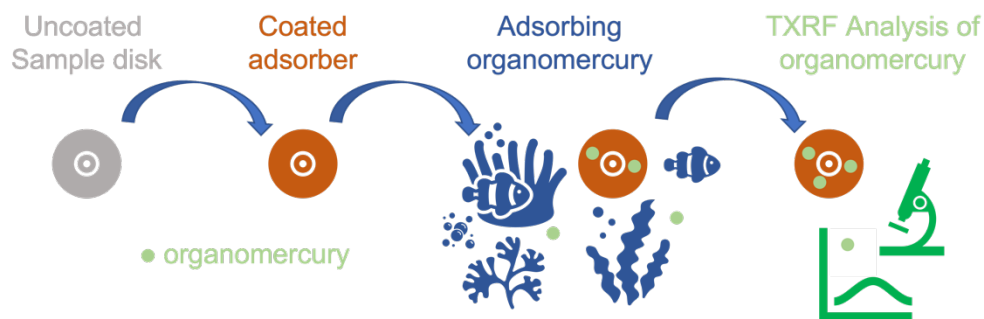


Development of a novel adsorbing material for selective detection of organo metallic compounds in natural waters

In many natural waters toxic organometallic compounds can be found, like organomercury derivatives and organic tin. These substances are not only hazards to living organisms and wild life, but also for human beings, if they find their way to the human body via food. A detailed analysis of organomercury in laboratories is rather complicated, due to the low concentration in waters (< 1 ng/L). Additionally, many analysis methods require calibrations of organomercury, which cause health risks for the lab workers by handling. In one of our research projects we work closely together with the IUTA to establish a novel way of analysis for organometallics using Total Reflection X-Ray Fluorescence (TXRF). It allows a quantitative and qualitative analysis of trace metals with a quick process and low sample volume. Sample holders are small silica glass disks, which we coat with selective adsorbing films for organometallics. If the sample disks are placed in waters, present organomercury will be adsorbed at the surface and can be analyzed immediately after removal from the natural environment. Coating materials can be functionalized sol-gel-films or polymer coatings from polymer brushes. Another significant advantage of TXRF is the possibility to calibrate the system with harmless anorganic mercury derivatives, which makes the analysis in the lab much safer.



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