Soil-Plant Spectral Diagnostics Laboratory – Instruments

Our analytical instruments include the Bruker Fourier Transformation Near-Infrared Multi-Purpose Analyzer (FT-NIR MPA) and the Bruker Fourier Transformation Mid-Infrared Tensor 27 with high throughput (HTs XT) screening device (FT-MIR Tensor27/HTs XT) for prediction of the following properties:

- In soils: carbon (C), nitrogen (N), pH (water), electrical conductivity, exchangeable acidity, Mehlich-3 extraction of (Al, P, K, Ca, Mg, Na, S, Fe, Mn, Cu, B, Zn), P sorption index and particle size distributions (% sand, % clay, % silt).
- In plants: available N, P, K, Ca, Mg, Fe, Zn, Mn, Cu, B and Na.

The lab also runs a portable X-ray fluorescence Bruker Tracer V-i spectrometer for determination and quantification of total elements in soils, plants and fertilizer:

- Soil trace and major elements – Na, Mg, Al, P, S, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Mo, Cd, and Pb
- Plant trace and major elements – Na, Mg, Al, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Br, Rb, Sr, Mo, Cd, Sb, Ba, Hg, and Pb
- Fertilizer trace and major elements – Na, Mg, Al, Si, P, S, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Mo, Cd, and Pb