

Assessment of DNA Methylation Dynamics in Snapdragon Lines under Shade Stress Conditions

Fischer D.L.

Department of Endocrinology, Vienna International Medical College, Vienna, Austria

SUPPLEMENTARY FILES

Figure S1. Average light spectrum and intensity analysis by spectrophotometer acquisition over 15 minutes of recording on a sunny day in one location for each treatment. Colors represent the different levels of shading; yellow represents natural sunlight in the greenhouse and the three darker shades of gray represent 15%, 45%, and 70% shading effects, respectively.

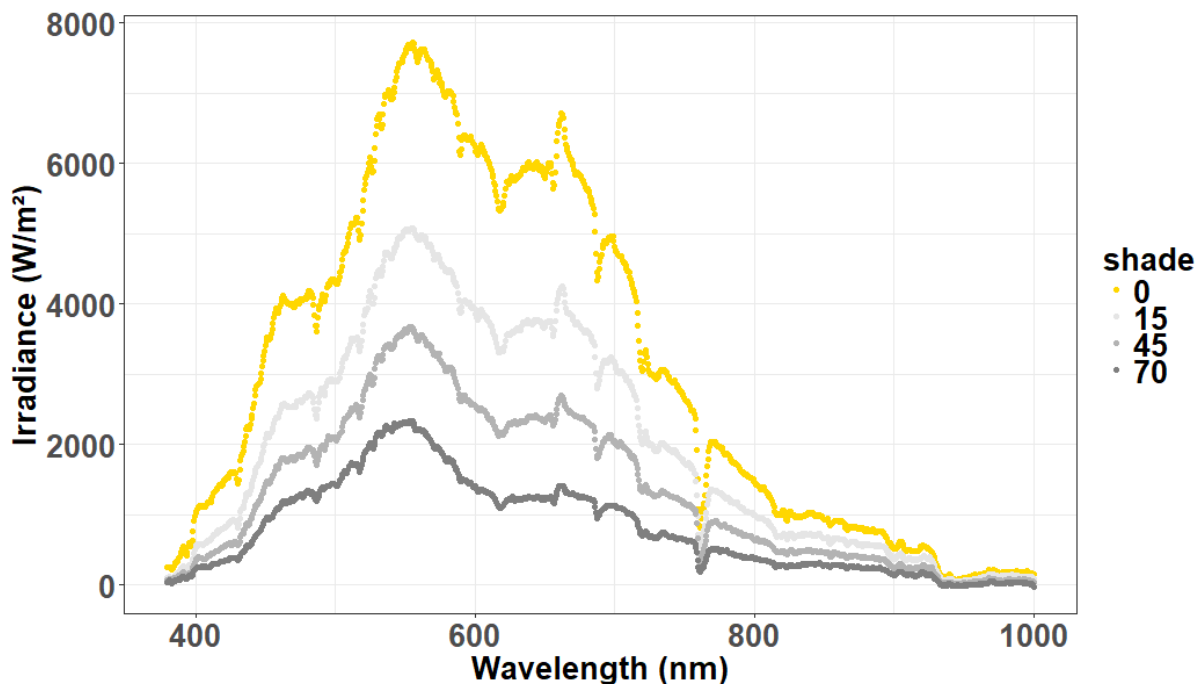


Figure S2. Shade avoidance response in *A. majus* highly inbred lines. Quadratic (A) and linear (B) relationships established by GLMs between phenotypic traits and shade. Phenotypic traits include plant height in cm, internode length in cm, stem diameter in mm, number of flowers, number of branches, and SLA in $\text{m}^2 \cdot \text{kg}^{-1}$. Shade treatments include 0%, 15%, 45%, and 70%. Equations, probabilities of significance (p), coefficients of determination (R^2), and Akaike information criteria (AIC) are given for each relationship. $N = 140$ (five plants \times four shade treatments \times seven lines).

