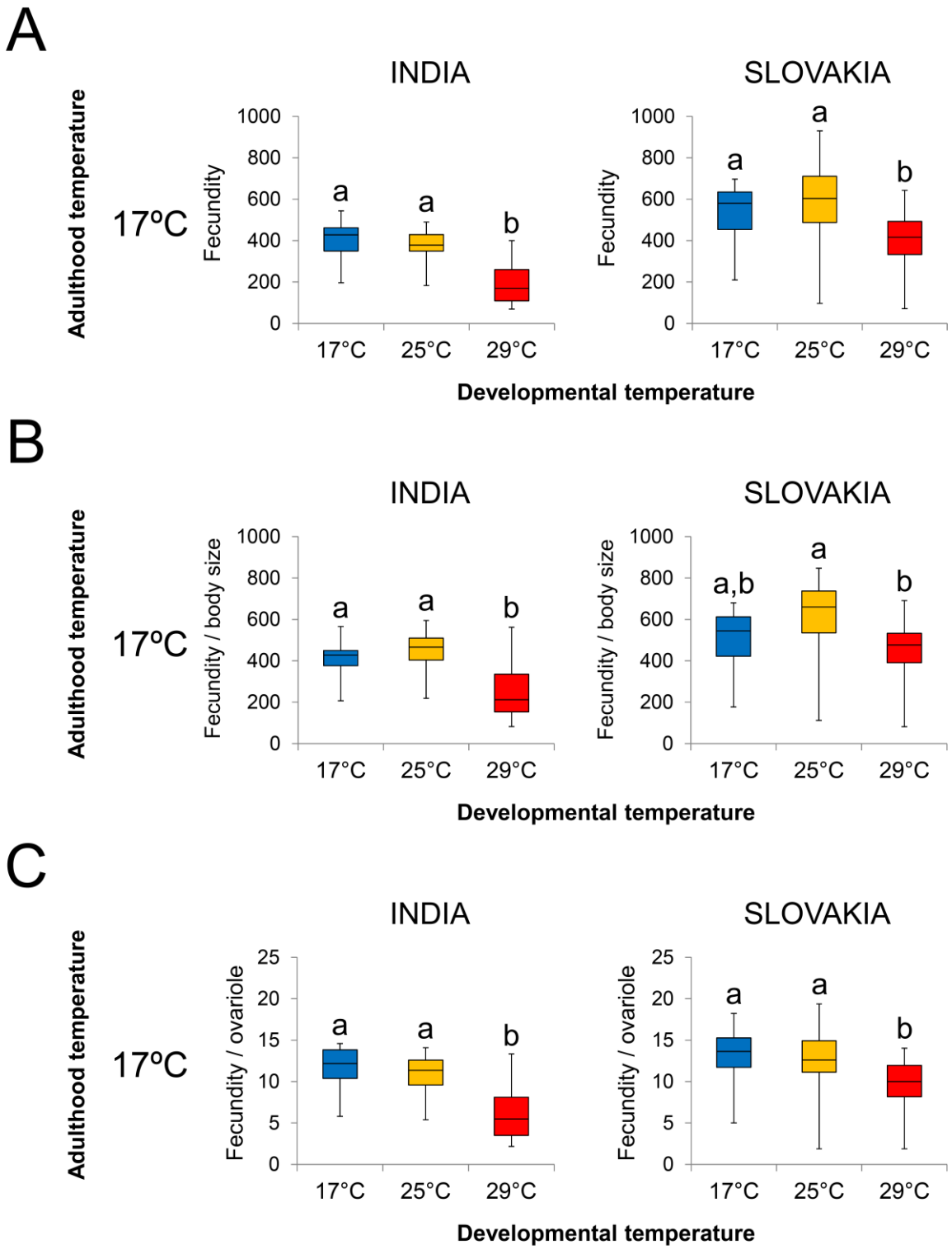

Figure S1. Effect of developmental temperature on early fecundity (cumulative number of eggs during the first twenty days after eclosion) (**A**), relative fecundity (cumulative number of eggs laid during the first twenty days after eclosion per unit body size (thorax length^3)) (**B**), and early fecundity per ovariole (cumulative number of eggs laid during the first twenty days after eclosion per ovariole) at 17°C (**C**). Data for each population, adulthood temperature and trait were compared by one-way ANOVA followed by Tukey's HSD test ($\alpha = 0.05$). Groups with the same letters are not significantly different from each other. Box plots display minimum, first quartile, median, third quartile, and maximum value. For statistical analyses see Table S1, S2.

