Characterization of Inhalable Particulate Matter in Ambient Air by Scanning Electron Microscopy and Energy-Dispersive X-ray Analysis

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Physical and chemical characterization of inorganic atmospheric particle samples collected on PM10 filters from January 2007 through December 2007 from three zones within the city of Hermosillo, Sonora.

First in northwest, second in downtown and third to northeast from the air quality improvement and evaluation program;the site northeast has residential and roadside areas; the second in downtown with office, commercial and traffic zones; and third one to the northwest near a high traffic density, in the commercial and industrial areas.

The characterization of individual particles was completed using Scanning Electron Microscopy combined with EDS (JEOL JSM-5800LV) ; the sample preparation for electron microscopy was deposited as an alcohol suspension using a sample holder

The studies by EDS to PM10 showed in the three stations we found Al, Ca, Cr, Fe, K, Mg, Na, S, Si and Ti; in the northwest and northwest the Zn was the more abundant; in the downtown and northwest only Pb and minor proportion Cl, Ni, U, V y Zr The elements that were detected are of extreme importance by their probable impact in the public health, as they are it the Cr, Pb, S and U. The chemical analyses performed on the aerosol forming conglomerates allow us to determine air quality on each city; however, these might ignore the chemical elements that occur in smaller amounts because these are not considered or detected during the elaboration the laws established according to normal determinations. This highlights the necessity of carrying

out more researches and specific studies that allow us to better know the urban aerosols to which a city's inhabitants are exposed.

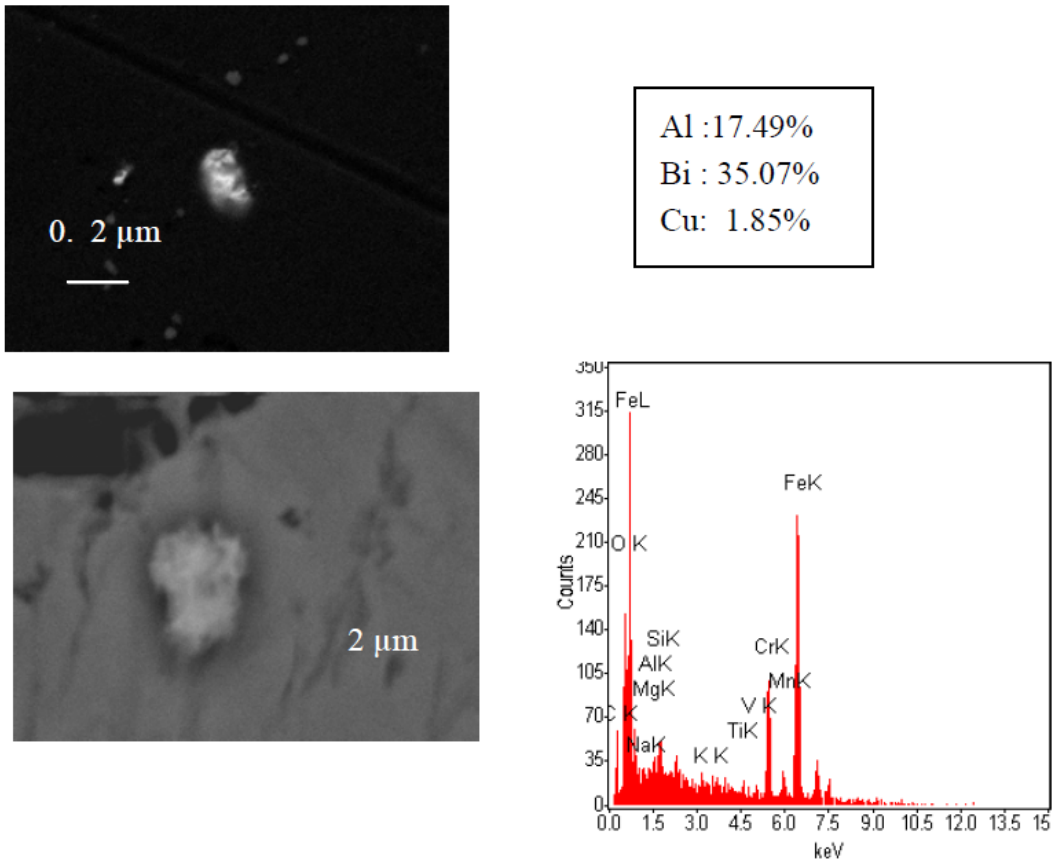

Figure 1.- Images and chemical composition of PM10 obtained trought SEM

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