

Different letters indicate significant difference between means (p&lt;= 0,05)

**Chlorogenic Acid****Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 Chlorog Acid	48	0,81	0,78	7,95

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	0,61	7	0,09	24,28	<0,0001
UV	0,56	1	0,56	154,72	<0,0001
Herbivory	3,1E-03	1	3,1E-03	0,85	0,3623
Genotype	4,0E-03	1	4,0E-03	1,11	0,2990
UV*Herbivory	4,4E-04	1	4,4E-04	0,12	0,7276
UV*Genotype	2,7E-03	1	2,7E-03	0,75	0,3918
Herbivory*Genotype	0,04	1	0,04	11,06	0,0019
UV*Herbivory*Genotype	4,8E-03	1	4,8E-03	1,32	0,2579
Error	0,14	40	3,6E-03		
Total	0,76	47			

**Test: Tukey Alfa=0.05 LSD=0.06572**

Error: 0.0036 df: 40

Herbivory	Genotype	Means	n		
H+	lox	0.71	12	A	
H-	WT	0.74	12	A	B
H-	lox	0.78	12		B
H+	WT	0.79	12		B

Different letters indicate significant difference between means (p<= 0,05)

### Chlorogenic Acid Isomer

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 Chlorog Acid I	48	0,81	0,78	9,53

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	0,53	7	0,08	24,55	<0,0001
UV	0,45	1	0,45	146,98	<0,0001
Herbivory	0,01	1	0,01	2,42	0,1275
Genotype	1,4E-03	1	1,4E-03	0,45	0,5080
UV*Herbivory	2,3E-03	1	2,3E-03	0,76	0,3874
UV*Genotype	1,0E-03	1	1,0E-03	0,33	0,5679
Herbivory*Genotype	0,06	1	0,06	20,11	0,0001
UV*Herbivory*Genotype	2,5E-03	1	2,5E-03	0,80	0,3755
Error	0,12	40	3,1E-03		
Total	0,65	47			

**Test: Tukey Alfa=0.05 LSD=0.06069**

Error: 0.0031 df: 40

Herbivory	Genotype	Mean	n		
H-	WT	0.53	12	A	
H+	lox	0.56	12	A	B
H-	lox	0.61	12		B
H+	WT	0.62	12		C

Different letters indicate significant difference between means (p<= 0,05)

### Caffeoyl Putrescine

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
CaffP	24	0,55	0,48	40,24

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	8,23	3	2,74	8,12	0,0010
UV	2,59	1	2,59	7,65	0,0117
Herbivory	5,26	1	5,26	15,56	0,0008
UV*Herbivory	0,38	1	0,38	1,14	0,2989
Error	6,76	20	0,34		
Total	15,00	23			

## Dicaffeoyl Spermidine

### **Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
DicaffSp	24	0,76	0,72	33,88

### **Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	290,57	3	96,86	21,09	<0,0001
UV	131,46	1	131,46	28,62	<0,0001
Herbivory	146,77	1	146,77	31,95	<0,0001
UV*Herbivory	12,34	1	12,34	2,69	0,1168
Error	91,86	20	4,59		
Total	382,43	23			

## Unknown Related to Dicaffeoyl Spermidine

### **Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
Unk DicaffSp	24	0,61	0,55	31,47

### **Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	137,84	3	45,95	10,36	0,0003
UV	21,95	1	21,95	4,95	0,0378
Herbivory	111,50	1	111,50	25,14	0,0001
UV*Herbivory	4,39	1	4,39	0,99	0,3315
Error	88,72	20	4,44		
Total	226,56	23			

**Table S4:** ANOVA results for *TPI* gene expression in response to UV-B and simulated herbivory.

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
TPI	12	0,90	0,86	25,01

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	39,59	3	13,20	24,21	0,0002
UV	9,88	1	9,88	18,13	0,0028
Herbivory	26,46	1	26,46	48,55	0,0001
UV*Herbivory	3,24	1	3,24	5,94	0,0407
Error	4,36	8	0,55		
Total	43,95	11			

**Test:Tukey Alpha:=0,05 LSD:=1,93051**

Error: 0,5451 df: 8

UV	Herbivory	Means	n	
UV-	H-	1,08	3	A
UV+	H-	1,85	3	A
UV-	H+	3,01	3	B
UV+	H+	5,86	3	C

Different letters indicate significant difference between means (p<= 0,05)

**Table S5.** ANOVA results for jasmonic acid, JA-Ile and OPDA.**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 JA	24	0,95	0,92	7,71

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	17,82	7	2,55	41,15	<0,0001
UV	0,03	1	0,03	0,53	0,4759
Herbivory	16,18	1	16,18	261,58	<0,0001
Time	4,0E-03	1	4,0E-03	0,06	0,8029
UV*Herbivory	0,04	1	0,04	0,59	0,4552
UV*Time	0,27	1	0,27	4,29	0,0550
Herbivory*Time	1,08	1	1,08	17,38	0,0007
UV*Herbivory*Time	0,22	1	0,22	3,62	0,0752
Error	0,99	16	0,06		
Total	18,81	23			

