

The interplay between thermal tolerance and life history is associated with the biogeography of *Drosophila* species

Boher, Francisca

Godoy-Herrera, Raúl

Bozinovic, Francisco

Background: Physiological tolerances are important determinants of the biogeography of species.

Questions: What is the relationship between thermal tolerance and the biogeographic origin of species? What are the relationships between thermal tolerance and life-history traits? **Organisms:**

Four *Drosophila* species, two from a tropical biogeographic area (*D. melanogaster* and *D. simulans*) and two from a temperate geographic zone in the Andes mountains (*D. pavani* and *D. gaucha*).

Methods: We assessed upper and lower lethal temperature. We used thermal limits to construct a thermal tolerance polygon that represents the total thermal range of each species after acclimation at different ambient temperatures. We also measured differences in life history (fertility and egg-to-adult viability) between species. **Conclusions:** Both temperate species have broader thermal tolerance ranges than either tropical species. But temperate species have lower fitness at higher temperatures than tropical species, a