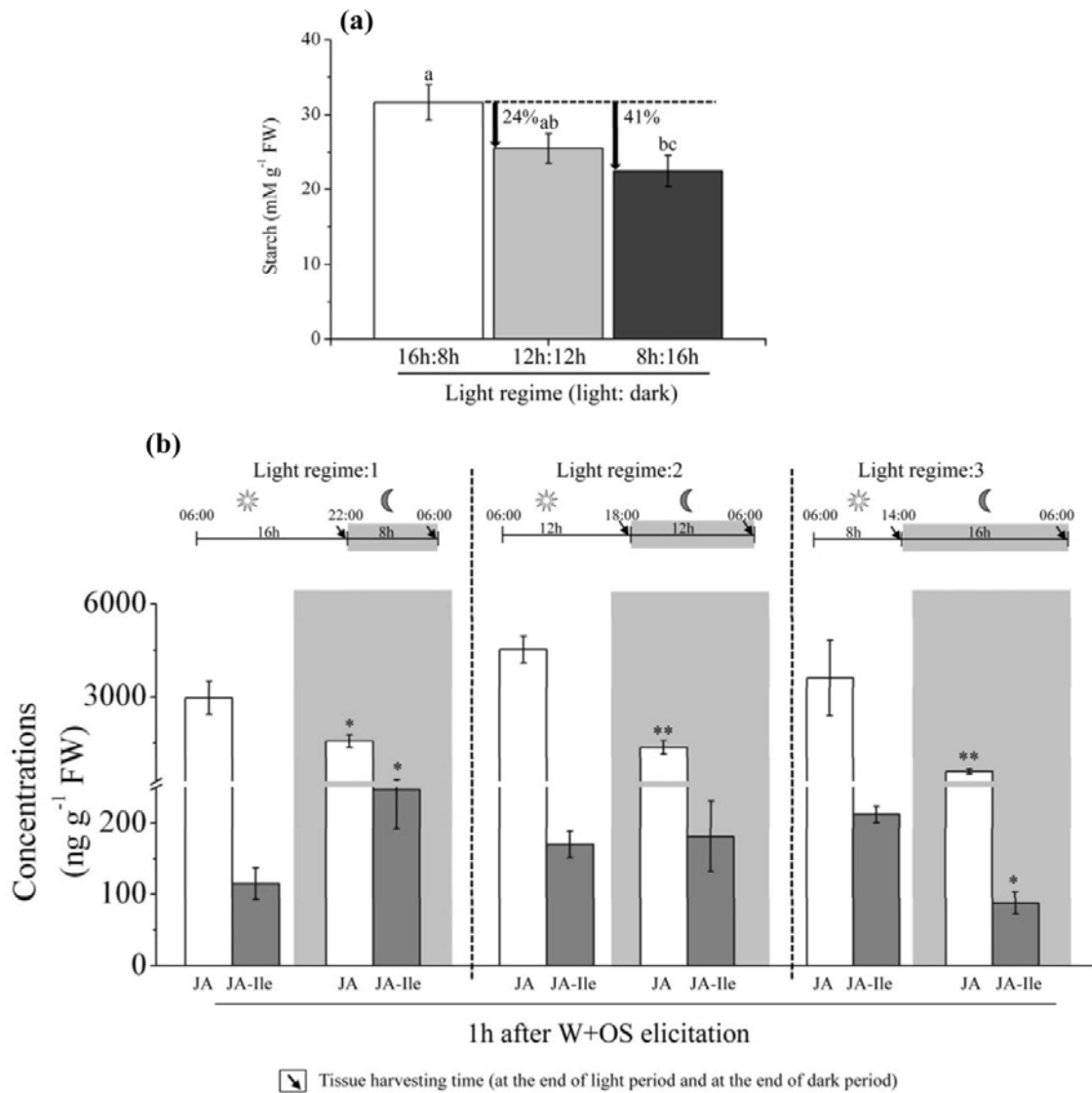


1 **Supporting Information Figures S1- S4**

2 **Figure S1**



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4 **Figure S1: Extended night series depletes starch levels in WT *N. attenuata* plants and**

5 **only a severe decrease in net C-gain attenuates the OS-elicited JA-Ile burst in WT**

6 **plants.** Rosette stage WT plants [normally grown under 16h: 8h (light: dark) regime] were

