

## Cadmium and lead in seafood from the Aratu Bay, Brazil and the human health risk assessment

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Abstract This study aimed to evaluate cadmium (Cd) and lead (Pb) levels in seafood and perform a risk assessment based on individual food consumption frequency of inhabitants of the Aratu Bay, Brazil. From December 2013 to November 2014, ready-to-market seafood, including fish [pititinga (*Lile piquitinga*) and small green eel (*Gobionellus oceanicus*)], mollusks [mussel (*Mytella guyanensis*) and oyster (*Crassostrea rhizophorae*)], and crustaceans [white shrimp (*Litopenaeus schmitti*) and blue crab (*Callinectes exasperatus*)], were purchased bimonthly from a local artisanal shellfish harvester. Metal levels were analyzed by graphite furnace atomic absorption spectrometry (GFAAS). Based on the volunteer' seafood consumption, estimates of the non-

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T. S. Porcino e-mail: thiagoporcinoo@hotmail.com carcinogenic target hazard quotients (THQs) were calculated. The annual concentrations ( $\mu$ g/g, w/w) of Cd were 0.007 (±0.001) in crustaceans, 0.001 (±0.0003) in fish, and 0.446 (±0.034) in mollusks. Lead levels were <limit of detection (LOD) in crustaceans, 0.044 (±0.0032) in fish, and 0.111 (±0.009) in mollusks. All values were within the international guidelines. We observed that 90.9 % of the responders presented an average THQ < 1, which is classified as negligible risk; however, 9.1 % presented THQs between ≥1 and <9.9. These data are important to inform the communication strategies, with the purpose of minimizing exposure and, consequently, the health effects associated with it.

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