

Supplemental Information

Interplay of phytohormones facilitate sorghum tolerance to aphids

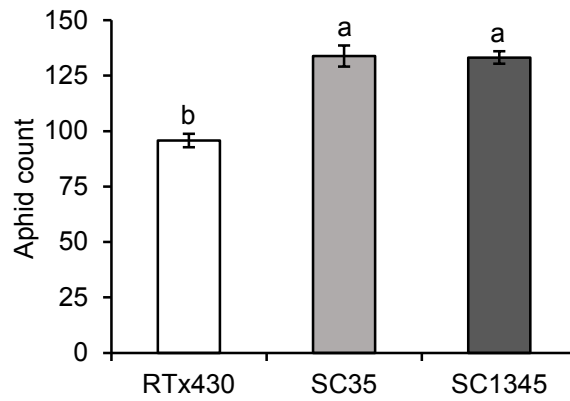
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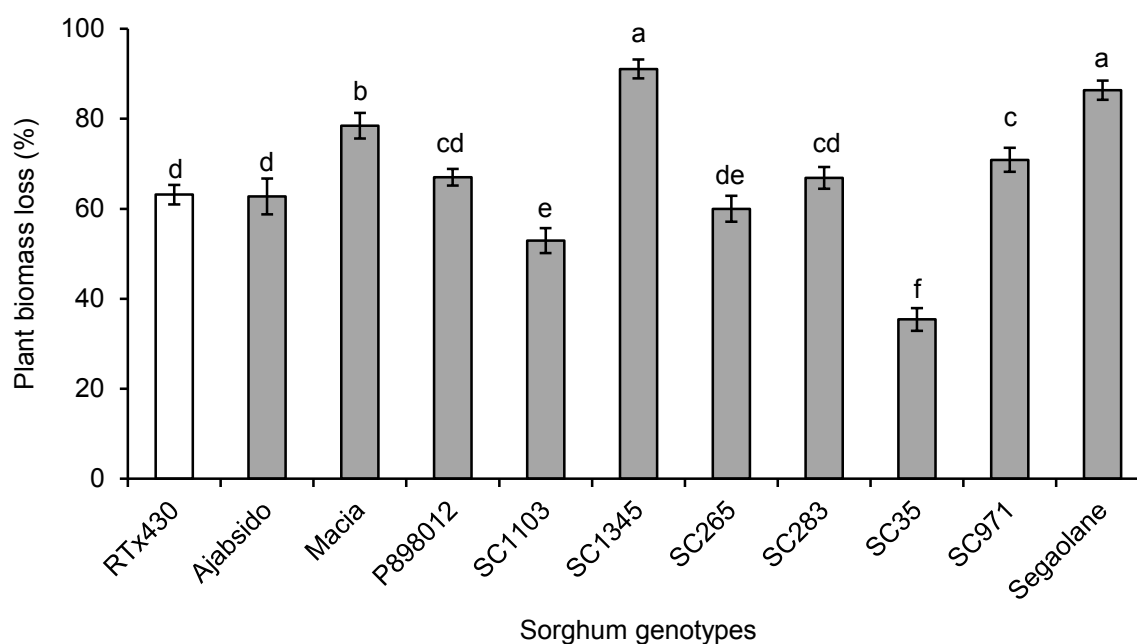
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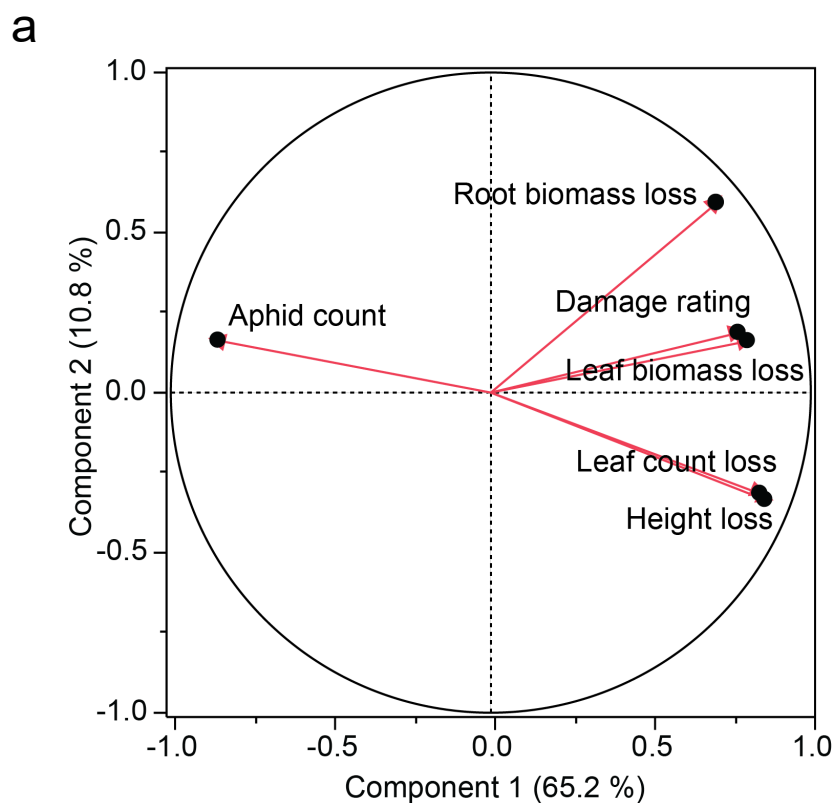
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Supp. Fig. S1. Total number of sugarcane aphids recovered seven days after aphid infestation of two-week-old sorghum RTx430, SC35, and SC1345 plants that were initially infested with 10 adult apterous aphids per plant. ($n = 12$). Negative binomial distribution was used to analyze aphid count data. Different letters indicate significant differences among genotypes ($P < 0.05$; Tukey's test). Error bars represent mean \pm SE.



