

Carbon assimilation in oak (*Quercus* spp.) populations under acute and chronic high-temperature stress

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Table S1: Minimum, maximum and average temperatures (°C) in glasshouses I (Gh-I) and II (Gh-II) during the experimental period

Glasshouse	Date		Minimum	Maximum	Average
I	28 th June	3 rd July	25	28	27
	28 th June		34	41	37.5
II	30 th June		33	47	40
	2 nd July		37	45	41

Table S2: Average temperature of leaves (T_l) in the glasshouses (°C)

Control group	Exp. group after two days of HT treatment	Exp. group after five days of HT treatment
27.49	42.30	45.95

Table S3. Linear correlation coefficients between investigated parameters of stressed plants (*p<0.05).

Correlations (korelacija.toplotni (B2:K11))Marked correlations are significant at p < .05000N=10 (Casewise deletion of missing data)												
Variable	Means	Std.Dev.	A	E	WUE	gs	Ci	Chl a	Chl b	Chla a+b	Car	Proline
A	0.132754	0.701231	1.000000	0.461789	0.835021	0.894969	-0.773749	-0.816101	-0.791403	-0.807700	-0.753477	0.983538
E	0.089827	0.541518	0.461789	1.000000	-0.095750	0.802425	0.199957	-0.813496	-0.811834	-0.813338	-0.833794	0.574498
WUE	0.142367	0.590684	0.835021	-0.095750	1.000000	0.516583	-0.994415	-0.386844	-0.356242	-0.376164	-0.298912	0.736829
gs	0.191463	0.589006	0.894969	0.802425	0.516583	1.000000	-0.423425	-0.921834	-0.900965	-0.914917	-0.885199	0.930076
Ci	-0.120391	0.578616	-0.773749	0.199957	-0.994415	-0.423425	1.000000	0.297602	0.267996	0.287224	0.209341	-0.666098
Chl a	0.175945	0.736927	-0.816101	-0.813496	-0.386844	-0.921834	0.297602	1.000000	0.998655	0.999839	0.994645	-0.905584
Chl b	0.214407	0.699923	-0.791403	-0.811834	-0.356242	-0.900965	0.267996	0.998655	1.000000	0.999424	0.998152	-0.888068
Chl a+b	0.189966	0.724961	-0.807700	-0.813338	-0.376164	-0.914917	0.287224	0.999839	0.999424	1.000000	0.996174	-0.899716
Car	0.227575	0.682244	-0.753477	-0.833794	-0.298912	-0.885199	0.209341	0.994645	0.998152	0.996174	1.000000	-0.858788
Proline	0.019981	0.770283	0.983538	0.574498	0.736829	0.930076	-0.666098	-0.905584	-0.888068	-0.899716	-0.858788	1.000000

Analyses have been done on data collected from 5 days exposure of oak plants to elevated temperature.

Table S4. Fluorescence parameters F_v/F_m and F_0 in oak plant`s exposed to acute and chronic HT stress. Significance codes: ‘ ’ 0; ‘****’ 0.001; ‘***’ 0.01; ‘**’ 0.05; ‘.’ 0.1. F_v/F_m - maximal quantum yield of PSII photochemistry; F_0 - minimal fluorescence yield of the dark adapted state. Fixed effects estimates for applied stresses and *Q. robur* plants are presented as a deviations from the Control group and *Q. cerris*, respectively.

Fixed effects	F_v/F_m		F_0	
	Estimate	Std. Error	Estimate	Std. Error
Control group	0.79126	0.01346	289.48	12.31
Stress acute	-0.02751	0.01648	35.25	15.08
Stress chronic	-0.00550	0.01648	59.53	15.08
<i>Q. robur</i>	0.00298	0.01346	33.93	12.31
Random effects	Variance	Std. Dev.	Variance	Std. Dev.
Stress:Provenience	0.000	0.000	332.2	18.35
Treatment:Provenience	0.000	0.000	0.000	0.000
Stress:Species	0.000	0.000	0.000	0.000
Residual	0.004892	0.06994	1093.1	33.06
Tukey HSD post-hoc test				
Species level:	P value	Sign. difference	P value	Sign. difference
<i>Q. cerris</i>		a		b
<i>Q. robur</i>	0.824	a	0.00585**	a
Stress level:				
Stress acute-Control	0.217	a	0.050628	ab
Stress chronic-Control	0.940	a	0.000226***	a
Stress chronic-Acute	0.376	a	0.241241	b

