

## **Mercury speciation in environment and life – from MeHg to Hg biomolecules**

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Mercury is an intriguing element, especially due to its occurrence in many different species in environment and biota. Therefore, mercury speciation analysis has been a major research effort for the past 50 some years, with the analytical chemists' focus mainly being put on the development of ever more accurate and precise methods for mercury speciation analysis. The main objective has usually been to distinguish inorganic from organic mercury compounds (mostly in the form of methylmercury), and the use of sophisticated methods including isotope dilution with isotopically labelled mercury species (species-specific isotope dilution).

Despite the bulk of work done in the past 50 some years on mercury speciation, many phenomena connected with mercury toxicity or its behaviour in the environment (namely bioaccumulation and latent toxicity of methylmercury) is not yet fully understood. A key to a better understanding may lie in the fact that in biota, metals are often bound to and transported as complexes with larger molecules, i.e. biothiols or proteins. But, during the common speciation analysis using invasive extraction and often derivatisation procedures, these Hg biomolecules are broken down, so that important information is lost.

This lecture will provide an overview of modern analytical techniques for mercury speciation used today, and recent developments including the determination of mercury biomolecules in plants and the use of precise mercury isotope determination.