Supp. Fig. S2. Percent plant biomass loss for each sorghum NAM founder line after 14 days of sugarcane aphid (SCA) infestation of two-week-old sorghum plants that were initially infested with 10 adult apterous aphids per plant. Uninfested plants of similar age were used as controls to calculate changes in plant biomass upon aphid infestation ($n = 12$). Different letters indicate significant differences among genotypes ($P < 0.05$; Tukey's test). Error bars represent mean \pm SE.



b

	Prin1	Prin2	Prin3	Prin4	Prin5	Prin6
Aphid count	-0.8508	0.16223	0.25757	0.09762	0.36602	0.19996
Leaf biomass loss	0.80333	0.16071	0.10652	-0.54692	0.10953	0.07979
Root biomass loss	0.70601	0.59212	-0.31384	0.20261	0.10679	0.00134
Leaf count loss	0.84208	-0.31603	0.05929	0.11512	0.35949	-0.21218
Height loss	0.85781	-0.33519	-0.13295	0.14691	-0.01973	0.33491
Damage rating	0.7742	0.18669	0.54153	0.20203	-0.17795	-0.00457

Supp. Fig. S3. (A) Loading plot of principal components 1 and 2 from the principal component analysis (PCA) of data collected from tolerance experiment on sorghum NAM founder lines after 14 days of SCA infestation. The loading data depicts the unrotated loading matrix between the variables and the components. Uninfested plants of similar age were used to calculate changes in plant growth upon aphid infestation. **(B)** Loading data of the PCA that indicates the effects of components on different variables.

Supplementary Table S1

Total number of sugarcane aphids recovered 14 days after aphid infestation of two-week-old sorghum plants that were initially infested with 10 adult apterous aphids per plant.

