

Short Communication

- 1461 The effect of environmental conditions on the stability of heavy metal–filter material complex as assessed by the leaching of adsorbed metal ions**

O. Khokhotva, S. Waara

The study assess the metal–filter material complex stability when metal removal using filter material is used in locations with fluctuating environmental conditions.

Regular Papers

- 1464 Growth of soybean at future tropospheric ozone concentrations decreases canopy evapotranspiration and soil water depletion**

C.J. Bernacchi, A.D.B. Leakey, B.A. Kimball, D.R. Ort

Soybean grown in elevated concentrations of ozone is shown to evapotranspire less water compared with soybean canopies grown under current atmospheric conditions.

- 1473 Comparative phototoxicity of nanoparticulate and bulk ZnO to a free-living nematode *Caenorhabditis elegans*: The importance of illumination mode and primary particle size**

H. Ma, N.J. Kabengi, P.M. Bertsch, J.M. Unrine, T.C. Glenn, P.L. Williams

Phototoxicity of nanoparticulate and bulk ZnO was greatly enhanced by natural sunlight illumination compared to artificial laboratory light illumination.

- 1481 Differential accumulation of mercury and other trace metals in the food web components of a reservoir impacted by a chlor-alkali plant (Flix, Ebro River, Spain): Implications for biomonitoring**

D.X. Soto, R. Roig, E. Gacia, J. Catalan

The use of a group of biomonitors increases the scope and strengths of conclusions in trace metal biomonitoring.

- 1490 Distribution and accumulation of endocrine-disrupting chemicals and pharmaceuticals in wastewater irrigated soils in Hebei, China**

F. Chen, G.-G. Ying, L.-X. Kong, L. Wang, J.-L. Zhao, L.-J. Zhou, L.-J. Zhang

Application of reclaimed wastewater on agricultural land could lead to the presence or accumulation of wastewater-related contaminants in soils.

- 1499 Strong links between metal contamination, habitat modification and estuarine larval fish distributions**

A.C. McKinley, A. Miskiewicz, M.D. Taylor, E.L. Johnston

We describe strong links between sediment metals contamination, habitat modification and substantial differences in the composition of the estuarine larval fish assemblage.

- 1510 Occurrence of polycyclic aromatic hydrocarbons in surface sediments of a highly urbanized river system with special reference to energy consumption patterns**

K. Zhang, J.-Z. Wang, B. Liang, E.Y. Zeng

Occurrence of PAHs in surface sediments from a highly urbanized river system is assessed in relation to energy consumption patterns.

- 1516 Direct and indirect effects of metal contamination on soil biota in a Zn–Pb post-mining and smelting area (S Poland)**

P. Kapusta, G. Szarek–Lukaszewska, A.M. Stefanowicz

Elevated concentrations of exchangeable Zn and Cd reduce enchytraeid density and indirectly affect microbial activity adversely.

