In contrast to what is observed for most vertebrates, where a clear *PCO2* can be discerned ([Marshall et al. 2013](#_ENREF_24)). Our *VO2* data were curvilinear, such that there was no clear point where the organisms transitioned from oxyregulator to oxyconformer. Instead we fit a Michaelis-Menten function to our *VO2*consumption data:

*(1) VO2* = (*VO2 max* × *CO2*)/(*VO2-50*% + *CO2*)

where *VO2 max* is an asymptotic *VO2*, and *VO2-50*% is the value of *CO2* (oxygen level) where *VO2 = VO2 max* /2. Importantly, in order to achieve model convergence (see description of statistical methods below), we employ a two-step transformation to *VO2*. First, we transform *VO2*to mass-specific *VO2* (i.e., *VO2*/ Mi where Mi is individual mass in g) in order to reduce the discrepancy in *VO2* between individuals. Second, for each individual, we standardize the mass-specific *VO2*based on its maximum value, so all individuals present a relative mass-specific *VO2* bounded between zero and one.