Multielemental analysis in plants after Puyehue Volcano eruption

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The Puyehue-Cordón Caulle volcanic eruption has been going on since June 4th, 2011, which is belching ash over 6 miles (10 km) into the atmosphere . Strong winds headed east pushed the ashes from the volcanic complex and appoximately hundred million tons of ash, sand and pumice fell over the Patagonian region. In order to assess environmental impacts, a multielemental analysis was performed in water, ashes and macrophytes from Patagonia during 2011 allowing to compare elemental composition before and after volcanic eruption. F, Al, Mn, and As in water were determined by spectrophotometry. The biological samples were digested whith aqua regia (HCl:HNO3, 3:1) at 160ºC and major elements (P, S, Cl, K, Ca, Mn, Fe, Cu, Zn, As) were analyzed by Total Reflection X-ray Fluorescence Spectrometry using Synchrotron radiation (SR-TXRF) and Mn and As were analized by neutron activation analysis (NAA). High level of Ca and Mn was found in ash, with an increased concentration of Mn in water after volcanic eruption. These elements also increased in some macrophytes. Although Puyehue ashes were considered non-toxic, elements such as Mn could be accumulating in biota. Its presence in exposed fishes are being studied.

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