

Table S1. Results of three-way multivariate and univariate analyses of variance (F and *p* values) assessing main and interaction effects of temperature (T), dietary protein (P) and carbohydrate content (C) on larval fitness-related traits. Significant effects are marked in bold.

	MANOVA			df, df _{error}	Dev. duration		Larval mass	
	df, df _{error}	F	<i>p</i>		F	<i>p</i>	F	<i>p</i>
T	4, 336	68.21	< 0.001	2, 168	463.61	< 0.001	43.45	< 0.001
P	2, 167	34.14	< 0.001	1, 168	10.47	0.001	63.37	< 0.001
C	2, 167	2.54	0.082	1, 168	0.01	0.911	4.98	0.027
T × P	4, 336	0.06	0.994	2, 168	0.01	0.995	0.10	0.902
T × C	4, 336	0.58	0.678	2, 168	0.12	0.890	0.96	0.387
P × C	2, 167	2.94	0.056	1, 168	1.74	0.190	4.77	0.030
T × P × C	4, 336	0.41	0.802	2, 168	0.61	0.543	0.22	0.801

Table S2. Significance of squared Mahalanobis distances (D^2) between treatment groups for fitness-related traits.

A.

Diet		19 °C vs. 23 °C	23 °C vs. 28 °C
HpHc	D^2	15.94	6.55
	F	58.35	23.97
	<i>p</i>	< 0.001	< 0.001
HpLc	D^2	13.33	9.25
	F	48.81	33.87
	<i>p</i>	< 0.001	< 0.001
LpHc	D^2	9.89	6.82
	F	36.20	24.98
	<i>p</i>	< 0.001	< 0.001
LpLc	D^2	7.97	4.05
	F	29.19	14.82
	<i>p</i>	< 0.001	< 0.001

B.

Temperature		HpHc vs. LpLc	HpLc vs. LpHc
19 °C	D^2	0.84	2.33
	F	3.11	8.57
	<i>p</i>	0.053	< 0.001
23 °C	D^2	0.60	3.94
	F	2.20	14.49
	<i>p</i>	0.120	< 0.001
28 °C	D^2	1.29	1.83
	F	4.73	6.76
	<i>p</i>	0.013	0.002

Table S3. Results of three-way multivariate and univariate analyses of variance assessing main and interaction effects of temperature (T), dietary protein (P) and carbohydrate content (C) on digestive enzyme activities. Significant effects are marked in bold.

	df, df _{error}	MANOVA		df, df _{error}	PA		TRY		ELA		LAP		AMY		α -GLUC		LIP	
		F	<i>p</i>		F	<i>p</i>	F	<i>p</i>	F	<i>p</i>	F	<i>p</i>	F	<i>p</i>	F	<i>p</i>	F	<i>p</i>
T	14, 326	16.44	<0.001	2, 168	0.87	0.420	3.33	0.038	6.71	0.002	107.08	<0.001	0.66	0.518	8.27	<0.001	2.60	0.077
P	7, 162	39.91	<0.001	1, 168	6.12	0.014	0.31	0.577	5.59	0.019	24.81	<0.001	75.61	<0.001	8.81	0.003	19.19	<0.001
C	7, 162	2.53	0.017	1, 168	1.85	0.175	3.45	0.065	0.60	0.439	8.55	0.004	0.37	0.544	0.98	0.323	0.12	0.725
T×P	14, 326	1.76	0.043	2, 168	2.68	0.071	0.77	0.465	1.39	0.253	0.43	0.654	2.13	0.122	0.85	0.427	1.2	0.303
T×C	14, 326	1.66	0.063	2, 168	2.34	0.099	0.94	0.395	0.44	0.645	2.26	0.108	4.34	0.014	3.45	0.034	0.00	0.998
P×C	7, 162	1.38	0.217	1, 168	0.44	0.510	0.80	0.371	0.25	0.616	1.42	0.235	1.23	0.269	1.22	0.270	0.29	0.594
T×P×C	14, 326	0.59	0.870	2, 168	0.20	0.822	0.01	0.987	0.22	0.801	0.07	0.928	0.30	0.738	1.06	0.349	0.27	0.765

Table S4. Results of z test for comparisons of specific correlation coefficients and Mantel test for comparison of correlation structures between digestive enzyme activities in larvae reared at (A.) different temperatures (19 °C vs. 23 °C, 23 °C vs. 28 °C) within each diet and (B.) different diets (HpHc vs. LpLc, HpLc vs. LpHc) within each temperature. Significant differences [between specific correlations](#) are presented in [red](#).

A.