**Ja-Ile****Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 Ja-Ile	24	0,97	0,95	5,36

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	8,83	7	1,26	70,22	<0,0001
UV	2,0E-03	1	2,0E-03	0,11	0,7445
Herbivory	7,95	1	7,95	442,34	<0,0001
Time	0,32	1	0,32	17,63	0,0007
UV*Herbivory	0,08	1	0,08	4,47	0,0505
UV*Time	0,05	1	0,05	2,80	0,1135
Herbivory*Time	0,37	1	0,37	20,37	0,0004
UV*Herbivory*Time	0,07	1	0,07	3,80	0,0690
Error	0,29	16	0,02		
Total	9,12	23			

**OPDA**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 OPDA	24	0,88	0,82	6,09

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	3,94	7	0,56	16,04	<0,0001
UV	0,02	1	0,02	0,65	0,4316
Herbivory	3,62	1	3,62	103,24	<0,0001
Time	0,13	1	0,13	3,74	0,0709
UV*Herbivory	0,14	1	0,14	3,96	0,0638
UV*Time	1,5E-03	1	1,5E-03	0,04	0,8385
Herbivory*Time	4,1E-04	1	4,1E-04	0,01	0,9152
UV*Herbivory*Time	0,02	1	0,02	0,61	0,4470
Error	0,56	16	0,04		
Total	4,50	23			

**Table S6.** ANOVA results for *TPI* gene expression in response to UV-B and MeJA..

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 TPI	36	0,78	0,74	71,01

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	4,54	5	0,91	20,95	<0,0001
UV	0,84	1	0,84	19,30	0,0001
MeJA	3,05	2	1,53	35,24	<0,0001
UV*MeJA	0,65	2	0,32	7,47	0,0023
Error	1,30	30	0,04		
Total	5,84	35			

**Table S7.** ANOVA results for UV-B effects on natural herbivory.

**Herbivory**

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
ASEN	16	0,85	0,75	20,14

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	0,06	6	0,01	8,45	0,0028
UV	0,01	1	0,01	10,65	0,0098
Genotype	0,03	1	0,03	24,04	0,0008
Block	0,01	3	3,6E-03	3,10	0,0818
UV*Genotype	0,01	1	0,01	6,68	0,0295
Error	0,01	9	1,2E-03		
Total	0,07	15			

**Test:Tukey Alpha:=0,05 LSD:=0,07529**

Error: 0,0012 df: 9

UV	Genotype	Means	n	
UV+	WT	0,08	4	A
UV-	WT	0,18	4	B
UV+	lox	0,21	4	B
UV-	lox	0,22	4	B

Different letters indicate significant difference between means (p<= 0,05)

**Table S8.** ANOVA results for *CHS* gene expression in response to UV-B and simulated herbivory.

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
CHS	24	0,68	0,53	35,31

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	13,75	7	1,96	4,75	0,0047
UV	9,88	1	9,88	23,91	0,0002
Herbivory	1,96	1	1,96	4,74	0,0447
Genotype	0,79	1	0,79	1,91	0,1856
UV*Herbivory	0,02	1	0,02	0,05	0,8271
UV*Genotype	0,32	1	0,32	0,79	0,3883
Herbivory*Genotype	0,74	1	0,74	1,79	0,2001
UV*Herbivory*Genotype	0,03	1	0,03	0,08	0,7767
Error	6,61	16	0,41		
Total	20,36	23			

**Table S9.** ANOVA results for jasmonate hydroxylated derivatives.**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 C11-OH	24	0,93	0,90	3,96

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	2,93	7	0,42	30,17	<0,0001
UV	7,9E-05	1	7,9E-05	0,01	0,9407
Herbivory	2,68	1	2,68	193,59	<0,0001
Time	0,07	1	0,07	5,27	0,0356
UV*Herbivory	0,04	1	0,04	2,54	0,1306
UV*Time	0,01	1	0,01	1,07	0,3162
Herbivory*Time	0,06	1	0,06	4,67	0,0462
UV*Herbivory*Time	0,06	1	0,06	4,02	0,0621
Error	0,22	16	0,01		
Total	3,15	23			

**Analysis of variance**

Variable	N	R <sup>2</sup>	R <sup>2</sup> Adj	CV
LOG10 C12-OH	24	0,98	0,97	3,43

**Analysis of variance table (Partial SS)**

S.V.	SS	df	MS	F	p-value
Model	10,75	7	1,54	116,55	<0,0001
Herbivory	10,69	1	10,69	811,33	<0,0001
Time	0,02	1	0,02	1,71	0,2096
UV	0,01	1	0,01	0,49	0,4961
Herbivory*Time	0,01	1	0,01	0,41	0,5306
Herbivory*UV	0,02	1	0,02	1,25	0,2793
Time*UV	1,8E-03	1	1,8E-03	0,14	0,7162
Herbivory*Time*UV	0,01	1	0,01	0,51	0,4865
Error	0,21	16	0,01		
Total	10,96	23			

**Table S10:** Primer pairs used for qPCR.

<b>Gene name</b>	<b>Forward primer 5'→3'</b>	<b>Reverse primer 5'→3'</b>
<i>TPI</i>	TCAGGAGATAGTAAATATGGCTGTTCA	ATCTGCATGTTCCACATTGCTTA
<i>CHS</i>	TGATGTACCAACAGGGTTGCTT	TTGTTGTTTCAGCCAAGTCCTT
<i>ACTIN</i>	TTTCCTGGAATTGCTGATAGGATGA	AGCCAAAATAGAACCTCCAATCAA