7 exposed to three different light: dark periods, (16h: 8h, 12h: 12h, and 8h: 16h for one day)

8 representing an extended night-series known to deplete C-reserves (Smith & Stitt, 2007). (a)

9 Net C-gain was measured in terms of accumulated starch at the end of light period in the

10 plants grown under 16h: 8h, 12h: 12h, and 8h: 16h were considered as normal (control),

11 moderate (24%) and severely (41%) depleted at the time of OS-elicitation, respectively.
12 Values are means (\pm SE) of three replicate plants from each treatment. Small letters indicate
13 significant differences in starch accumulation at $P \leq 0.05$ by one-way ANOVA. Fully
14 expanded rosette leaves (+1) were wounded with a pattern wheel and treated with 20 μ L *M.*
15 *sexta* OS (1:1 diluted with water). Tissues were harvested after 1h of elicitation which
16 corresponded to the end of light and dark periods, respectively. **(b)** A moderate decrease in net
17 C-gain did not alter the level of JA-Ile; however, a severe decrease in net C-gain significantly
18 reduced the accumulation of only JA-Ile. Values are means (\pm SE) of three replicate plants
19 from each treatment. Small letters and capital letters indicate significant differences in JA and
20 JA-Ile accumulation respectively, at $P \leq 0.05$ by one-way ANOVA. W+OS = wound + *M.*
21 *sexta* oral secretion.

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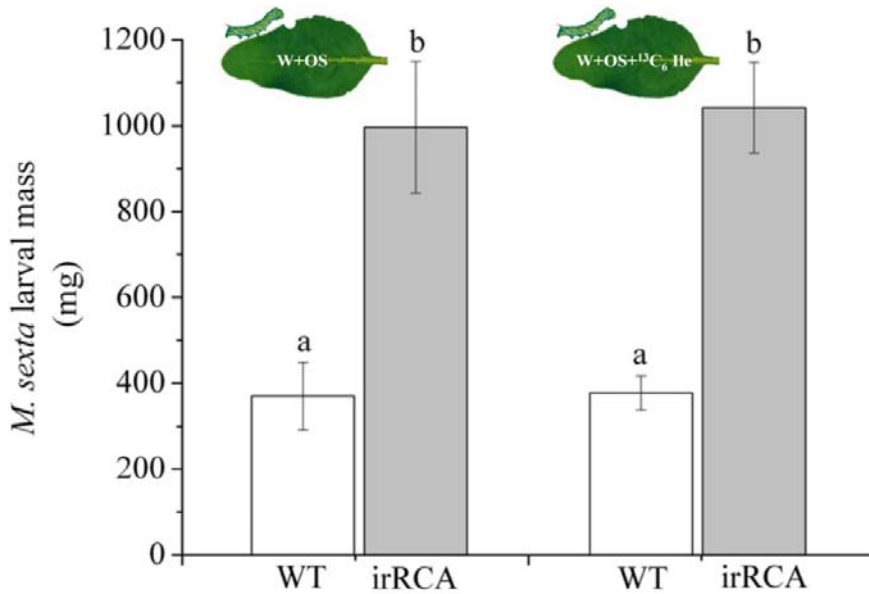
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37 **Figure S2**



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39 **Figure S2: Impaired herbivore resistance in RCA-silenced plants could not be attributed**

40 **to the lower Ile pools at the wound site.** Decreased Ile pools at the wound site, as seen in

41 threonine deaminase-silenced plants, can influence the accumulation of JA-Ile and

42 consequently resistance to *M. sexta* larvae. However, the Ile deficiency can be readily restored

43 by supplementing OS with an excess of Ile in the OS-elicitation procedure (Kang *et al.*, 2006).

44 Therefore, *M. sexta* larvae were reared on W+OS or W+OS+¹³C₆ Ile treated WT and RCA-

45 silenced plants and their mass gain was recorded. *M. sexta* larvae reared on W+OS or

46 W+OS+¹³C₆ Ile treated RCA-silenced plants gained significantly more body mass than did

47 larvae on similarly treated WT plants. Values are means of 15 (\pm SE) replicate larvae.

48 Different letters indicate significant differences at $P \leq 0.05$. W+OS = wound + *M. sexta* oral

49 secretion.

