



## **Tracing environmental contamination in glass waste deposits through dendrochemistry**

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The potential for the use of dendrochemistry as a tool for tracing anthropogenic contamination at a glassworks site in southeastern Sweden was investigated. In a multidisciplinary approach, continuous high-resolution time series of wood was combined with sediment cores elemental profiles.

Tree cores from Scots pine (*Pinus sylvestris*), Norway spruce (*Picea abies*) and European aspen (*Populus tremula*) were collected from exposed and non-exposed sites and analyzed by energy dispersive X-ray fluorescence (ED-XRF). Sediment cores were sampled along a transect extending from the pollution point source to unpolluted areas and analysed using core-scanning-XRF (CS-XRF).

Traces of Ba and considerable alteration of the Cl, K and Mn profiles were successfully detected in the dendrochemical analysis, confirming the potential of the method to record environmental releases. Despite the high concentrations of As and Pb in the soil, no traces of these elements were identified in the tree-ring profiles. Our results suggest that differences in the response of tree species to elements uptake (e.g. root sensitivity) together with soil chemical properties (e.g. soil organic matter, contaminants bioavailability, the oxidation state of the chemical compound) dictate the success of dendrochemistry as an environmental monitoring tool.