Characterisation and genetic dissection of resistance to spotted alfalfa aphid (*Therioaphis trifolii*) in *Medicago truncatula*

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Table S1. Genetic correlation indexes for traits describing the *M. truncatula* response to spotted alfalfa aphid

Trait	Abbreviation (transformation)a	AN-7 (log)	AN/TL-7 (log)	DL/TL-21 (ArcSin)	SDW-21	SFW-21	InSFW-21 (log)	ADW-21 (log)	ADW/PDW-21 (log)	VC-7 (log)	VC-21 (log)	VC/TL-7 (ArcSin)	VC/GL-21 (ArcSin)
Estimated plant fresh weight before infestation	eSFW-0 (sqR)	0.27 **	0.16	0.09	0.41 ***	0.53 ***	-0.56 ***	0.17	-0.02	-0.01	0.13	-0.06	-0.01
Total number of leaves per plant at 7 dpi	AN-7 (log)		0.96 ***	0.75 ***	-0.41 ***	-0.38 ***	-0.70 ***	0.44 ***	0.62 ***	0.66 ***	0.75 ***	0.64 ***	0.78 ***
Number of aphids per plant 7 dpi	AN/TL-7 (log)			0.81 ***	-0.50 ***	-0.50 ***	-0.72 ***	0.44 ***	0.66 ***	0.73 ***	0.72 ***	0.72 ***	0.84 ***
Proportion of dead leaves per plant at 21 dpi	DL/TL-21 (ArcSin)				-0.59 ***	-0.64 ***	-0.75 ***	0.33 **	0.62 ***	0.70 ***	0.59 ***	0.70 ***	0.89 ***
Plant dry weight at 21 dpi	SDW-21					0.90 ***	0.31 **	0.03	-0.44 ***	-0.48 ***	-0.43 ***	-0.50 ***	-0.66 ***
Plant fresh weight at 21 dpi	SFW-21						0.32 **	-0.04	-0.45 ***	-0.56 ***	-0.40 ***	-0.58 ***	-0.68 ***
Fresh weight increment through infestation	InSFW-21 (log)							-0.21 *	-0.38 **	-0.61 ***	-0.53 ***	-0.59 ***	-0.70 ***
Aphid dry weight (mg) per plant at 21 dpi	ADW-21 (log)								0.87 ***	0.35 **	0.38 **	0.30 **	0.34 **
Ratio of aphid (mg) by plant (g) dry weight at 21dpi	ADW/PDW-21 (log)									0.57 ***	0.53 ***	0.55 ***	0.65 ***
Proportion of plants showing VC at 7 dpi	VC-7 (log)										0.54 ***	0.99 ***	0.78 ***
Proportion of green leaves with vein chlorosis per plant at 7 dpi	VC-21 (log)											0.50 ***	0.79 ***
Number of leaves with vein chlorosis at 21dpi	VC/TL-7 (ArcSin)												0.78 ***
Proportion of green leaves with vein chlorosis per plant at 21dpi	VC/GL-21 (ArcSin)												

a) Mathematical transformations: sqR = square root; log = log10; ArcSin = inverse sine square root of proportion; otherwise, no transformation was applied to the data

b) Probability of r (correlation index): * 0.05 > Prob. > 0.01; ** 0.0099 < Prob. < 0.0001; *** Prob. < 0.0001. Tests included the mean response of RILs, F1 and parental lines (n = 92-96)

Table S2. Features of QTLs associated with *M. truncatula* response to spotted alfalfa aphid (SAA) in the A17 x A20 recombinant inbred line (RIL) population. The results were obtained from assuming a 1qtl-1trait genetic model.

	ADW-21	ADW/PDW-21	eSFW-0
	LG7		LG8
LOD[a]	4.2	4.07	3.382
Prob [b]	0.0006	0.001	0.0034
LG-interval[c]	7	6	1
Distance (SD) [d]	48.2 (4.3)	45.2 (5.0)	3.1 (9.5)
PEV[e]	0.222	0.222	0.1629
Effect[f]	1.75 mg	1.85 mg/g	0.01 g
Mean[g]	6.05 mg	9.39 mg/g	0.54 g
Genetic Model[h]	Default	Default	Default

[a] Calculated using a permutation test (5000 permutations).

[b] Significance test H1: Linkage Group (LG) is significantly different from zero on the variable. Transformed data was used in the QTL analysis. Models with Prob > 0.05 were disregarded.

[c] Interval in the LG most likely associated with the quantitative trait.

[d] Distance in cM.

[e] The proportion of phenotypic variance explained by the genetic model.

[f] QTL effect on the trait/variable. The phenotypic difference between A17-like and A20-like allelic groups is presented. Effects are expressed as non-transformed values.

[g] Mean response of the RIL population expressed as non-transformed values.

[h] Submodel that is most likely to fit the data (Prob > 0.05); Default, assumes no "variance" effect (Korol *et al.*, 1996), General, allows for the allelic groups to differ in variance.