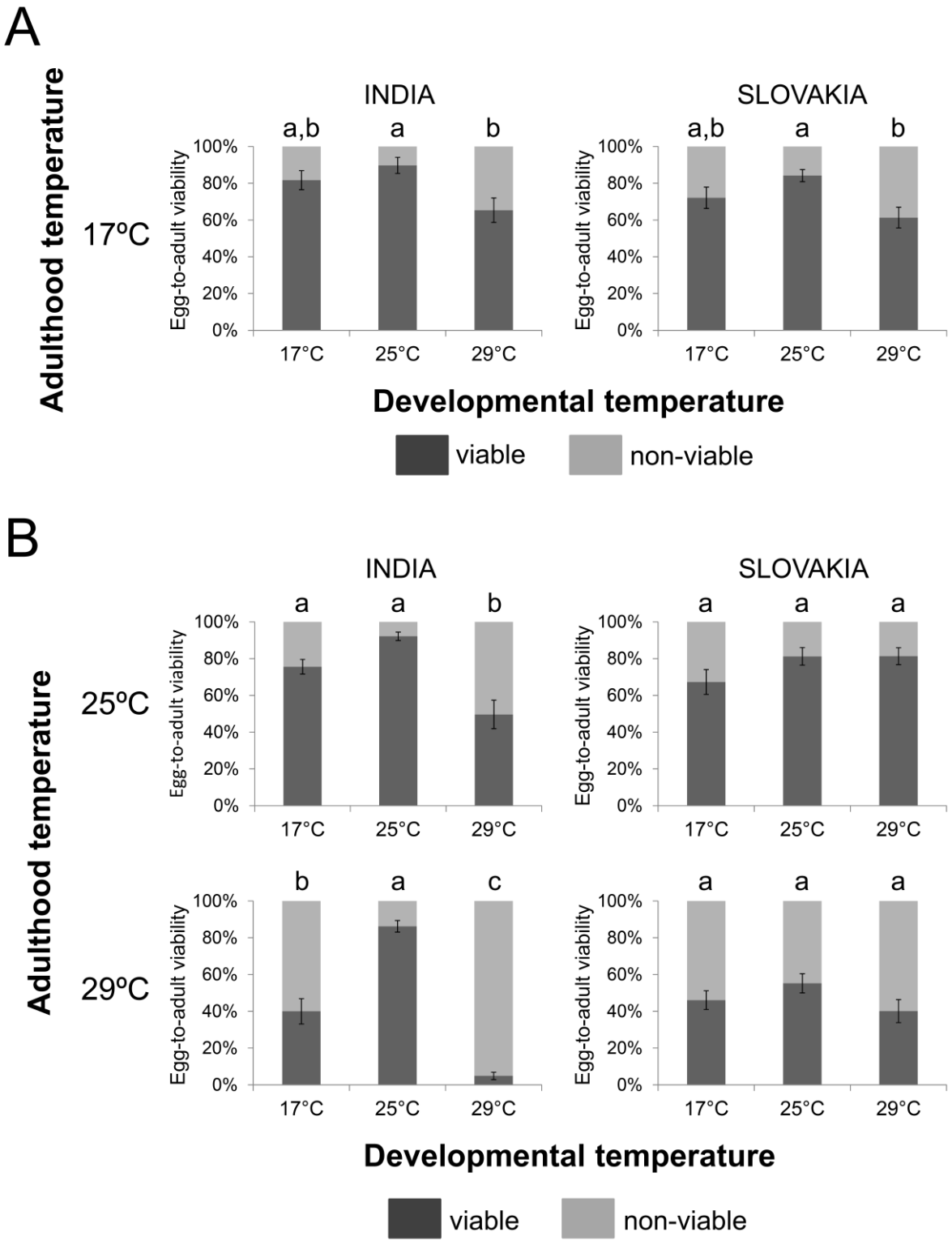

Figure S2. (A) Effect of developmental temperature of parents on the egg-to-adult viability at the day 20 at 17°C. (**B)** Effect of developmental temperature of parents on the egg-to-adult viability at the day 5 at 25°C and 29°C. Data for each population were compared by one-way ANOVA followed by Tukey's HSD test ($\alpha = 0.05$). Groups with the same letters are not significantly different from each other. Error bars represent s.e.m. For further statistical analyses see Table S3.