CONTENTS—Continued from outside back cover

- 1523 Evaluation of soil metal bioavailability estimates using two plant species (*L. perenne* and *T. aestivum*) grown in a range of agricultural soils treated with biosolids and metal salts**
A. Black, R.G. McLaren, S.M. Reichman, T.W. Speir, L.M. Condron
A meta-analysis of soil metal bioavailability estimates for 12 soil types concluded that there is little justification to look beyond $\text{Ca}(\text{NO}_3)_2$ for Ni and Zn, and DGT for Cd.
- 1536 Assessment of aided phytostabilization of copper-contaminated soil by X-ray absorption spectroscopy and chemical extractions**
J. Kumpiene, M. Mench, C.M. Bes, J.P. Fitts
Soil treatment with compost and iron grit caused a shift in predominant Cu forms from non-specifically bound Cu ions to Cu species bound to Fe oxyhydroxides.
- 1543 TiO_2 -based nanoparticles released in water from commercialized sunscreens in a life-cycle perspective: Structures and quantities**
C. Botta, J. Labille, M. Auffan, D. Borschneck, H. Miche, M. Cabié, A. Masion, J. Rose, J.-Y. Bottero
The release of TiO_2 -based nanoparticles from commercialized sunscreens after accelerated aging is quantified and characterized.
- 1551 Phytotoxicity of silver nanoparticles to *Lemna minor* L**
E.J. Gubbins, L.C. Batty, J.R. Lead
*Silver nanoparticles are toxic to *Lemna minor* at low concentrations and constitute a significant environmental risk.*
- 1560 MODIS derived fire characteristics and aerosol optical depth variations during the agricultural residue burning season, north India**
K.P. Vadrevu, E. Ellicott, K.V.S. Badarinath, E. Vermote
This research work highlights the satellite derived fire products and their potential in characterizing the agricultural residue burning events and air pollution.
- 1570 Occurrence and profiles of organic sun-blocking agents in surface waters and sediments in Japanese rivers and lakes**
Y. Kameda, K. Kimura, M. Miyazaki
Occurrence of eight UV filters and 10 UV light stabilizers in surface water and sediment were investigated and characterized their compositions in water and sediment.
- 1577 Polybrominated diphenyl ethers (PBDEs) and alternative brominated flame retardants in air and seawater of the European Arctic**
A. Möller, Z. Xie, R. Sturm, R. Ebinghaus
Alternative flame retardants hexabromobenzene (HBB) and 2,3-dibromopropyl-2,4,6-tribromophenyl ether (DPTE) undergo long-range atmospheric transport to the Arctic.
- 1584 Behavior of pharmaceuticals and drugs of abuse in a drinking water treatment plant (DWTP) using combined conventional and ultrafiltration and reverse osmosis (UF/RO) treatments**
M^a.R. Boleda, M^a.T. Galceran, F. Ventura
The efficiency of potabilization processes to eliminate or transform pharmaceuticals and illicit drugs is evaluated.
- 1592 Atmospheric deposition, retention, and stream export of dioxins and PCBs in a pristine boreal catchment**
M. Bergknut, H. Laudon, S. Jansson, A. Larsson, T. Gocht, K. Wiberg
The boreal landscape is effective in retaining diffuse atmospheric deposition of dioxins and PCBs, slowly releasing these pollutants into nearby streams.
- 1599 Triclosan affects the microbial community in simulated sewage-drain-field soil and slows down xenobiotic degradation**
H. Svenningsen, T. Henriksen, A. Priemé, A.R. Johnsen
Environmentally realistic triclosan concentrations in percolation systems may reduce the biodegradation of other xenobiotics and select for triclosan-resistant bacteria.
- 1606 Evidence for selection in response to radiation exposure: *Pinus sylvestris* in the Chernobyl exclusion zone**
O. Kuchma, R. Finkeldey
Genetic responses to the exposure of trees to radiation in the Chernobyl zone may involve adaptive changes at a comparatively large part of the genome.
- 1613 Temporal and spatial distribution of atmospheric antimony emission inventories from coal combustion in China**
H.Z. Tian, D. Zhao, M.C. He, Y. Wang, K. Cheng
A multiple-year inventory of atmospheric antimony emissions from coal combustion in China for the period of 1980–2007 has been calculated for the first time.
- 1620 Implementation of airborne trace element monitoring with devitalised transplants of *Hypnum cupressiforme* Hedw.: Assessment of temporal trends and element contribution by vehicular traffic in Naples city**
P. Adamo, S. Giordano, A. Sforza, R. Bargagli
*Devitalised transplants of *Hypnum cupressiforme* highlight current traffic impact and improvement of air quality in the urban area of Naples city.*

