

Hazards of plant contamination around former Zn-Pb industries in Wallonia.
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Over the last two centuries, numerous plants located along the main rivers of Wallonia (Sambre, Meuse, Vesdre, Gueule from west to east) have been processing metal-ores first from local sources then from abroad. Chimneys of a zinc smelter spread around industries a lot of metallic dust in the atmosphere until the mid-70s. Unfortunately, the contamination has not been restricted to the factory area and evidences of soil contaminations by Zn, Pb and Cd have been measured on a distance of 3 km in a previous study. Fields, pastures and gardens are numerous in that area and the fate of contaminants in the soil-plant-water systems is a crucial question.

A sampling strategy was developed according to soil type, land use and distance to former chimney. (1) For fields, we selected an area near the calaminary site of Sclaigneaux. Some crops where grown *Hordeum vulgare* on a same kind of soil type were chosen and sampled. As blanco, non-contaminated field cultivated with *H. vulgare* was sampled. After, soil samples were treated to evaluate pseudo-total contents in TE and available contents in trace and major elements and various soils properties. In plant samples, only concentrations in TE and the biomass produced were analyzed. (2) For pastures, an area around the calaminary site of Plombières was selected. 28 soils and herbal samples were taken on different grasslands present on the same soil type. Analyzes performed are the same as in study 1. (3) For gardens, some plots were selected in urban area located in an old industrial region. Different vegetables were analyzed as soil gardens.

The main aim of this study is the estimate of the contamination of agrosystems which they are present in agricultural area (crops and grassland) or in urban context with gardens. This approach is supported by various statistical analyzes such as correlations between contaminants contents of soil and plants, (ii) ANOVA or ANCOVA (with the distance of contamination source as co-variate) and (iii) PCA.