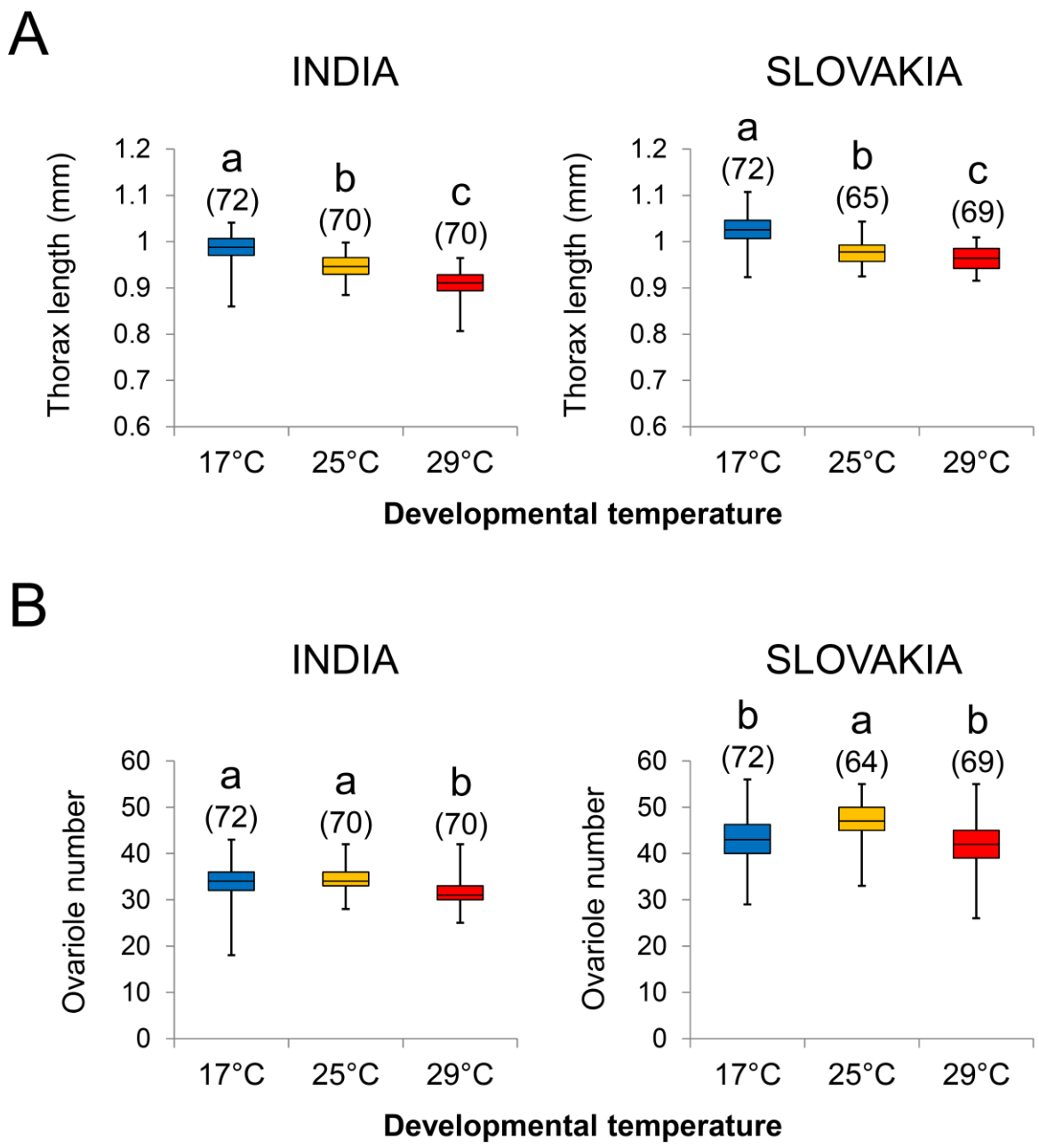

Figure S3. Effect of developmental temperature on thorax length (**A**) and ovariole number (**B**). Sample size is reported in parenthesis. Data for each trait and population were compared by one-way ANOVA followed by Tukey's HSD test ($\alpha = 0.05$). Groups with the same letters are not significantly different from each other. Box plots display minimum, first quartile, median, third quartile, and maximum value.

