

Editorial

Controversies and Solutions in Environmental Sciences

Addressing toxicity of sediments and soils

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At the 16th SETAC Europe Annual Meeting (Controversies and Solutions in Environmental Sciences, The Hague, 7-11 May 2006), a total of 4 sessions focused on sediment-oriented topics that refer to activities by SETAC Europe / SedNet Sediment Advisory Group (Scrimshaw et al. 2006)¹. On the basis of these topics (platform and poster presentations), a series of papers were generated and peer-reviewed for publication in *J Soils Sediments*.

Whereas in the last decades the compartments of soils and sediments have been addressed as separate media with their own evaluation strategies, an intercompartmental point of view has recently emerged which allows a more holistic perspective: Rather than being distinct compartments, soils and sediments are intensively interlinked, and it is the aim of this journal to foster this development. Soil and sediment scientists and managers should co-operate in order to solve the many existing problems which often occur at the interface of both media (Apitz 2005).

The series started with an article on 'Chronic Toxicity of Unresolved Complex Mixtures (UCM) of Hydrocarbons in Marine Sediments' (Scarlett et al. 2007). This is the first study that demonstrated population-level effects arising from exposure to sediments contaminated by realistic environmental concentrations of UCM hydrocarbons.

This edition of *J Soils Sediments* continues the series.

Schulze et al. (2007) present the concept of the German Environmental Specimen Bank (ESB). Their conclusion is that the collection and storage of sediments and SPM (suspended particulate matter) as new specimens in the ESB enhance the possibilities to control the efficacy of the European Water Framework Directive, REACH and similar regulations.

Antunes et al (2007) present an in-depth investigation on the potential toxicity of sediments from uranium mine ponds. The aim of this paper was to evaluate the ability of sediments to act as a source of contaminants to the water column and their potential effect on planktonic organisms that represent a key position in food webs. The authors conclude that the main source of contaminants seems to be the groundwater rather than the sediments which, on the contrary, work as deposit of mine tailings.

Kosmehl et al. (2007) describe a procedure for the evaluation of the genotoxic burden of sediments. For this purpose, they compare the classical organic acetone extraction Soxhlet method with the exposure to whole sediment samples using the Comet assay with Zebrafish embryos. They come to the conclusion that a combination of both methods is optimal for an optimized risk management.

Diogo et al. (2007) investigate if the genetic divergence of three laboratory strains of *Folsomia candida* from Portugal, Spain and Denmark result in different sensitive reactions towards chemical stress. In the reproduction test, no significant difference between the strains was observed, whereas *F. candida* from Spain was less sensitive in the avoidance test, compared to strains from Portugal and Denmark, which results in a higher EC₅₀-value. Mitochondrial COI sequences a differentiation between the Spanish strain compared to the two other strains. Consequently, *F. candida* should be genetically characterized before used in an avoidance test; intraspecific genetic differentiation has an input on stress tolerance. The reproduction test is less sensitive compared to the avoidance test towards interclonal genetic differentiation.

Norr and Riepert (2007) describe, for the first time, the modification of an established test system for the purpose of testing the bioaccumulation of substances (veterinary pharmaceuticals) in earthworms. The authors conclude that this test design is a meaningful methodical addition to the new OECD draft guideline.

¹ See also the information on p. 12A on the Global Sediment Advisory Group (SEDAG).

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