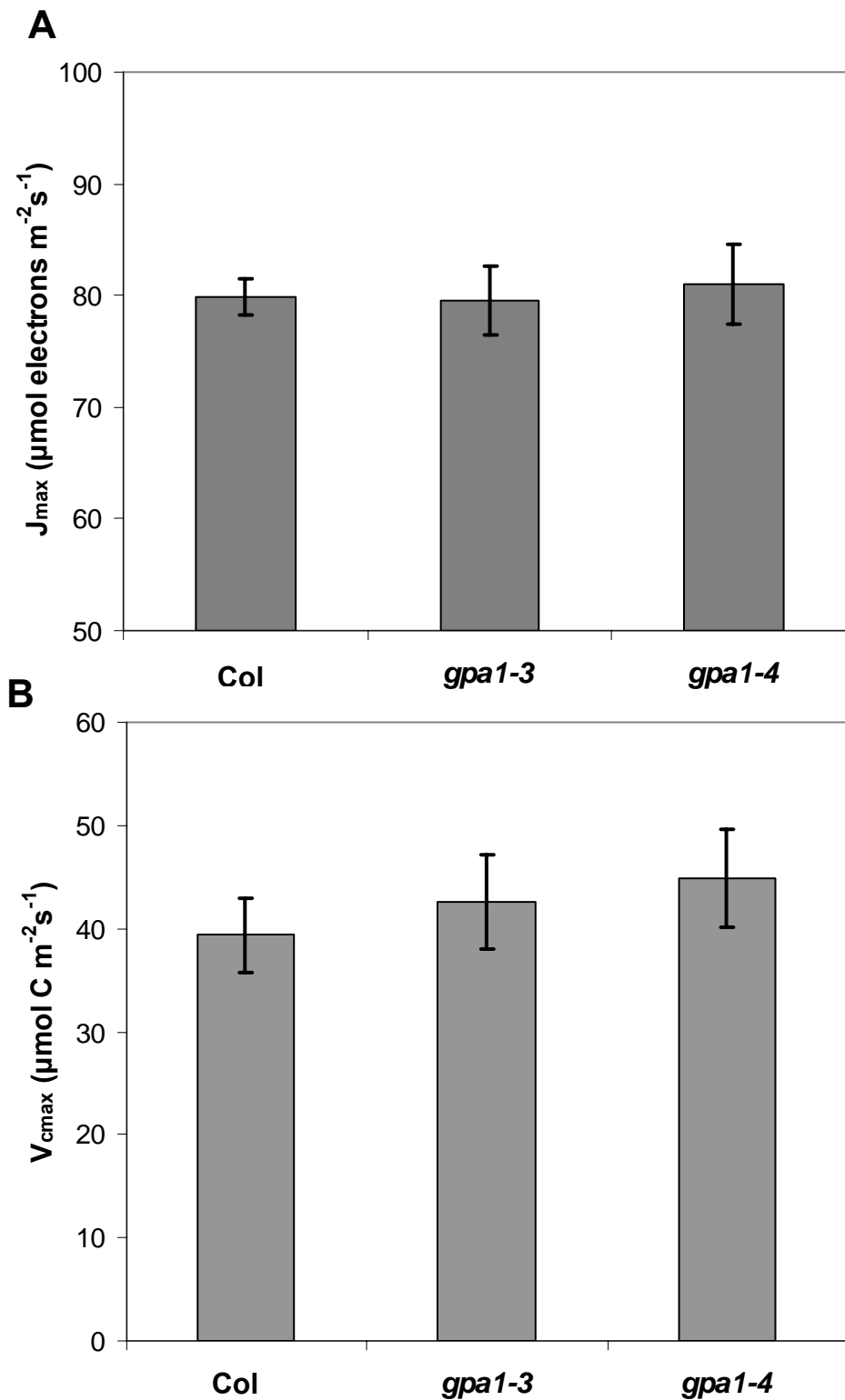
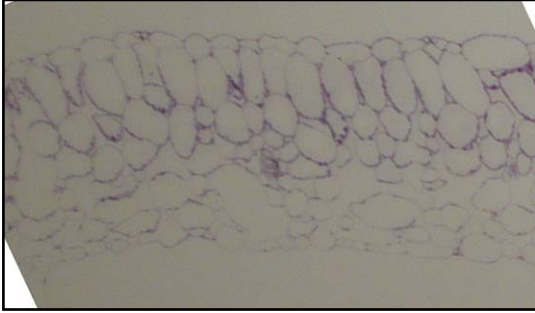