Table S1. Two-way analysis of variance (ANOVA) testing the effects of population and developmental temperature, and their interactions on early fecundity (the mean cumulative number of eggs laid per female during a given period) at three adulthood temperatures. *df* - degrees of freedom; SSQ - the sum of squares for each source of variation.

Adulthood temperature	Source of variation	*df*	SSQ	*F*-ratio	*P*-value
17°C (ten days)	Population	1	375185.1	120.58	< 0.0001
	Developmental temperature	2	286365.6	46.02	< 0.0001
	Population × Developmental temperature	2	103373.7	16.61	< 0.0001
	Error	135	420048.3	-	-
17°C (twenty days)	Population	1	1225051.9	72.80	< 0.0001
	Developmental temperature	2	1006284.7	29.90	< 0.0001
	Population × Developmental temperature	2	42492.2	1.26	0.286
	Error	135	2271642.8	-	-
25°C (ten days)	Population	1	1176651.3	51.43	< 0.0001
	Developmental temperature	2	364547.7	7.97	0.0005
	Population × Developmental temperature	2	15410.1	0.34	0.715
	Error	132	3020094.9	-	-
29°C (ten days)	Population	1	1703353.4	44.07	< 0.0001
	Developmental temperature	2	1371897.1	17.75	< 0.0001
	Population × Developmental temperature	2	106543.2	1.38	0.256
	Error	133	5140659.4	-	-

Table S2. Mean cumulative number of eggs (± s.e.m) laid by individual females during a given period, mean cumulative number of eggs (± SEM) per unit body size (thorax length^3), and mean cumulative number of eggs (± s.e.m) per ovariole at three adulthood temperatures. Data for each population, adulthood temperature and trait were compared by one-way ANOVA followed by Tukey's HSD test ($\alpha = 0.05$). Groups with the same letters are not significantly different from each other.

Trait	Adulthood temperature	Population	Developmental temperature	Fecundity (10 days)	Tukey's HSD	Fecundity (20 days)	Tukey's HSD
Mean cumulative number of eggs per female	**17°C**	India	17°C	172.71 ± 7.95	A	399.46 ± 19.21	A
			25°C	155.71 ± 5.79	A	376.71 ± 15.40	A
			29°C	36.13 ± 10.62	B	190.87 ± 20.35	B
		Slovakia	17°C	200.92 ± 10.89	B	537.13 ± 28.74	A
			25°C	285.14 ± 18.61	A	587.82 ± 41.33	A
			29°C	188.17 ± 12.34	B	401.67 ± 29.57	B
	25°C	India	17°C	548.29 ± 21.23	B	-	-
			25°C	638.13 ± 18.68	A	-	-
			29°C	495.58 ± 22.28	B	-	-
		Slovakia	17°C	757.38 ± 47.07	A	-	-
			25°C	795.86 ± 44.04	A	-	-
			29°C	683.52 ± 21.91	A	-	-
	29°C	India	17°C	419.50 ± 32.77	B	-	-
			25°C	660.09 ± 27.50	A	-	-
			29°C	441.00 ± 34.37	B	-	-
		Slovakia	17°C	717.21 ± 47.18	A,B	-	-
			25°C	856.24 ± 57.96	A	-	-
			29°C	612.08 ± 41.00	B	-	-
Mean cumulative number of eggs per body size	**17°C**	India	17°C	177.74 ± 7.96	A	409.86 ± 18.12	A
			25°C	186.77 ± 7.98	A	450.82 ± 19.86	A
			29°C	48.94 ± 14.18	B	255.99 ± 27.70	B
		Slovakia	17°C	191.61 ± 11.32	B	511.09 ± 29.12	A,B
			25°C	295.17 ± 17.73	A	610.21 ± 41.08	A
			29°C	210.61 ± 12.67	B	450.84 ± 31.43	B
	25°C	India	17°C	571.58 ± 27.89	B	-	-
			25°C	762.89 ± 26.20	A	-	-
			29°C	655.57 ± 28.13	B	-	-
		Slovakia	17°C	688.18 ± 44.51	B	-	-
			25°C	857.48 ± 50.17	A	-	-
			29°C	748.95 ± 23.35	A,B	-	-
	29°C	India	17°C	449.47 ± 32.41	C	-	-
			25°C	761.86 ± 30.66	A	-	-
			29°C	595.44 ± 45.70	B	-	-
		Slovakia	17°C	660.58 ± 44.08	B	-	-
			25°C	938.77 ± 65.33	A	-	-
			29°C	691.74 ± 48.74	B	-	-
Mean cumulative number of eggs per ovariole	**17°C**	India	17°C	5.02 ± 0.21	A	11.64 ± 0.54	A
			25°C	4.57 ± 0.19	A	11.03 ± 0.45	A
			29°C	1.14 ± 0.33	B	6.07 ± 0.65	B
		Slovakia	17°C	4.83 ± 0.28	B	12.88 ± 0.70	A
			25°C	6.14 ± 0.41	A	12.64 ± 0.89	A
			29°C	4.45 ± 0.27	B	9.56 ± 0.68	B
	25°C	India	17°C	16.70 ± 0.70	B	-	-
			25°C	19.10 ± 0.53	A	-	-
			29°C	15.86 ± 0.67	B	-	-
		Slovakia	17°C	17.24 ± 1.05	A	-	-
			25°C	16.96 ± 0.87	A	-	-
			29°C	17.48 ± 0.79	A	-	-
	29°C	India	17°C	12.37 ± 0.81	B	-	-
			25°C	18.59 ± 0.67	A	-	-
			29°C	14.72 ± 1.14	B	-	-
		Slovakia	17°C	16.46 ± 1.04	A	-	-
			25°C	17.89 ± 1.25	A	-	-
			29°C	14.69 ± 1.06	A	-	-

