

Arsenic in Argentinian aquatic organisms in an ecologic context

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Arsenic is an abundant toxic metal in our environment and transported by water, which is the primary pathway of exposure for plants and animals, including humans. Throughout Argentina, As is a natural contaminant of many groundwaters and some river beds where many species and about 4 million people are exposed to arsenic concentrations much higher than 0.010 mg/L. Although arsenic toxicology is well described for mammal models and humans, studies in other environments such as those affecting aquatic organisms are rare in Argentina. Argentinian toad (*Rhinella arenarum*) is an interesting biomarker of ecological impact of freshwater contamination because, as most of the amphibians, they are in close contact with water during the early stages of life and have contact with land as adults. So, they may serve as a critical link in the biotransfer of arsenic within both, aquatic and terrestrial communities. On the other hand, filter feeders species as krill and bivalves are an important element of the food chain within marine ecosystems. For that, arsenic accumulated by *R. arenarum*, *Diplodon chilensis* (river's clams), *Myti-*

lus edulis (mussels), and *Euphausia superba* (Antarctic krill) was measured by X-ray Fluorescence Spectrometry in grazing incidence geometry (SR-TXRF) at the D09B-XRF beamline from the Brazilian Synchrotron Light Laboratory (LNLS). Argentinian toad oocytes, obtained by in vitro fecundation, were incubated in Ringer solution containing 0 (control) or 1 µg/ml As up to larval life stage. Oxidative damage was also determined along development. Clams, mussels and krill were collected in the "Río Negro, Patagonia" river, "Las Grutas, Patagonia" beach and "Isla 25 de Mayo, Antártida" coast, respectively. We found up to 54 µg/g of dry weight of As in toad larvae accompanied by decreased antioxidant capacity. The highest As concentration in naturally exposed species was 2.88 µg/g of dry weight, which was found in mussels. In an ecologic context, the As accumulation in these organisms, may have important implications and should be further investigated.

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