Supplemental Data

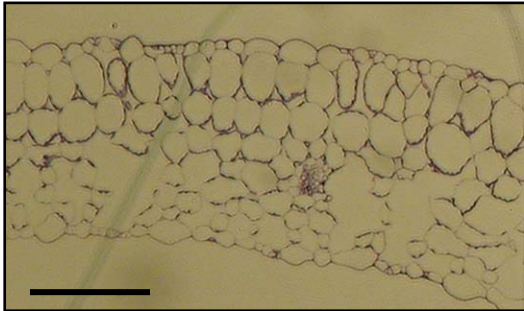


Supplemental Figure 1. *gpa1* mutants do not significantly differ from Col for J_{\max} (A) or V_{cmax} (B). V_{cmax} values were calculated from g_s only, and could possibly be higher if mesophyll conductances were also taken into account. Error bars represent standard error.

Col



gpa1-3



Supplemental Figure 2. There are no obvious differences in leaf thickness or anatomy between Col and *gpa1-3*. Shown are characteristic transverse sections from Col and *gpa1-3* leaves. Five leaves from five individual *gpa1-3* and Col plants were sectioned and examined. Scale bar = 100 μm .

Supplemental Table I. ANOVA table for ample water/ drought TE experiment

Source	d.o.f.	Mean Square	F-statistic	p-value
Genotype	2	1.650	38.81	<.001
Water level	1	5.873	138.16	<.001
Block	6	0.103	2.41	0.033
Genotype x water level	2	0.081	1.90	0.156
Error	91	0.0425		

Supplemental Table II. ANOVA table for ample water/ drought $\delta^{13}\text{C}$ analysis

Source	d.o.f.	Mean Square	F-statistic	p-value
Genotype	2	4.4590	158.76	<.001
Water level	1	3.8378	136.64	<.001
Block	6	0.4253	15.14	<.001
Genotype x water level	2	0.0016	0.06	0.946
Error	82	0.0281		

Supplemental Table III. ANOVA table for ABA treatment $\delta^{13}\text{C}$ analysis

Source	d.o.f.	Mean Square	F-statistic	p-value
Genotype	2	2.895	15.50	<.001
ABA treatment	1	175.298	938.82	<.001
Block	1	0.001	0.00	0.955
Error	65	0.187		

Supplemental Table IV. ANOVA table for TE before flowering

Source	d.o.f.	Mean Square	F-statistic	p-value
Genotype	2	0.864	17.30	<.001
Block	3	0.089	1.78	0.160
Error	60	0.050		

Supplemental Table V. ANOVA table for TE after flowering

Source	d.o.f.	Mean Square	F-statistic	p-value
Genotype	2	0.666	14.34	<.001
Block	3	0.363	7.81	<.001
Error	63	0.046		

Supplemental Table VI. ANOVA table for inflorescence TE

Source	d.o.f.	Mean Square	F-statistic	p-value
Genotype	2	0.178	4.29	0.018
Block	3	0.185	4.46	0.007
Error	63	0.041		

Supplemental Table VII. ANOVA table for percent of total biomass allocated to inflorescence

Source	d.o.f.	Mean Square	F-statistic	p-value
Genotype	2	417.77	8.27	<.001
Block	3	142.75	2.83	0.046
Error	63	50.49		