Table S3. Two-way analyses of variance (ANOVA) testing the effects of population and developmental temperature, and their interactions on the egg-to-adult viability at a given day at three adulthood temperatures. *df* - degrees of freedom; SSQ - the sum of squares for each source of variation.

Adulthood temperature	Day	Source of variation	*df*	SSQ	*F*-ratio	*P*-value
17°C	10th	Population	1	0.80	17.57	< 0.0001
		Developmental temperature	2	3.32	36.54	< 0.0001
		Population × Developmental temperature	2	1.57	17.27	< 0.0001
		Error	123	5.58	-	-
	20th	Population	1	0.13	2.08	0.152
		Developmental temperature	2	1.17	9.22	0.0002
		Population × Developmental temperature	2	0.02	0.15	0.863
		Error	125	7.95	-	-
25°C	5th	Population	1	0.06	0.88	0.351
		Developmental temperature	2	1.08	7.95	0.0005
		Population × Developmental temperature	2	1.29	9.54	0.0001
		Error	132	8.94	-	-
	10th	Population	1	0.01	0.05	0.824
		Developmental temperature	2	0.46	2.19	0.116
		Population × Developmental temperature	2	0.26	1.23	0.297
		Error	122	12.71	-	-
29°C	5th	Population	1	0.04	0.69	0.407
		Developmental temperature	2	5.26	44.96	< 0.0001
		Population × Developmental temperature	2	2.47	21.13	< 0.0001
		Error	131	7.66	-	-
	10th	Population	1	0.01	0.10	0.752
		Developmental temperature	2	1.73	14.43	< 0.0001
		Population × Developmental temperature	2	0.80	6.72	0.002
		Error	122	7.30	-	-

Table S4. The analyses of early fecundity by ANCOVA with developmental temperature as the fixed factor and thorax length or ovariole number as the covariate. *df* - degrees of freedom; SSQ - the sum of squares for each source of variation.

