MORPHOLOGY AND SOLUTES CONTENT OF ATMOSPHERIC PARTICLES IN AN URBAN AND A NATURAL AREA OF SAO PAULO STATE, BRAZIL.

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RESUMO

The objectives of this work were to characterize and compare the chemical composition of the water-soluble fraction of the PM_{10} particles (Dp<10µm) in two sites: one inside the Metropolitan Area of Sao Paulo (MASP) and another, 250km apart, inside the State Park of Serra do Mar (CUNHA) part of the Atlantic Forest Reserve, both located in Sao Paulo State, Brazil. The atmospheric parameters of the particles were collected during dry and wet season. The morphologic parameters of the particles were characterized for the different size fraction of the collected material. In the aqueous extract of the particulate fine fraction the majors ions (Na^+, K^+, Mg^{2+}, Ca^{2+}, Cl^-, NO_3^-, NH_4^+, SO_4^{2-}) and trace elements (Al, Mn, Fe, Pb, Cd, Zn, Ti, Ni, Cu, Co, Ba) were determined. The morphological characteristics of the particles colleted within the MASP are typical of polluted environment while CUNHA there is no evidence of this type of contribution. Regarding the solute concentrations it was observed that the most abundant major ions and trace elements were K^+, Ca^{2+}, Na^+, Cl^-, and Pb, for CUNHA differences are associated with the different sources of the particles. In the urban area they are predominantly of pollution origin, mainly from vehicle emissions, and dust suspension, while in State Park they are predominantly of pollution origins. For tehse reasons the CUNHA region can be considered to be a regional references site dor studies concerning eventual disturbances in the Cunha background site, derived from transported pollution.