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ACID VOLATILE SULFIDES (AVS) AND THE BIOAVAILABILITY OF TRACE METALS IN THE CHANNEL OF THE SÃO FRANCISCO RIVER, SEPETIBA BAY -RIO DE JANEIRO-BRAZIL

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Sepetiba Bay has 430 Km2 of internal and 2,500 Km2 area of the drainage basin (Lacerda et al., 2007), located 60 km west of the city of Rio de Janeiro. Sepetiba Bay has 430 Km2 of internal and 2,500 Km2 area of the drainage basin (Lacerda et al., 2007), located 60 km west of the city of Rio de Janeiro.The San Francisco channel comes from the Guandu River and empties into Sepetiba Bay and is the main contributor of freshwater to the estuarine system. The Guandu River system/channel of San Francisco receives contribution of domestic and industrial effluents, which go largely to Sepetiba Bay. This work aimed to evaluate the .This work aimed to evaluate the ratio SEM/AVS as a way of predicting bioavailability trace metals from industrial sewage, mainly, in the estuarine system of Sepetiba. This model is based on the property of some Divalent metal cations (Cd, Cu, Ni, Pb and Zn), by presenting a low solubility constant, are removed from the soluble fraction by precipitation, forming secondary metal sulfides. Were held four transects, made up of three points each, the coast line to the center of the Bay. The surface sediment was collected with a van Veen sampler type ,packed in glass jars and kept frozen until analysis.The determination of SEM/AVS followed the methodology described by Allen et al. (1991). The variation between sulfide 159.88 $\pm$ 0.05 μmol/g on 12 points. The metals that entered the sum of simultaneous extraction were: Cd, Cu, Ni, Pb and Zn ranging from: 6.47 $\pm$ 0.11 μmol/g on sum.The means ($\pm$ standard deviation) ratio SEM/AVS per transect were: 1.04 $\pm$ 1.20 (transect 1); 0.48 $\pm$ 0.53 (transect 2); 1.26 $\pm$ 1.32 (transect 3) and 0.18 $\pm$ 0.14 (transect 4). Only transects 1 and 3 had higher results than 1 , meaning that there are more divalent metal sulfides in the environment. This means that only the sulfides would not be capable of complex and may reflect the potential bioavailability of these in the aquatic environment. There is no statistical difference between the transects. According to the studies done previously in the area for concentrations of AVS MADDOCK et at. (2007) found values greater than 290 μmol g-1, MACHADO et al. (2008) found concentrations between 5.2-121 μmol g-1 in the Herons Cove and RODRIGUES (2013) found concentrations between 14.26 to 41.46 μmol g-1 in the Engenho's Sac.The results may reflect the oxic conditions of the environment, which interferes with the reduction of SO4. Additionally, other mechanisms of metal retention in the sediment may be occurring at the site, together with the interfering sulfide.
Key words: estuary sediment and simultaneous extraction of metals.