



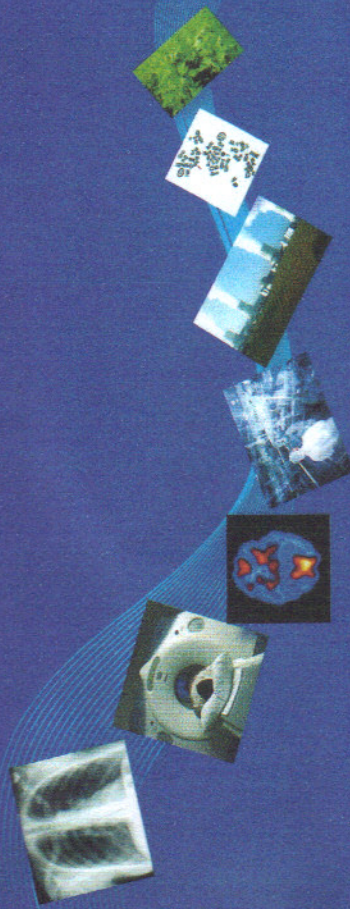
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PÔSTER

RADIOECOLOGIA

ASSESSMENT OF ENVIRONMENTAL TRACE ELEMENT CONTAMINATION IN THE SÃO PAULO METROPOLITAN REGION, BRAZIL, USING THE LIVER OF THE GREAT WHITE HERON (ARDEA ALBA LINNAEUS (1758)) AS BIOINDICATOR

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Palavras-chave: Bioindicators; Trace elements; Ardea alba

Resumo:

The determination of environmental contaminants in bioindicators is important in the assessment of potential human exposure. The Ardeidae family is considered a valuable bioindicator of environmental pollution as they are predators that occupy the top of the food chain and they may bioaccumulate and biomagnify contaminants such as trace elements directly from the food chain or by external contamination. Aiming to evaluate the contamination status of the São Paulo Metropolitan Region (RMSP), a widely industrialized area with a population of approximately 20 million inhabitants, the concentrations of Br, Cd, Co, Cs, Cu, Fe, Hg, K, Mg, Mn, Na, Rb, Se and Zn were determined in livers of adult *Ardea alba* specimens. The livers were from animals found dead or without chance of survival in the RMSP. In this study, livers of eight males and eleven females were used. Liver samples were ground, freeze dried and homogenized. Subsamples were analyzed by Instrumental Neutron Activation analysis (INAA) for Br, Co, Cs, Cu, Fe, K, Mg, Mn, Na, Rb, Se and Zn determination and Atomic Absorption Spectrometry (AAS) for Cd and Hg determination. For quality assurance of the measurement results, the certified reference materials NIST SRM 1577b (Bovine Liver), INCT-TL-1 (Tea Leaves), NIST SRM 2976 (Mussel Tissue) and NIST SRM 1566b (Oyster Tissue) were analyzed and the results were considered accurate. For the majority of the elements, the concentration results obtained for the *Ardea alba* livers were higher than or at the same order of magnitude of those obtained for specimens of areas considered polluted presented in the literature. According to the Mann-Witney U test performed at the 0.05 significance level, females presented Br, Hg, Rb, Se and Zn concentrations lower than males while Mg concentrations were lower for males. Positive correlations ($r \geq 0.7$) using Pearson matrix were obtained between Hg and Mn; Mn and Zn and between Hg and Se. Negative correlations between weight of animal and concentrations of K as well as Zn were verified. Obtained results suggest the suitability of the use of *Ardea alba* livers as indicators of trace element contamination at the RMSP.