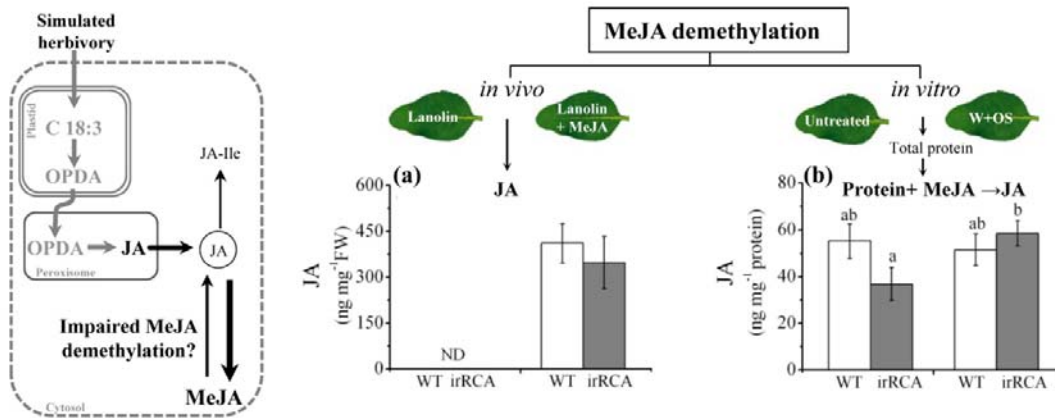
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54 **Figure S3**



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57 **Figure S3: Increased MeJA level in RCA-silenced plants does not result from impaired**

58 **demethylation activity.** MeJA-methyl-esterase activity was estimated by measuring the

59 accumulation of JA after MeJA addition, *in vivo* and *in vitro*. The de-esterification of MeJA to

60 produce JA (*in vivo* and *in vitro*) was similar in WT and RCA-silenced plants. Values are

61 means (\pm SE) of 4-5 replicate plants from each genotype and each treatment. Different letters

62 indicate the significant difference at $P \leq 0.05$. W+OS = wound + *M. sexta* oral secretion.

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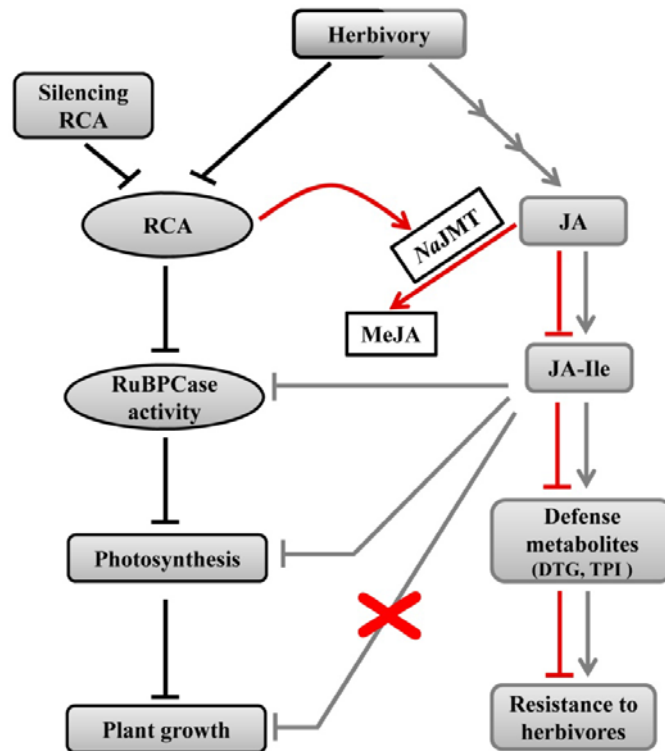
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72 **Figure S4.**



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74 **Figure S4: An overview of the consequences of herbivory and RCA's novel role in the**
75 **attenuation of *N. attenuata*'s defense responses.** In *N. attenuata*, RCA-silencing redirects
76 attack-induced JA flux from JA-Ile to MeJA via elevated methyl transferase activity and
77 reduces JA-Ile level, JA-induced defense compounds DTGs and TPI and consequently
78 herbivore resistance in *N. attenuata* plants. Black lines depict the previously known
79 consequences of RCA-silencing, gray arrows, the interaction between herbivory-induced JA-
80 mediated defense pathway and photosynthesis and growth, and red arrows, the novel
81 regulatory role of RCA in tuning JA-signaling.

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