

## Contents in Context

### *Environmental Chemistry, Vol. 7(4), 2010*

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#### **What is recalcitrant soil organic matter?**

**Markus Kleber**

*Environ. Chem.* **2010**, 7, 320

On a global scale, soils store more carbon than plants or the atmosphere. The cycling of this vast reservoir of reduced carbon is closely tied to variations in environmental conditions, but robust predictions of climate–carbon cycle feedbacks are hampered by a lack of mechanistic knowledge regarding the sensitivity of organic matter decomposition to rising temperatures. This text provides a critical discussion of the practice to conceptualise parts of soil organic matter as intrinsically resistant to decomposition or 'recalcitrant'.

#### **Composition profile of oxygenated organic compounds and inorganic ions in PM<sub>2.5</sub> in Hong Kong**

**Yun Chun Li and Jian Zhen Yu**

*Environ. Chem.* **2010**, 7, 338

Oxygenated organic compounds are active constituents in ambient aerosols, affecting their hygroscopic properties and other interactions with water. We have measured 29 oxygenated organic compounds, together with inorganic ions and other major aerosol constituents, in ambient samples collected under various synoptic conditions in Hong Kong. These composition profiles of water-soluble matter provide valuable data for modelling and theoretical studies of aerosol–water interactions.

#### **Field intercomparison of the determination of volatile and semivolatile polyfluorinated compounds in air**

**Annekatriin Dreyer, Mahiba Shoeib, Stefan Fiedler, Jon Barber, Tom Harner, Karl-Werner Schramm, Kevin C. Jones and Ralf Ebinghaus**

*Environ. Chem.* **2010**, 7, 350

Polyfluorinated compounds are an emerging group of organic pollutants that are globally distributed in urban and natural environments. Reliable air monitoring methods are crucial to our understanding of how these pollutants are released to, and transported in, the atmosphere. This intercomparison study, involving laboratories that investigate polyfluorinated compounds in air, uncovers inconsistencies in the reported data, and highlights necessary analytical improvements for future research projects.

#### **Variations of aerosol properties due to regional source contributions and impacts on ozone levels: a study in a south China city**

**Ka-Ming Wai and Peter A. Tanner**

*Environ. Chem.* **2010**, 7, 359

Regional atmospheric contaminants from both anthropogenic and natural events (industrial activities, biomass burning, dust events) can have large impacts on the aerosol properties of distant downwind sites. Data showing the influence of regional sources on air quality in Hong Kong are presented. In particular, the changes in aerosol properties (e.g. mass concentration and particle size distribution), and their effects on photochemical ozone formation, is discussed.

#### **Dissipation of sulfamethoxazole, trimethoprim and tylosin in a soil under aerobic and anoxic conditions**

**Feng Liu, Guang-Guo Ying, Ji-Feng Yang, Li-Jun Zhou, Ran Tao, Li Wang, Li-Juan Zhang and Ping-An Peng**

*Environ. Chem.* **2010**, 7, 370

Wide application of antibiotics in the treatment of human beings and animals has led to increasing concern about their safe disposal. After use, antibiotics may enter the soil environment via disposal of wastes such as biosolids and animal manure. We investigated the biotic and abiotic factors that influence the dissipation in soil of three commonly used antibiotics sulfamethoxazole, trimethoprim and tylosin.

#### **Characterisation of structural and surface speciation of representative commercially available cerium oxide nanoparticles**

**Mohammed Baalousha, Philippe Le Coustumer, Ian Jones and Jamie R. Lead**

*Environ. Chem.* **2010**, 7, 377

Manufactured nanoparticles, increasingly used in a wide range of products, can be released into the natural environment where they might pose a risk to environmental and human health. The nanoparticle characteristics that induce toxic effects, however, are not yet well-known. Understanding the toxicity and the fate and behaviour of nanoparticles in the environment requires precise characterisation of their properties at the nanoscale and the individual particle level.

#### **Evidence for arsenic-driven redox chemistry in a wetland system: a field voltammetric study**

**Laura Haffert, Sylvia G. Sander, Keith A. Hunter and Dave Craw**

*Environ. Chem.* **2010**, 7, 386

The speciation of the toxic element arsenic directly controls its environmental mobility and toxicity. The current study took place on site in an historic mine processing environment that is extremely arsenic-rich and comparatively sulfur-deficient. When arsenic is one of the major chemical components, redox state and pH of the chemical system are closely linked to arsenic speciation.