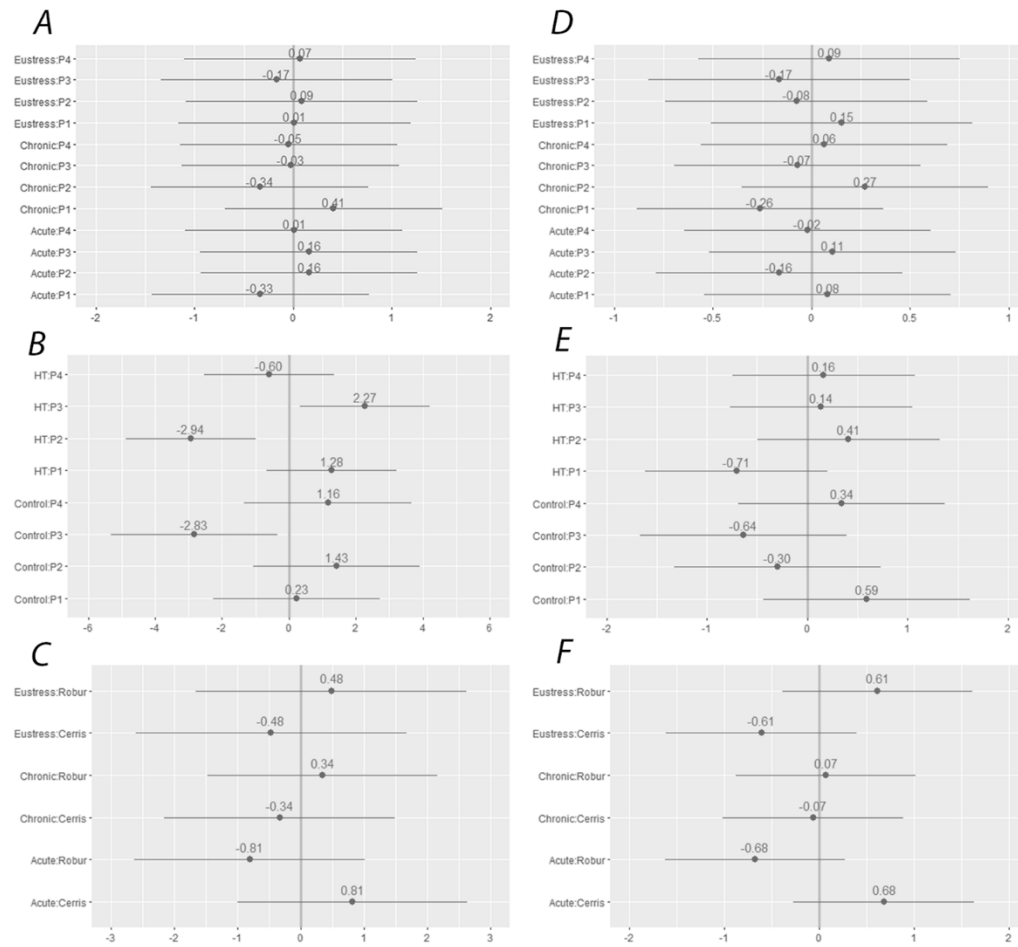


Fig. S1 Random effects coefficient estimates for P_N (A, B and C) and E (D, E and F). P1 and P2 – *Q. robur* populations; P3 and P4 – *Q. cerris* populations. Eustress presents the control group of oak plant's.

