Table S1 Response to 50% reduction in glucose-6-phosphate dehydrogenase (G6PD) activity

Environmental Condition	Enzyme/ Metabolite	Percent Difference	Elasticity Coefficient	*F*-ratio From ANCOVA[a]
Control	IDH	NS	NS	NS
	MEN	+17.9%	-0.23 ± 0.072	$F = 47.0$, $P < 0.0001$
	CARB	-11.3%	+0.24 ± 0.085	$F = 28.6$, $P < 0.0001$
	TRIG	NS	NS	NS
Oxidative Stress	IDH	NS	NS	NS
	MEN	+40.0%	-0.51 ± 0.090	$F = 89.6$, $P < 0.0001$
	CARB	+13.2%	-0.18 ± 0.057	$F = 10.2$, $P < 0.0019$
	TRIG	NS	NS	NS
Starvation	IDH	+5.3%	-0.06 ± 0.046	$F = 7.9$, $P < 0.0059$
	MEN	+21.8%	-0.30 ± 0.093	$F = 44.1$, $P < 0.0001$
	CARB	-16.1%	+0.22 ± 0.021	$F = 4.8$, $P < 0.0304$
	TRIG	NS	NS	NS
Desiccation	IDH	+3.3%	-0.04 ± 0.036	$F = 5.2$, $P < 0.0239$
	MEN	+23.4%	-0.23 ± 0.050	$F = 40.6$, $P < 0.0001$
	CARB	-17.6%	+0.28 ± 0.097	$F = 7.6$, $P < 0.0070$
	TRIG	NS	NS	NS

a. Degrees of freedom for *F* ratio: $F_{1,111}$

Abbreviations: IDH – Isocitrate dehydrogenase, MEN – Malic enzyme, CARB –Total carbohydrate concentration, TRIG – Triglyceride concentration, NS – Not significant

Table S2 Response to 50% reduction in isocitrate dehydrogenase (IDH) activity

Environmental Condition	Enzyme/ Metabolite	Percent Difference	Elasticity Coefficient	F-ratio From ANCOVA[a]
Control	G6PD	NS	NS	NS
	MEN	NS	NS	NS
	CARB	+7.9%	-0.15 ± 0.066	$F = 8.6$, $P < 0.0042$
	TRIG	NS	NS	NS
Oxidative Stress	G6PD	+6.3%	-0.09 ± 0.046	$F = 12.9$, $P < 0.0005$
	MEN	+21.2%	-0.26 ± 0.057	$F = 36.4$, $P < 0.0001$
	CARB	+28.4%	-0.38 ± 0.084	$F = 32.3$, $P < 0.0001$
	TRIG	NS	NS	NS
Starvation	G6PD	NS	NS	NS
	MEN	NS	NS	NS
	CARB	+25.3%	-0.33 ± 0.082	$F = 36.6$, $P < 0.0001$
	TRIG	NS	NS	NS
Desiccation	G6PD	NS	NS	NS
	MEN	-6.6%	+0.05 ± 0.055	$F = 10.4$, $P < 0.0017$
	CARB	+36.0%	-0.39 ± 0.057	$F = 45.4$, $P < 0.0001$
	TRIG	NS	NS	NS

a. Degrees of freedom for F ratio: $F_{1,111}$

Abbreviations: G6PD – Glucose-6-phosphate dehydrogenase, MEN – Malic enzyme, CARB – Total carbohydrate concentration, TRIG – Triglyceride concentration, NS – Not significant

Table S3 Response to 50% reduction in malic enzyme (MEN) activity

Environmental Condition	Enzyme/ Metabolite	Percent Difference	Elasticity Coefficient	F-ratio From ANCOVA[a]
Control	G6PD	NS	NS	NS
	IDH	+9.5%	-0.22 ± 0.060	$F = 11.1$, $P < 0.0012$
	CARB	-15.8%	+0.62 ± 0.096	$F = 24.2$, $P < 0.0001$
	TRIG	NS	NS	NS
Oxidative Stress	G6PD	NS	NS	NS
	IDH	+15.9%	-0.50 ± 0.163	$F = 34.0$, $P < 0.0001$
	CARB	NS	NS	NS
	TRIG	NS	NS	NS
Starvation	G6PD	+12.1%	-0.86 ± 0.557	$F = 9.7$, $P < 0.0024$
	IDH	+18.8%	-1.02 ± 0.431	$F = 10.1$, $P < 0.0020$
	CARB	-34.9%	+1.03 ± 0.200	$F = 35.4$, $P < 0.0001$
	TRIG	-14.4%	+0.74 ± 0.164	$F = 6.0$, $P < 0.0158$
Desiccation	G6PD	+5.1%	-0.18 ± 0.092	$F = 7.1$, $P < 0.0087$
	IDH	+9.5%	-0.29 ± 0.132	$F = 66.0$, $P < 0.0001$
	CARB	-21.7%	+1.21 ± 0.203	$F = 57.3$, $P < 0.0001$
	TRIG	NS	NS	NS

a. Degrees of freedom for F ratio: $F_{1,111}$

Abbreviations: G6PD – Glucose-6-phosphate dehydrogenase, IDH – Isocitrate dehydrogenase, CARB – Total carbohydrate concentration, TRIG – Triglyceride concentration, NS – Not significant