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## A preliminary assessment of air quality in Mangabeiras' Park, Belo Horizonte, Brazil, using epiphytic lichens as biomonitor

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Lichen, or lichenized fungi, is one of the most efficient on air pollution biomonitors among the biomonitors. Biomonitoring has been used as an alternative method to study the air pollution in several countries, however, in Brazil, systematic use of lichens as biomonitors of environmental pollution is quite rare. In order to make an assessment of the air quality of the Mangabeiras' Park, this study was conducted by measuring the concentration of elements accumulated in the lichen thallus. This park, located in Belo Horizonte (Minas Gerais, Brazil), is the greatest green area in the city, and an apparent region of non polluted air.

During the development of the study, epiphytic lichens of three genus of urban lichens (*Canoparmelia* sp, *Pyxine* sp and *Parmotrema* sp) were collected using a steel stainless knife, taking samples of similar sizes from 1.5 m from the soil. Soil samples were also collected in order to calculate the enrichment factor. The elemental concentration determination was carried out applying the neutron activation technique,  $k_{std}$ -standardization method, using the TRIGA MARK I IPR-R1 research reactor located at CDTN/CNEN.

The lichen samples presented expressive concentrations of Br, Fe, K, Mn, Na and Zn. Using Sc as normalizing reference crustal element; the enrichment factor (EF) values of 19 elements were calculated. Among these 19 elements, 14 of them (Al, As, Co, Fe, Hf, K, La, Mn, Na, Sb, Th, U, W and V) present EF values equal or lower than 1.

The presence of characteristic soil elements from the region (As, Fe, Th, U) and the low values of EFs evidence that soil elements are expressive in the air composition of this park. The presence of iron mining companies in the surroundings of the Mangabeira's Park seems to interfere in the air quality of this area. Therefore, this study shows one of the most known impacts of mining activities: the emission of particulate matter.

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