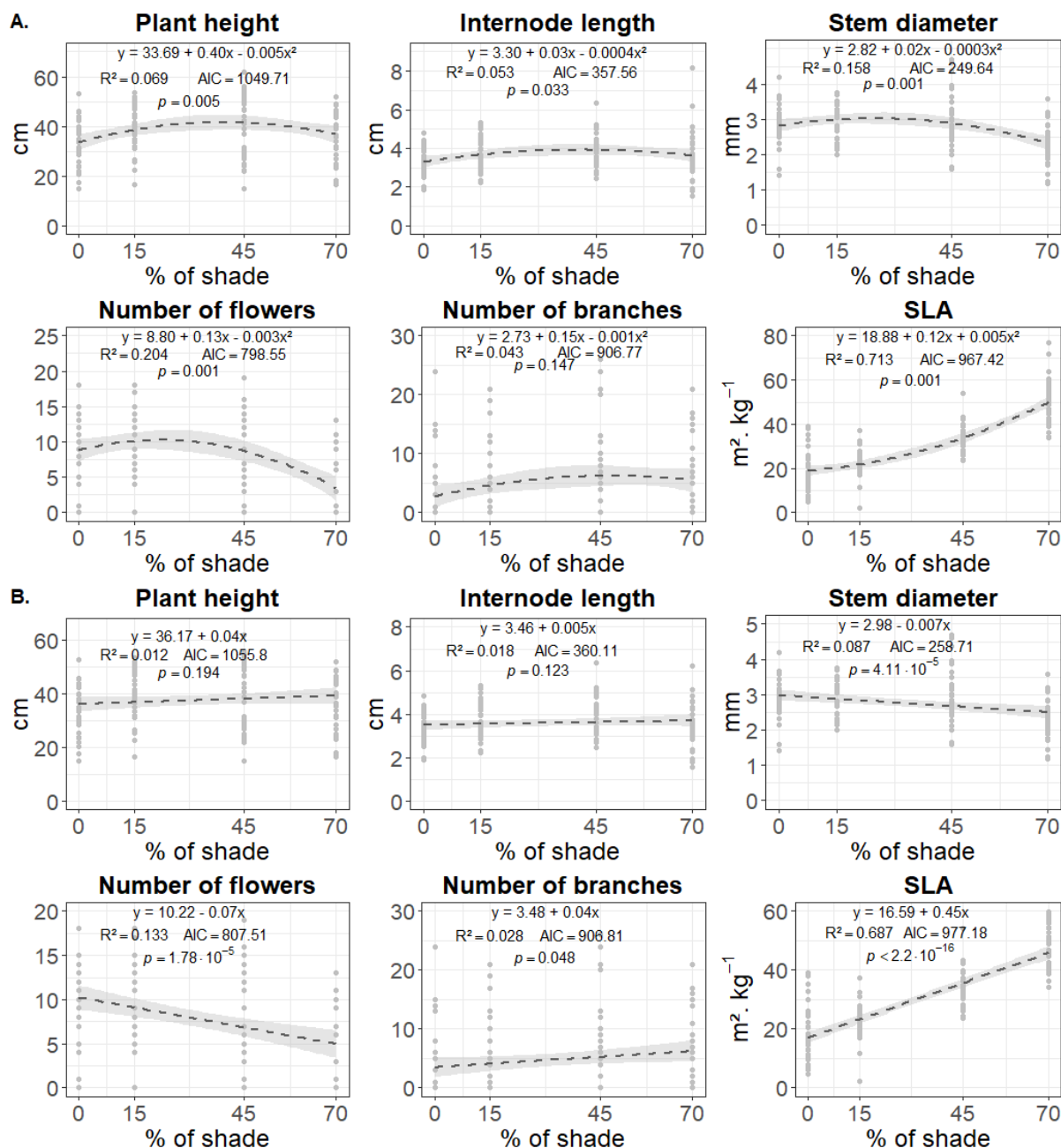


Figure S3. Average trait values across different levels of shade. Plant height in cm (A), internode length in cm (B), stem diameter in mm (C), number of flowers (D), number of branches (E), and SLA in $\text{m}^2\cdot\text{kg}^{-1}$ (F) for different shade treatments (0%, 15%, and 45%). The seven lines are pooled. Coefficients of determinations (R^2) and test probabilities (p) are given for each test of the relationship between the trait values and shade. $N = 105$ (five plants \times four shade treatments \times seven lines); each boxplot represents 35 plants.

