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**Metal and Trace element assessment in bottom sediments from
Medium Tietê River Basin, by INAA and ICP OES techniques**

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The Tiete River drains an area composed of six sub-basins. Along its extension (1,100 km), its margins bathe 62 municipalities. In spite of all its historical contribution, hydroelectric potential and being one of the most economically important rivers in the State of São Paulo, the Tiete River is also one of the world's most polluted rivers, especially in the São Paulo Metropolitan area. This study is part of a wider research project on the evaluation of the extension and pollution history of metals and trace elements in sediments of this important river. The present study evaluated the concentration of metals, major and trace elements in bottom sediment samples, from Medium Tietê sub-basin (points 8 to 22). For this purpose, the following analytical techniques were applied and their respective elements were determined: Instrumental Neutron Activation Analysis (INAA): As, Ba, Br, Ca, Ce, Co, Cr, Cs, Fe, Hf, K, La, Lu, Na, Nd, Rb, Sb, Sc, Sm, Ta, Tb, Th, U, Yb and Zn; X- Ray Fluorescence (XRF): major elements and loss of ignition; Inductively Coupled Plasma Optical Emission spectrometry (ICP OES): Al, Ba, Co, Cr, Cu, Fe, Mn, Ni, Ti, V and Zn and Graphite-Furnace Atomic Absorption Spectrometry (GF AAS): Cd and Pb. For ICP OES and GF AAS techniques sediment samples were digested according to the 3051 method from US EPA in a mixture of 10 mL of HNO₃: HCL concentrated (3:1) in a MARS 6 microwave oven from CEM Corporation. Certified reference materials analyses provided the quality control for all analytical techniques applied. The enrichment factor (EF) and geoaccumulation index (*IGeo*), to assess the presence of anthropogenic pollution sources. Metal concentrations obtained by ICP OES and GF AAS were compared to TEL and PEL oriented values from CCME and adopted by CETESB (São Paulo Environmental Company). Points 13, 17 and 18 surpassed the PEL values for Cr, Ni and Zn, and TEL for Cd, Cu and Pb showing poor quality for these sediments according to these criteria. From the results obtained for INAA the higher concentration values were also obtained for the same points, for the other elements determined. *IGeo* index for the INAA results showed $1 < IGeo < 3$ values, classifying the sediments as moderately polluted to polluted, for As, Br, Hf and Zn mainly for points 13, 17 and 18. Point 17 was the most polluted point probably due to existence of textile industries in the region. From the results, it will be possible to carry out a diagnosis of the Tiete River bottom sediment quality, in this region, in the current days, directing future corrective actions that could anticipate a greater damage to the quality of this important river.