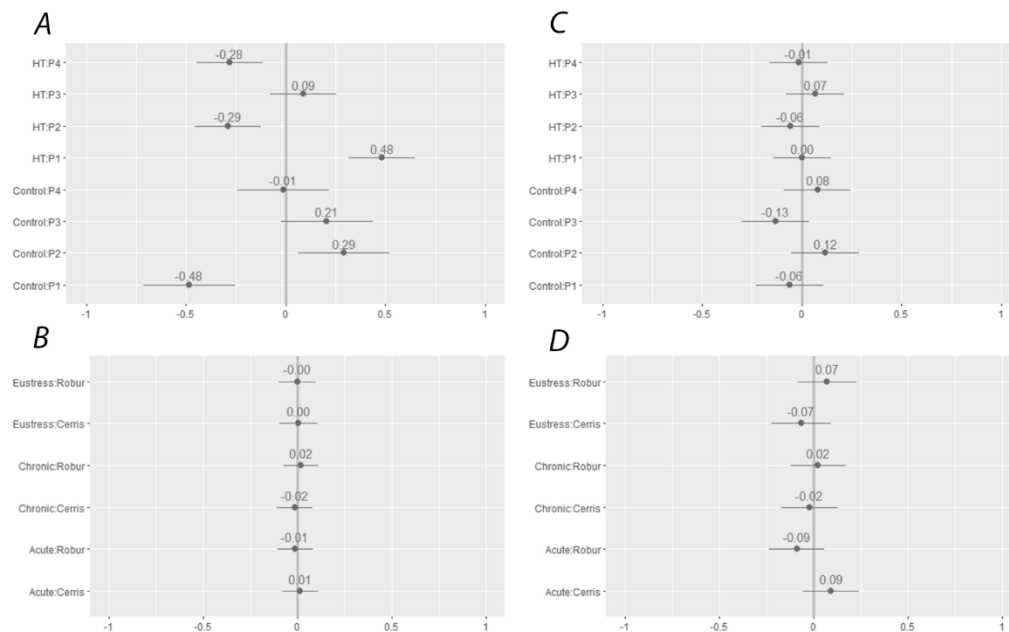


Fig. S2 Random effects coefficient estimates for WUE (A and B) and g_s (C and D). P1 and P2 – *Q. robur* populations; P3 and P4 – *Q. cerris* populations. Eustress presents the control group of oak plant's.

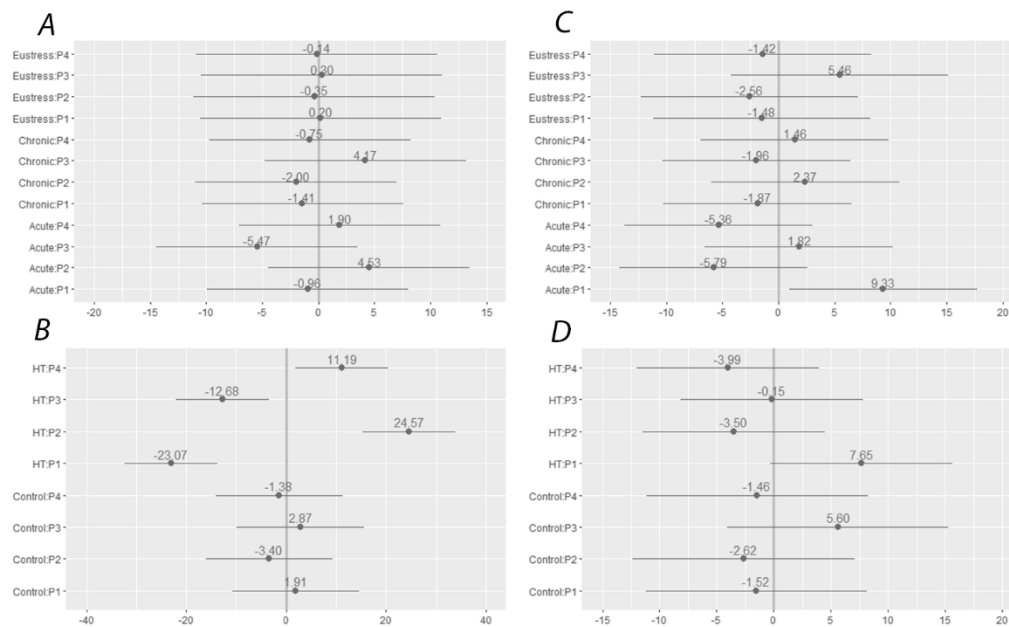


Fig. S3 Random effects coefficient estimates for WUEi (A and B) and C_i (C and D). P1 and P2 – *Q. robur* populations; P3 and P4 – *Q. cerris* populations. Eustress presents the control group of oak plant's.