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- 1629 Impact of atmospheric deposition of anthropogenic and natural trace metals on Northwestern Mediterranean surface waters: A box model assessment**
L.-E. Heimbürger, C. Migon, D. Cossa
The balance between atmospheric deposition and removal from surface waters shows that metals such as Cd, Cr, Ni are efficiently removed, while others (Hg, Pb, Zn) accumulate in Ligurian surface waters.
- 1635 Date palm (*Phoenix dactylifera* L.) leaves as biomonitors of atmospheric metal pollution in arid and semi-arid environments**
O.A. Al-Khashman, A.H. Al-Muhtaseb, K.A. Ibrahim
*Date palm (*Phoenix dactylifera* L.) leaves can be used as an inexpensive biomonitor of the deposition, accumulation and distribution of heavy metal contamination in arid environments.*
- 1641 Influence of the initial state of carbon nanotubes on their colloidal stability under natural conditions**
I. Schwyzer, R. Kaegi, L. Sigg, A. Magrez, B. Nowack
The colloidal stability of CNTs varies a lot depending on the initial state of the CNTs (dry vs. pre-dispersed), the applied dispersant for pre-suspension, and the composition of the medium.
- 1649 An urban boreal lake basin as a source of CO₂ and CH₄**
J.L. Bellido, E. Peltomaa, A. Ojala
Urbanization in the studied boreal lake was reflected in higher than normal hypolimnetic CO₂ and CH₄ concentrations resulting in considerable carbon gas fluxes, especially in terms of CH₄.
- 1660 Selective removal of diclofenac from contaminated water using molecularly imprinted polymer microspheres**
C.-m. Dai, S.-U. Geissen, Y.-l. Zhang, Y.-j. Zhang, X.-f. Zhou
A diclofenac molecularly imprinted polymer synthesized by precipitation polymerization was used for the selective removal of diclofenac from contaminated water.
- 1667 Magnesium and the deposition of lead in the shell of three populations of the garden snail *Cantareus aspersus***
A. Beeby, L. Richmond
Snails losing shell mass on an experimental diet have higher concentrations of shell Pb and Mg, but lose Ca.
- 1673 Biomagnetic monitoring of industry-derived particulate pollution**
R. Hansard, B.A. Maher, R. Kinnersley
Biomagnetic techniques are used for quantitative mapping of particulate pollution at uniquely high spatial resolution and to distinguish between differently-sourced PM₁₀.
- 1682 DNA damage in caged *Gammarus fossarum* amphipods: A tool for freshwater genotoxicity assessment**
E. Lacaze, A. Devaux, R. Mons, S. Bony, J. Garric, A. Geffard, O. Geffard
*We propose an approach to assess freshwater genotoxicity in the field based on caged *Gammarus fossarum* (Crustacea, amphipoda).*
- 1692 Organochlorine pollution in tropical rivers (Guadeloupe): Role of ecological factors in food web bioaccumulation**
S. Coat, D. Monti, P. Legendre, C. Bouchon, F. Massat, G. Lepoint
This paper determines the bioaccumulation and transfer processes of organochlorine pesticides within the stream food web in Guadeloupe (Caribbean).
- 1702 Assessing the toxicity of sodium chloride to the glochidia of freshwater mussels: Implications for salinization of surface waters**
P.L. Gillis
Freshwater mussel larvae were acutely sensitive to sodium chloride, such that chloride levels in some Canadian rivers may pose a threat to the survival of this early life stage.
- 1709 Uptake, tissue distribution and metabolism of the insecticide endosulfan in *Jenynsia multidentata* (Anablepidae, Cyprinodontiformes)**
M.L. Ballesteros, M. Gonzalez, D.A. Wunderlin, M.A. Bistoni, K.S.B. Miglioranza
*Endosulfan is accumulated in organs of *J. multidentata* as well as biotransformed to endosulfan sulfate, which relative abundance points out the time from exposure.*
- 1715 Field-scale operation of methane biofiltration systems to mitigate point source methane emissions**
V.C. Hettiarachchi, P.J. Hettiaratchi, A.K. Mehrotra, S. Kumar
The developed numerical model simulations and field observations for estimating CH₄ oxidation efficiencies under various operating conditions indicate that the long-term performance of MBFs is strongly dependent on environmental factors, such as ambient temperature and precipitation.

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- 1721 Influence of fly ash aided phytostabilisation of Pb, Cd and Zn highly contaminated soils on *Lolium perenne* and *Trifolium repens* metal transfer and physiological stress**

A. Lopareva-Pohu, A. Verdin, G. Garçon, A.L. Sahraoui, B. Pourrut, D. Debiane, C. Waterlot, F. Laruelle, G. Bidar, F. Douay, P. Shirali

Efficiency of Coal Fly Ash amendment for phytostabilisation of Pb, Cd and Zn in MTE-highly contaminated soils.

- 1730 Cadmium accumulation in and tolerance of rice (*Oryza sativa* L.) varieties with different rates of radial oxygen loss**

M.Y. Wang, A.K. Chen, M.H. Wong, R.L. Qiu, H. Cheng, Z.H. Ye

Rice cultivars with high rates of ROL tended to accumulate low Cd in grains.

- 1737 Assessment of the environmental persistence and long-range transport of endosulfan**

L. Becker, M. Scheringer, U. Schenker, K. Hungerbühler

Levels of endosulfan in air, seawater and soil measured in the global environment are well reproduced by a global environmental fate model.

- 1744 Influence of pesticides contamination on the emission of PCDD/PCDF to the land from open burning of corn straws**

T. Zhang, J. Huang, S. Deng, G. Yu

Influence of pesticides contamination on the emission of PCDD/PCDF from open burning of crop residues is of great importance for the Dioxin Toolkit update.