

Unknown Molecules in Air, Water and Soil: Screening Strategies with LC-MS

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Target screening, suspects screening and non-target screening as well as “Known Unknowns” and “Unknown Unknowns” are new keywords that are currently increasing in interest in environmental (mainly water [1]) analysis. The search for unknown or expected molecules in the matrix water and others brought about new instrumental technologies and analytical strategies. A great share is based on liquid chromatography separation (LC) with atmospheric pressure ionization (API)-coupled mass spectrometric detection (MS) and is technologically very mature.

Trace organic compounds are widely detected in drinking waters, surface waters and wastewater effluents. The presence of these compounds (pharmaceuticals, personal care products, pesticides, herbicides, industrial chemicals (e.g. REACH), etc.) and their transformation products as well as metabolites leads to emerging concerns about possible adverse effects on the aquatic environment and human health. The same is true for molecules in the environmental matrix air and soil.

Thus the special workflows for water analysis [2] become more applicable for the environmental compartments air and soil.

An overview will be given regarding new screening workflows and data work out strategies.

References

- [1] T. Letzel, *Lab & More International*, vol. 1, pp. 14-18, 2014.
- [2] T. Letzel et al., *Chemosphere*, vol. 137, pp. 198-206, 2015.