**Isotopic insights into the fate of anthropogenic micropollutants in aquatic environments**

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Polar organic micropollutants, such as pesticides, pharmaceuticals and consumer chemicals, are frequently detected in aquatic environments and hence are a major concern to the environment and human health. Compound-specific isotope analysis (CSIA) is a promising tool for assessing sources and transformation processes of polar organic micropollutants in aquatic environments. There are, however, two major challenges: (1) Polar organic micropollutants occur at ng/L to µg/L concentrations and, as a consequence, very large volumes of water are required. Hence, isotopic analysis of micropollutants by gas chromatography coupled to isotope ratio mass spectrometry is only possible after analyte preconcentration with enrichment factors exceeding 50’000. Such procedures inevitably lead to interferences from the organic matrix. (2) The polarity of these micropollutants furthermore impedes the use of typical non-polar sorbates for solid-phase enrichment without further cleanup steps. In view of these challenges, we explored molecularly imprinted polymers (MIP) as a new approach for selective retention of polar organic micropollutants with reduced matrix interferences for stable isotope analysis at the ng/L range.

We successfully synthesized custom-made MIPs and developed MIP-CSIA procedures for 1*H*-benzotriazole, a frequently detected complexing agent used in dishwasher detergents and deicing fluids. Comparison of 13C/12C and 15N/14N ratio measurements before and after the selective cleanup showed that no C isotope fractionation occurs on carbon during the process of loading the imprinted polymers with excess of 1*H*-benzotriazole. Isotopic fractionation, however, can be induced on nitrogen if the recoveries are not complete. The capability of MIP for specific elimination of the matrix, in contrast to non-imprinted polymers, enabled us to investigate the fate of 1*H*-benzotriazole in waste water treatment plants and receiving waters.