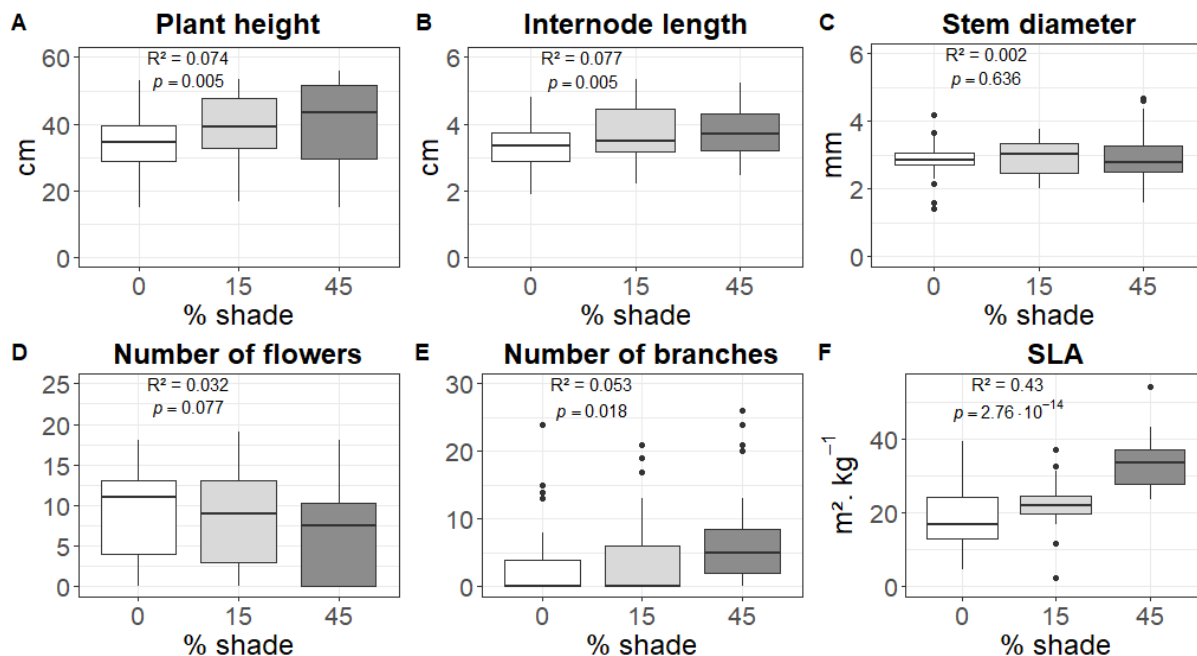


Figure S4. Global DNA methylation variation with the number of branches in highly inbred lines of *A. majus*. Global DNA methylation percentages (%mC) as a function of the number of branches for every highly inbred line: Ji2 (A), Ji7 (B), Ji75 (C), Ji98 (D), Ji522 (E), Si50 (F), and 165E (G). *N* = 15 (five plants × three shade treatments).

