

Model	Drosophilidae	Diptera	Lepidoptera	Tenebrionidae	Blattaria
M1a	$\text{Ln}L$ (<i>np</i>) -5649.5 (31)	-6946.6 (25)	-4376.2 (12)	-2113.5 (10)	-1945.6 (13)
	ω_0 [SE] 0.020 [0.002]	0.026 [0.003]	0.028 [0.003]	0.009 [0.003]	0.004 [0.002]
	p_0 [SE] 0.983 [0.007]	0.976 [0.009]	0.952 [0.013]	0.992 [0.006]	0.985 [0.008]
M2a	$\text{Ln}L$ (<i>np</i>) -5649.5 (33)	-6946.6 (27)	-4376.2 (14)	-2113.5 (12)	-1945.6 (15)
	ω_0 [SE] 0.020 [0.002]	0.026 [0.003]	0.028 [0.003]	0.009 [0.003]	0.004 [0.002]
	ω_2 [SE] 1.000 [0.000]	1.000 [0.000]	1.000 [na]	1.000 [0.000]	1.237 [na]
	p_0 [SE] 0.983 [0.007]	0.976 [0.009]	0.952 [0.013]	0.992 [0.006]	0.985 [0.008]
	p_1 [SE] 0.011 [0.007]	0.010 [0.007]	0.029 [0.013]	0.005 [0.004]	0.006 [na]
M7	$\text{Ln}L$ (<i>np</i>) -5610.8 (31)	-6859.5 (25)	-4339.9 (12)	-2112.9 (10)	-1950.0 (13)
	p [SE] 0.159 [0.027]	0.404 [0.055]	0.150 [0.026]	0.059 [0.062]	0.011 [0.055]
	q [SE] 5.048 [0.900]	10.774 [2.037]	2.578 [0.560]	3.129 [4.238]	0.308 [2.024]
M8	$\text{Ln}L$ (<i>np</i>) -5610.8 (33)	-6857.1 (27)	-4338.8 (14)	-2112.9 (12)	-1946 (15)
	p [SE] 0.159 [0.028]	0.432 [0.0621]	0.156 [0.028]	0.059 [0.062]	0.023 [0.212]
	q [SE] 5.049 [0.955]	12.880 [2.824]	2.85 [0.630]	3.133 [4.282]	2.089 [49.209]
	ω_s [SE] 1.000 [na]	1.000 [1.196]	4.457 [8.024]	1.000 [na]	1.000 [0.607]
	p_0 [SE] 1.000 [na]	0.994 [0.007]	0.997 [0.003]	1.000 [0.000]	0.985 [0.009]

Table S4: Standard errors [SE] associated to the parameters of the models fitted in the likelihood analysis reported in Table 1.