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Temperature tolerance test exposition with temperate sea anemone *Actinia equina*, a climatic and environmental changes simulation

Juliana Rodrigues Gadelha¹, Jesus F², Gomes P B³, Rendón Von Osten J⁴, Morgado F² and Soares A M V M¹

¹CIIMAR - Universidade do Porto, Portugal

²CESAM - Universidade de Aveiro, Portugal

³Universidade Federal Rural de Pernambuco, Brasil

⁴Instituto EPOMEX - Universidad Autonoma de Campeche, Mexico

Atlantic and Mediterranean warming-related diseases outbreaks and species shifts recently have been documented. Evaluated tools of short-term effects on the health or organisms resistance are necessary to assess and understand mechanisms affecting marine biodiversity. Until now, climate warming has been studied at the population or community level. Here we offer a better understanding of such phenomena at the individual organism level, using anatomic-morphological approaches to interpret effects of natural physical stressors, according to behavioral patterns. The goal of this work was to evaluate the sea anemones behavior with temperature variance. This study takes a method of behavioral observations (morphological and anatomic parameters, with physiological implications) to identify changes in behavior, after exposure to the physical stressors temperature (10, 15, 20, 25 and 30) on temperate sea anemone *Actinia equina* over 96 h of exposure. Other endpoints as condition index and reproduction also assessed. Behavioral patterns analysis placed the differentially ecological functions in a wide range of categories including tentacle flexion, tentacle retraction, column cavitation, peristome depression and oral disc flexion. These parameters suggest that the early stress response (before result on individual death) to elevated temperature involves essentially all aspects of same chemical reactions. In this case we observed receptors functioning and the frequency of open-close oral sea anemones, tentacles and columns anatomic alterations to detect earlier the effects of physical stress induction. The superiority of results tested was that the key species reacted to different temperature ranges in order to demonstrate that species from different climatic zones could have the same behavioral pattern but have intrinsic adaptations on each climatic zone. Also some collections of parameters such as: water nutrients availability, reproductions rate (number of polyps), survival (condition index) and temperature variations were significant on behavioral answers.

Biography

Juliana Rodrigues Gadelha has completed her PhD on Marine Biology/Ecotoxicology in 2015, from Universidade de Aveiro. Currently, she is a Doctoral research integrate at CIIMAR (Interdisciplinary Center of Marine and Environmental Research), working in an emblematic Project funded by Horizon 2020, called INSEAFOD: Innovation and valorization of seafood products: meeting local challenges and opportunities. She has published 13 papers in reputed journals and participated on 13 projects, national and international, more than 40 conferences communications and published one book in 2007. On the last decade, she works on environmental risk assessment and applications of biological concepts to biotechnology and environmental safety.

jrgadelha@ua.pt

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