	HpHc		HpLc		LpHc		LpLc	
	19 °C vs. 23 °C	23 °C vs. 28 °C	19 °C vs. 23 °C	23 °C vs. 28 °C	19 °C vs. 23 °C	23 °C vs. 28 °C	19 °C vs. 23 °C	23 °C vs. 28 °C
PA-TRY	-0.21	-0.04	1.30	0.47	-0.06	0.83	-0.27	0.68
PA-ELA	-1.62	0.47	2.05	0.36	-0.32	0.28	-0.27	2.38
PA-LAP	-1.43	-0.84	0.76	-0.05	-0.09	1.46	0.86	1.90
PA-AMY	-0.18	-0.72	-0.04	-0.66	-0.22	0.79	1.15	-0.19
PA-GLUC	-1.28	-0.19	0.26	0.90	0.45	-0.37	-2.78	2.30
PA-LIP	0.55	-1.47	0.21	-0.57	-0.02	1.61	0.54	0.48
TRY-ELA	-1.59	-0.54	-0.58	0.91	-0.44	-0.22	-0.61	2.19
TRY-LAP	-1.27	-1.45	0.09	-0.91	-0.39	1.41	1.36	1.78
TRY-AMY	-1.09	-0.11	-0.10	-1.11	-0.18	0.62	1.80	-0.30
TRY-GLUC	-1.04	0.02	1.03	-0.49	0.36	-0.75	-2.26	1.14
TRY-LIP	0.00	-0.48	-0.63	-0.32	-0.37	1.40	0.49	-0.28
ELA-LAP	-0.69	-2.07	0.98	-1.82	-0.22	0.80	0.65	1.19
ELA-AMY	-1.38	-0.11	0.46	-2.48	-0.10	0.23	1.20	-1.10
ELA-GLUC	-1.29	-0.21	-0.72	-0.52	0.93	-0.32	-2.14	2.35
ELA-LIP	-0.03	-0.21	-1.12	-0.59	-0.54	1.34	1.10	-0.79
LAP-AMY	-0.32	-1.92	-1.85	0.24	0.89	0.15	1.89	-1.20
LAP-GLUC	-1.77	1.38	0.19	-0.95	1.15	-0.61	-0.67	1.51
LAP-LIP	1.57	-1.13	-0.90	-0.05	0.92	0.07	0.53	-1.20
AMY-GLUC	-0.70	-0.62	0.42	-0.34	-0.04	-1.07	1.14	0.43
AMY-LIP	0.19	-1.35	0.47	0.03	0.17	-0.33	-0.24	-0.64
GLUC-LIP	3.28	-1.25	-1.18	0.16	-0.55	1.66	1.15	0.06
<i>Mantel:</i>								
R	0.481	0.744	0.373	0.327	0.708	0.485	0.184	0.079
<i>p</i>	<0.001	<0.001	0.002	0.004	<0.001	<0.001	0.024	0.146

PA - protease activity, TRY – trypsin, ELA – elastase, LAP – leucine aminopeptidase, AMY – α -amylase, α -GLUC - α -glucosidase, LIP - lipase

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B.

	19 °C		23 °C		28 °C	
	HpHc vs. LpLc	HpLc vs. LpHc	HpHc vs. LpLc	HpLc vs. LpHc	HpHc vs. LpLc	HpLc vs. LpHc
PA-TRY	-0.14	-1.53	-0.20	-2.88	0.52	-2.52
PA-ELA	-1.03	-0.09	0.32	-2.46	2.22	-2.54
PA-LAP	-1.27	0.46	1.02	-0.39	3.77	1.12
PA-AMY	0.70	0.24	2.04	0.06	2.57	1.51
PA-GLUC	-0.23	0.41	-1.73	0.61	0.76	-0.67
PA-LIP	-0.99	-0.34	-0.99	-0.58	0.96	1.60
TRY-ELA	-0.93	-0.82	0.05	-0.67	2.78	-1.81
TRY-LAP	-2.41	0.16	0.23	-0.31	3.46	2.00
TRY-AMY	-0.05	0.16	2.84	0.08	2.64	1.81
TRY-GLUC	-0.13	1.45	-1.35	0.78	-0.23	0.52
TRY-LIP	-0.86	0.04	-0.36	0.30	-0.16	2.02
ELA-LAP	-1.77	0.86	-0.44	-0.34	2.82	2.28
ELA-AMY	0.72	-0.05	3.30	-0.62	2.31	2.08
ELA-GLUC	-1.01	-0.61	-1.86	1.04	0.70	1.23
ELA-LIP	-1.58	-0.31	-0.45	0.28	-1.03	2.21
LAP-AMY	-1.40	-1.71	0.80	1.02	1.53	0.93
LAP-GLUC	-0.49	-0.07	0.61	0.89	0.74	1.24
LAP-LIP	-0.64	-0.90	-1.68	0.91	-1.75	1.03
AMY-GLUC	-1.83	0.70	0.01	0.24	1.06	-0.48
AMY-LIP	-1.15	0.99	-1.58	0.70	-0.86	0.34
GLUC-LIP	1.35	-0.79	-0.79	-0.15	0.52	1.35
<i>Mantel:</i>						
R	0.484	0.563	0.263	0.563	0.044	0.130
p	<0.001	<0.001	0.006	<0.001	0.252	0.115

PA - protease activity, TRY – trypsin, ELA – elastase, LAP – leucine aminopeptidase, AMY – α -amylase,
 α -GLUC - α -glucosidase, LIP - lipase

Table S5. Significance of squared Mahalanobis distances (D^2) between treatment groups for digestive enzyme activities.

A.

Diet		19 °C vs. 23 °C	23 °C vs. 28 °C
HpHc	D^2	11.14	1.66
	F	10.23	1.52
	p	< 0.001	0.192
HpLc	D^2	11.99	1.69
	F	11.01	1.55
	p	< 0.001	0.182
LpHc	D^2	6.60	6.11
	F	6.06	5.62
	p	< 0.001	< 0.001
LpLc	D^2	7.10	4.76
	F	6.52	4.37
	p	< 0.001	0.001

B.

Temperature		HpHc vs. LpLc	HpLc vs. LpHc
19 °C	D^2	12.37	5.87
	F	11.84	5.62
	p	< 0.001	< 0.001
23 °C	D^2	7.26	17.60
	F	6.94	16.84
	p	< 0.001	< 0.001
28 °C	D^2	7.27	6.83
	F	6.96	6.53
	p	< 0.001	< 0.001