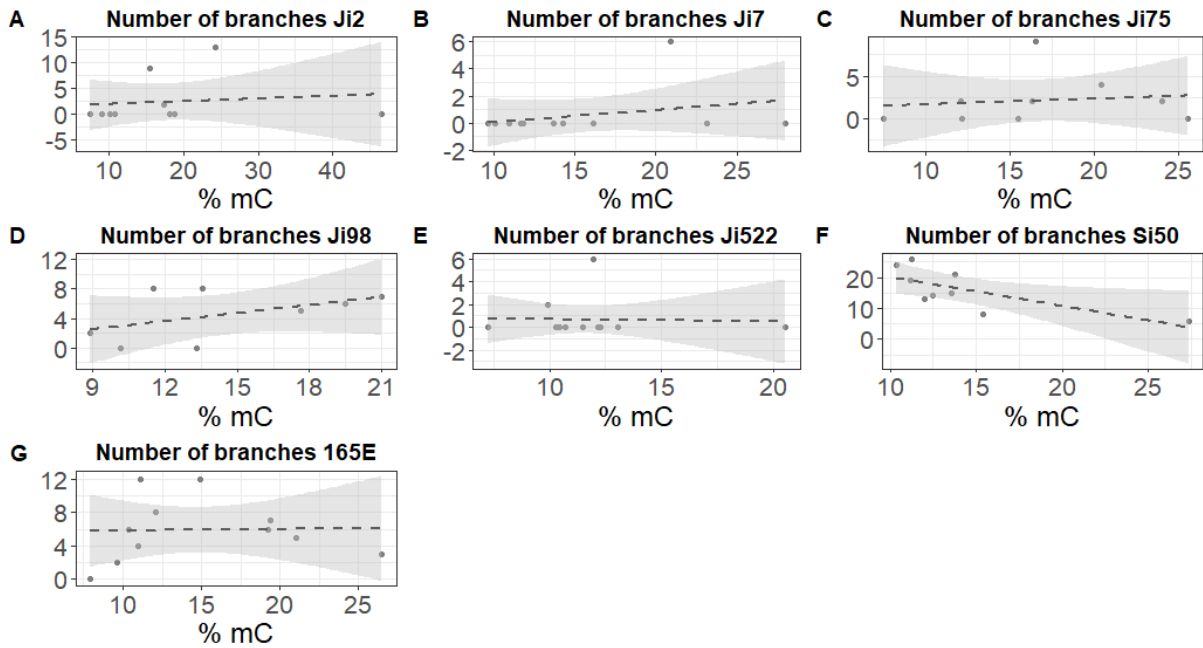


Table S1. Effects of shade and highly inbred lines on phenotypic traits. Coefficients of determination (R^2), chi-square values (χ^2), and test probabilities (p) for the effect of shade on traits, the effect of lines on the intercept of the trait reaction norm to shade, and the effect of lines on the slope of this reaction norm (generalized linear mixed model; GLMM). Correlations are reported significant as $p \leq 0.05$ (*), $p \leq 0.01$ (**), and $p \leq 0.001$ (***). $N = 105$ (five plants \times three shade treatments \times seven lines). Statistical power of the chi-square tests for the effect of line on slope was estimated using power analyses defined by Cohen (pwr package in R): 39.8% for plant height, 98% for internode length, 85.8% for stem diameter, 98.3% for the number of flowers, 100% for the number of branches, and 99.9% for the specific leaf area (SLA).

	Plant height			Internode length			Stem diameter			Number of flowers			Number of branches			SLA		
	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p
Shade	0.073	8.712	0.003	0.076	11.42	0.001	0.002	0.315	0.575	0.001	0.297	0.586	0.052	18.45	1×10^{-5}	0.432	65.38	6×10^{-16}
			**			***									***			***
Line on intercept	0.163	2.789	0.095	0.381	20.42	6×10^{-6}	0.311	20.42	6×10^{-6}	0.392	28.21	1×10^{-7}	0.753	104.8	2×10^{-16}	0.527	8.092	4×10^{-3}
						***			***			***			***			**
Line on slope	0.166	0.198	0.906	0.392	1.143	0.565	0.296	0	1	0.399	0.694	0.707	0.757	1.592	0.451	0.505	0	1
															**			

Table S2. Effects of methylation and highly inbred lines on phenotypic traits. Coefficients of determination (R^2), chi-square values (χ^2), and test probabilities (p) for the effect of methylation (%mC) on traits, the effect of lines on the intercept of the relationship between %mC and trait values, and the effect of lines on the slope of this relationship. Correlations are reported significant as $p \leq 0.05$ (*), $p \leq 0.01$ (**), and $p \leq 0.001$ (***). $N = 105$ (five plants \times three shade treatments \times seven lines). Statistical power of the chi-square tests for the effect of line on slope was estimated using power analyses defined by Cohen (pwr package in R): 21.1% for plant height, 88.7% for internode length, 69.7% for stem diameter, 98.9% for the number of flowers, 99.9% for the number of branches, and 17.9% for the SLA.

	Plant height			Internode length			Stem diameter			Number of flowers			Number of branches			SLA		
	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p	R^2	χ^2	p
%mC	0.010	0.533	0.465	0.036	1.556	0.212	0.021	1.077	0.299	0.028	2.411	0.121	0.001	0.040	0.842	0.034	2.247	0.134
Line on intercept	0.093	1.020	0.312	0.377	14.30	1×10^{-4} ***	0.293	9.703	1×10^{-3} **	0.464	20.20	6×10^{-6} ***	0.653	45.42	1×10^{-11} ***	0.107	0.629	0.428
Line on slope	0.138	0.575	0.750	0.379	0.210	0.900	0.296	1.173	0.556	0.508	3.049	0.218	0.718	12.16	0.002 **	0.124	0.645	0.724

