

Acid-base physiology of the Antarctic sea urchin *Sterechinus neumayeri*: differences according to environmental conditions?

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Increasing atmospheric carbon dioxide concentration alters the chemistry of the oceans towards more acidic conditions. Polar oceans are particularly affected due to their low temperature, low carbonate content and mixing patterns, for instance upwellings. Tolerance to ocean acidification (OA) in metazoans is first linked to acid-base regulation capacities of the extracellular fluids. It has also been suggested to depend on the environmental history of the organism. Organisms living in variable environments would be more adapted or acclimated to changes in sea water pH. To address these questions, we investigated the response of the Antarctic regular euechinoid *Sterechinus neumayeri* from shallow populations in Adélie Land (Ile des Péterls) and the Antarctic Peninsula (King George Island), the former region having stable conditions while the second is showing a fast rate of warming due to global change and seasonally variable conditions. The sea urchins were submitted to a 14-days acidification experiment carried out, respectively, in Dumont d'Urville and Carlini bases in the frame of the vERSO BELSPO and REVOLTA IPEV projects. Two (8.0, 7.7) or three (8.0, 7.7, 7.4) seawater pH-T were tested. The pH, total alkalinity and dissolved inorganic carbon of the coelomic fluid, the main extracellular compartment, were measured, allowing to characterize the acid-base status and its response to a short term acidification.