

**EVALUATION OF THE TOTAL MERCURY CONTAMINATION IN TAPAJOS RIVER BASIN  
PART 1: URINE OF GOLD SHOP WORKERS FROM ITAITUBA, PARÁ, BRAZIL**

*Santa Rosa, R. M.<sup>1</sup>; Muller, R.C.S.<sup>1</sup>; Alves, C.N.<sup>1</sup>; Sarkis, J. E.<sup>2</sup>; Bentes, M. H. S.<sup>3</sup>  
and Santos, E.C.O.<sup>3</sup>*

1. Departamento de Química, Universidade Federal do Pará, Pará/Brazil;
2. Grupo de Caracterização Isotópica, Instituto de Pesquisas Energéticas e Nucleares, Universidade de São Paulo, São Paulo/Brazil;
3. Laboratório de Ecologia Humana e Meio Ambiente, Instituto Evandro Chagas, Pará/Brazil.

The mercury pollution in the Amazon region frequently is attributed either to gold mining activities or to the gold trade. During the gold mining process, the metallic Hg is used to agglutinate the fine gold particles through amalgamation. In order to recuperate the gold, the amalgam has to be burned, releasing a large quantity of mercury vapour into the environment. This procedure is performed at the site where the gold is mined or, more commonly, at the gold stores in the regional cities such as Itaituba in the Tapajos River Basin, State of Pará. The objectives of this work were to determine the total mercury concentration in gold shop workers' urine and to establish some correlation with the health conditions in the region. For this purpose, 73 individuals who are occupationally exposed to the metallic mercury vapour were investigated. A clinical questionnaire was completed for each individual. A cold vapour atomic absorption spectrophotometry technique was used for mercury determination. Approximately 53% of the investigated individuals presented mercury levels in the range of 3 ng/mL to 19 ng/mL, while approximately 46% of the patients presented levels above 20ng/mL. Based on these results, and applying a seven-component multivariate analysis, the individuals were classified into two groups (A = normal concentration and B = tolerable concentration) according to mercury level in the urine.