Environmental drivers of crustacean larval traits and their implications for bioinvasions in a context of climate change.

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The adverse effects of climate change on marine organisms traits (metabolism, behavior, growth, survival, and early development) have been extensively studied. However, there is a notable gap in our understanding of its impacts on crustaceans, particularly concerning studies focused on larval ecology. This aspect is crucial since larval survival, mainly dependent on temperature and salinity, acts as a critical bottleneck for the overall adult population of the species. In this context, the Respiratory Electron Transport System (ETS) activity is used on this study as an estimator of the thermal tolerance for brooding eggs in the invasive crab Callinectes sapidus in the Gulf of Cádiz, in a context of global warming and the ocurrence of extreme climate events such as Marine Heat Waves (MHWs). Four seawater temperature treatments were used on this study to compare ETS activity (22, 24, 26, and 28ºC). High temperatures resulted in increased ETS activity and early hatching of the eggs in C. sapidus. This suggests that an increase in water temperatures in a context of global warming may lead to heightened invasiveness of C. sapidus ranging its extension into other locations.