Adulthood temperature	Population	Source of variation	*df*	SSQ	*F*-ratio	*P*-value	Source of variation	*df*	SSQ	*F*-ratio	*P*-value
17°C (ten days)	India	Developmental temperature	2	144236.1	43.78	< 0.0001	Developmental temperature	2	202903.0	63.67	< 0.0001
		Thorax length	1	84.8	0.05	0.821	Ovariole number	1	3701.8	2.32	0.132
		Error	67	110373.7	-	-	Error	67	106756.8	-	-
	Slovakia	Developmental temperature	2	129797.0	14.75	< 0.0001	Developmental temperature	2	80823.1	8.86	0.001
		Thorax length	1	19122.7	4.35	0.041	Ovariole number	1	8504.8	1.86	0.177
		Error	66	290467.0	-	-	Error	66	301084.9	-	-
17°C (twenty days)	India	Developmental temperature	2	285209.8	17.98	< 0.0001	Developmental temperature	2	480781.2	30.05	< 0.0001
		Thorax length	1	12767.6	1.61	0.209	Ovariole number	1	8209.9	1.03	0.315
		Error	67	531437.9	-	-	Error	67	535995.7	-	-
	Slovakia	Developmental temperature	2	276800.2	5.46	0.006	Developmental temperature	2	335898.7	6.57	0.003
		Thorax length	1	55693.6	2.20	0.143	Ovariole number	1	39619.3	1.55	0.218
		Error	66	1671743.6	-	-	Error	66	1687818.0	-	-
25°C (ten days)	India	Developmental temperature	2	230188.9	11.03	< 0.0001	Developmental temperature	2	179228.4	8.90	0.001
		Thorax length	1	335.6	0.03	0.858	Ovariole number	1	24793.1	2.46	0.121
		Error	67	699185.8	-	-	Error	67	674728.3	-	-
	Slovakia	Developmental temperature	2	161404.1	2.21	0.118	Developmental temperature	2	17287.9	0.26	0.774
		Thorax length	1	22225.4	0.61	0.438	Ovariole number	1	154777.6	4.62	0.036
		Error	63	2298348.0	-	-	Error	62	2078819.8	-	-
29°C (ten days)	India	Developmental temperature	2	847360.5	19.78	< 0.0001	Developmental temperature	2	505740.1	11.90	< 0.0001
		Thorax length	1	159193.2	7.43	0.008	Ovariole number	1	170993.6	8.05	0.006
		Error	66	1413944.6	-	-	Error	66	1402144.2	-	-
	Slovakia	Developmental temperature	2	686391.7	6.36	0.003	Developmental temperature	2	393642.1	3.62	0.032
		Thorax length	1	62008.8	1.15	0.288	Ovariole number	1	37056.2	0.68	0.412
		Error	65	3505512.8	-	-	Error	65	3530465.4	-	-

Table S5. Mean cumulative number of eggs (± s.e.m) laid by individual females during a given period at three adulthood temperatures adjusted either for thorax length or ovariole number. Adjusted values were compared by Tukey's HSD test ($\alpha = 0.05$). Groups with the same letters are not significantly different from each other.

Adulthood temperature	Population	Developmental temperature	Adjusted for thorax length				Adjusted for ovariole number			
			Fecundity (10 days)	Tukey's HSD	Fecundity (20 days)	Tukey's HSD	Fecundity (10 days)	Tukey's HSD	Fecundity (20 days)	Tukey's HSD
17°C	India	17°C	171.17 ± 10.70	A	380.61 ± 23.48	A	170.57 ± 8.27	A	396.28 ± 18.53	A
		25°C	155.87 ± 8.32	A	378.70 ± 18.25	A	153.88 ± 8.24	A	373.99 ± 18.45	A
		29°C	37.56 ± 10.56	B	208.46 ± 23.17	B	40.26 ± 8.75	B	197.03 ± 19.62	B
	Slovakia	17°C	184.61 ± 15.64	B	509.29 ± 37.52	A,B	204.57 ± 14.04	B	545.01 ± 33.25	A
		25°C	286.28 ± 14.15	A	589.77 ± 33.96	A	277.58 ± 15.43	A	571.51 ± 36.53	A
		29°C	203.43 ± 15.39	B	427.71 ± 36.93	B	191.44 ± 13.99	B	408.73 ± 33.13	B
25°C	India	17°C	545.14 ± 27.29	B	-	-	544.61 ± 20.62	B	-	-
		25°C	638.47 ± 21.39	A	-	-	631.82 ± 21.31	A	-	-
		29°C	498.41 ± 26.15	B	-	-	505.31 ± 21.40	B	-	-
	Slovakia	17°C	784.88 ± 52.55	A	-	-	750.40 ± 37.52	A	-	-
		25°C	783.01 ± 43.93	A	-	-	757.73 ± 41.54	A	-	-
		29°C	665.57 ± 47.61	A	-	-	715.91 ± 42.71	A	-	-
29°C	India	17°C	372.47 ± 34.50	B	-	-	413.71 ± 29.82	B	-	-
		25°C	646.53 ± 30.92	A	-	-	626.27 ± 32.64	A	-	-
		29°C	503.63 ± 38.20	B	-	-	480.87 ± 33.48	B	-	-
	Slovakia	17°C	673.56 ± 62.48	A,B	-	-	722.26 ± 47.96	A,B	-	-
		25°C	874.81 ± 53.55	A	-	-	836.87 ± 56.00	A	-	-
		29°C	639.48 ± 53.85	B	-	-	623.98 ± 49.71	B	-	-