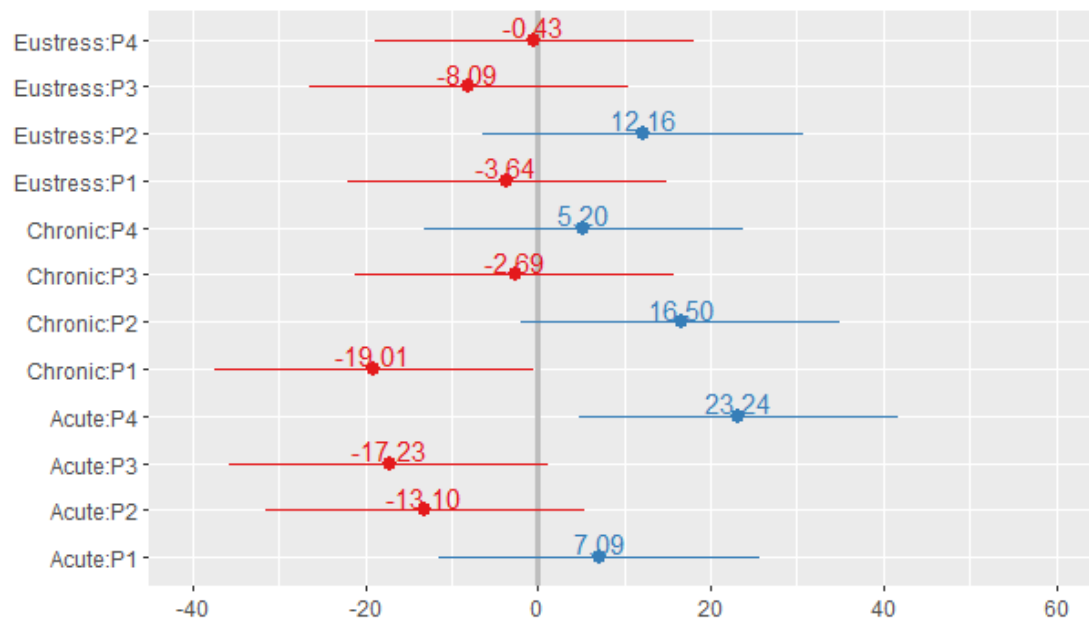


Fig. S4. Random effects estimates of F_0 fluorescence parameter. P1 and P2 – *Q. robur* populations; P3 and P4 – *Q. cerris* populations. Eustress presents the control group of oak plant's.

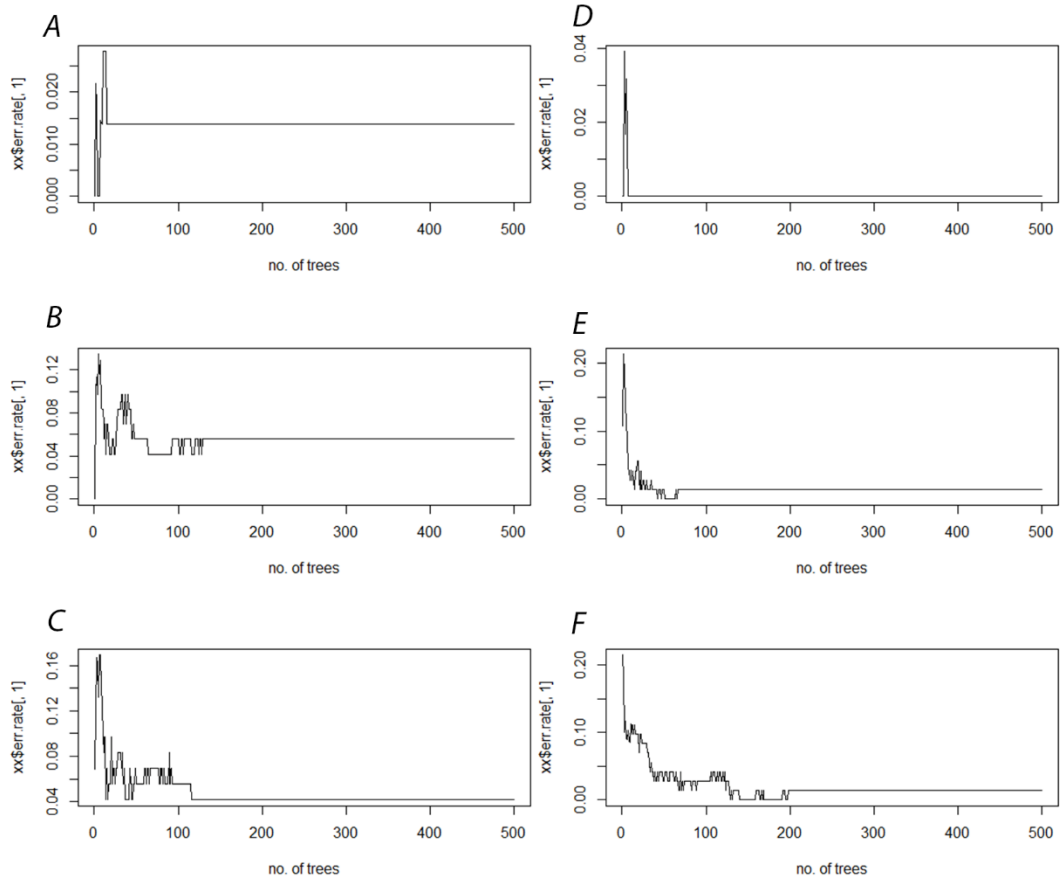


Fig. S5 OutOfBag Error plots calculated for each varied factor in datasets. Results are presented in six graphs, for acute (plots A, B and C) and chronic (plots D, E and F) day dataset analysis. OutOfBag errors were calculated by varying the factor in analysis, like treatment (graphs A and D), provenience (graphs B and E) or species (graphs C and F).