Suspect screening: Identifying organic micropollutants in the aquatic environment

Frank Menger,[a] Pablo Gago-Ferrero,[b] Karin Wiberg,[a] and Lutz Ahrens,[a]

[a]Dept. of Aquatic Sciences and Assessment, Swed. Univ. of Agricultural Sciences (SLU), Uppsala, Sweden
[b]The Catalan Institute for Water Research (ICRA), Girona, Spain

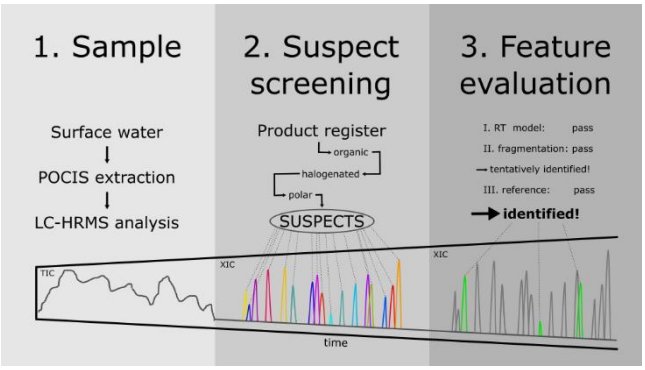

Figure 1. Schematic of a suspect screening strategy

The analysis of known organic micropollutants (OMPs), also known as target analysis, is a well-established discipline that is used for e.g. environmental monitoring programs; however, target analysis only allows the detection of a minor fraction of the substances potentially present in the environment. Recent advances in suspect screening using high resolution mass spectrometry (HRMS) have initiated a new trend in analytical chemistry that substantially increased the number of substances that can be investigated. Through suspect screening thousands of chemicals can in theory be screened simultaneously, without the need for analytical standards for these substances [1]. In this study the suspect screening approach will be exemplified on identification of organohalogens (Figure 1). Surface water samples were collected from the Fyris River in Uppsala, Sweden, using passive sampling and analyzed using HRMS. Eight previously unknown halogenated OMPs were tentatively identified. The suspect screening approach using HRMS will expand our knowledge about emerging OMPs in the environment.

[1]P. Gago-Ferrero et al. ES&T 2015,49(20): 12333–12341.