Genotype	Aphid numbers (Mean \pm SE)
RTx430	399.58 \pm 25.82 cd
Ajabsido	552.33 \pm 34.5 b
Macia	249.6 \pm 63.83 fg
P898012	501.08 \pm 31.7 bc
SC1103	673.75 \pm 46 a
SC1345	-----
SC265	217.83 \pm 21.99 ef
SC283	378.11 \pm 26.75 de
SC35	724.75 \pm 43.68 a
SC971	409.33 \pm 39.91 ef
Segaolane	255.33 \pm 53.36 g

Negative binomial distribution was used to analyze aphid count data. Different letters indicate significant difference relative to each other ($P < 0.05$; Tukey's test). Values in table represent mean \pm SE ($n = 12$). The susceptible SC1345 plants were dead by 14 dpi as a result of SCA feeding; consequently, no live aphids were found on SCA-susceptible sorghum SC1345 plants.

Supplementary Table S2

Plant growth parameters of sorghum genotypes with and without sugarcane aphid infestation for 14 days.

Genotypes	Height (cm)		Leaf count (number)		Leaf biomass (mg)		Root Biomass (mg)	
	Uninfested	Infested	Uninfested	Infested	Uninfested	Infested	Uninfested	Infested
RTx430	49.81 ± 1.60	32.94 ± 2.24	5.33 ± 0.14	4.00 ± 0.21	277.58 ± 15.10	100.92 ± 7.85	70.5 ± 4.59	27.33 ± 2.27
Ajabsido	50.53 ± 1.23	37.12 ± 1.55	6.00 ± 0.00	3.75 ± 0.18	299.08 ± 9.87	111.75 ± 12.97	75.08 ± 4.24	27.67 ± 3.32
Macia	44.21 ± 0.45	29.4 ± 1.90	5.00 ± 0.00	1.17 ± 0.42	203.17 ± 7.74	61.11 ± 3.70	81.42 ± 6.52	15.42 ± 1.79
P898012	57.52 ± 0.68	35.98 ± 1.60	5.75 ± 0.13	3.58 ± 0.23	326.92 ± 12.72	112.33 ± 7.48	101.08 ± 6.94	28.92 ± 3.37
SC1103	46.75 ± 0.94	34.14 ± 1.44	6.00 ± 0.00	4.00 ± 0.21	277.17 ± 15.99	139.17 ± 9.68	102.25 ± 7.04	39.42 ± 2.04
SC1345	53.43 ± 1.23	31.52 ± 2.18	5.00 ± 0.12	----	327.08 ± 31.56	56 ± 2.76	73.33 ± 7.53	12.42 ± 1.70
SC265	39.7 ± 1.07	22.93 ± 1.33	5.00 ± 0.00	3.75 ± 0.13	124.25 ± 8.72	52.33 ± 3.61	38.42 ± 2.41	12.75 ± 1.70
SC283	43.41 ± 0.82	28.88 ± 1.72	5.00 ± 0.00	2.42 ± 0.43	197.75 ± 7.29	60.92 ± 7.19	61.75 ± 4.48	25.08 ± 3.30
SC35	57.75 ± 1.08	49.18 ± 1.43	5.67 ± 0.14	4.83 ± 0.11	352.67 ± 11.63	238.25 ± 10.23	107.33 ± 3.94	58.83 ± 3.20
SC971	48.38 ± 0.96	33.45 ± 2.29	5.00 ± 0.00	1.50 ± 0.48	257.58 ± 9.68	80.92 ± 8.74	74.42 ± 4.41	15.83 ± 2.27
Segaolane	49.61 ± 0.90	17.47 ± 0.82	4.75 ± 0.13	0.67 ± 0.36	218.75 ± 11.10	41.67 ± 4.51	62.08 ± 3.84	7.08 ± 1.43

Two-week-old sorghum nested association mapping (NAM) founder lines were initially infested with 10 adult apterous aphids per plant and various plant growth parameters monitored after 14 days post infestation. Uninfested plants were used as controls. Values in table represent mean ± SE ($n = 12$).