

Theme name

Analytical method development

Theme description

Most of our work is based on advanced analytical chemistry – in particular multi-element and stable isotope ratio analysis. Our current multi-element analyses are based on inductively coupled plasma mass spectrometry (ICP-MS) and ICP-optical emission spectroscopy (ICP-OES). In collaboration with research groups at the section, and colleagues from the CHIME analytical center, we have during the past years developed micro-scaled and high-throughput methods covering the majority of elements from the periodic table. We complement these methods with ion chromatography for anion and cation analysis as well as non-destructive techniques including laser induced breakdown spectroscopy (LIBS), near-infrared spectroscopy and chlorophyll a fluorescence. The latter two techniques are being used for diagnosing nutritional disorders in plants. Regarding stable isotopes, we analyse isotope ratios at the natural abundance level – both in solid, liquid and gaseous samples and have, within the past years, established state-of-the-art analytical facilities at the section. In our current work we primarily focus on compound-specific isotope analysis – e.g. of plant derived oxyanions such as nitrate, sulphate and phosphate.

