

Table 8: Log-likelihood ratio tests for exponential models quadratic in temperature on a log-log scale for 72 species.

Eq.	Model: Linearized power law model quadratic in temperature	Model description	Log-likelihood	<i>P</i>
12	$\ln(PLD_{ij}) = \beta_0 + \beta_1 * \ln(T_{ij}/T_c) + \beta_2 * (\ln(T_{ij}/T_c))^2 + \varepsilon_{ij}$	No random effects	-263.27	—
13*	$\ln(PLD_{ij}) = \beta_0 + \beta_1 * \ln(T_{ij}/T_c) + \beta_2 * (\ln(T_{ij}/T_c))^2 + u_{0i} + \varepsilon_{ij}$	Random intercepts only	-81.10	<0.001
14	$\ln(PLD_{ij}) = \beta_0 + \beta_1 * \ln(T_{ij}/T_c) + \beta_2 * (\ln(T_{ij}/T_c))^2 + u_{0i} + u_{1i} * \ln(T_{ij}/T_c) + \varepsilon_{ij}$	Random intercepts and 'slopes'	-76.14	0.007
15	$\ln(PLD_{ij}) = \beta_0 + \beta_1 * \ln(T_{ij}/T_c) + \beta_2 * (\ln(T_{ij}/T_c))^2 + u_{0i} + u_{1i} * \ln(T_{ij}/T_c) + u_{2i} * (\ln(T_{ij}/T_c))^2 + \varepsilon_{ij}$	Random intercepts, slopes and quadratic coefficients	-71.93	0.038

P values are for modified incremental likelihood ratio tests that compare the model in one row with the model that appears immediately above it. We follow the methodology outlined in Verbeke and Molenberghs (2000, pp. 70-71)¹, for carrying out these tests. See also p. 26 of the *Supporting Text 2*. Eq. 13 is of the same form as Eq. 4.

¹ Verbeke G, Molenberghs G (2000) *Linear mixed models for longitudinal data* (Springer-Verlag, New York).

References

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