

## **Quantitative micro-PIXE analysis of heavy metal uptake in the environment**

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Growing concerns about heavy metals in the food chain require techniques that allow one to follow their pathways in the environment quantitatively on a microscopic scale. We demonstrate the use of quantitative 2D elemental mapping using micro-PIXE to trace the uptake of heavy metals in plants. In particular, Ni is known to accumulate in plants to high concentrations and its distribution has been quantitatively measured in different parts of the plants. 2D mapping demonstrates preferential accumulation of the heavy metals in certain parts of the plants. To demonstrate the quantitative results of the micro-PIXE techniques, the system was calibrated using different standards and the micro-PIXE results were compared with other quantitative measurements such as ICPMS.