

CONTENTS

Volume 163 April 2012

- 1 Variability of standard artificial soils: Physico-chemical properties and phenanthrene desorption measured by means of supercritical fluid extraction**
L. Bielská, I. Hovorková, K. Komprdová, J. Hofman
Significant variability in physico-chemical properties exists between artificial soils prepared at different laboratories and affects behavior of contaminants in these soils.
- 8 Impact of irrigation with high arsenic burdened groundwater on the soil-plant system: Results from a case study in the Inner Mongolia, China**
H. Neidhardt, S. Norra, X. Tang, H. Guo, D. Stüben
Recent irrigation with groundwater raises the risk of As entering the local food chain in one of the oldest crop producing areas in the People's Republic of China.
- 14 Observation of increases in emission from modern vehicles over time in Hong Kong using remote sensing**
J. Lau, W.T. Hung, C.S. Cheung
Remote sensing measurements show large increases in gaseous emissions from vehicles in Hong Kong after 2 years of operation, indicating that engine and catalyst performance deteriorate rapidly.
- 24 Use of bioindicators to evaluate air quality and genotoxic compounds in an urban environment in Southern Brazil**
M.I. Käffer, A.T. Lemos, M.A. Apel, J.V. Rocha, S.M.d.A. Martins, V.M.F. Vargas
Bioindicators are valuable monitors of genotoxic compounds and atmospheric pollution.
- 32 The effects of the urban built environment on the spatial distribution of lead in residential soils**
K. Schwarz, S.T.A. Pickett, R.G. Lathrop, K.C. Weathers, R.V. Pouyat, M.L. Cadenasso
We investigated the influence of landscape heterogeneity on lead in residential soil using x-ray fluorescence and identified important correlations with elements of urban land cover.
- 40 Ozone pollution affects flower numbers and timing in a simulated BAP priority calcareous grassland community**
F. Hayes, J. Williamson, G. Mills
Increased tropospheric ozone affected timing of flowering and maximum flower numbers in calcareous grassland mesocosms.
- 48 Enhancement of life cycle assessment (LCA) methodology to include the effect of surface albedo on climate change: Comparing black and white roofs**
T. Susca
Traditionally, albedo is not considered in LCA. This research enhances the LCA methodology evaluating the effect of surface albedo on climate change through the use of a time-dependent equivalence.
- 55 Effects of aged TiO₂ nanomaterial from sunscreen on *Daphnia magna* exposed by dietary route**
M. Fouqueray, B. Dufils, B. Vollat, P. Chaurand, C. Botta, K. Abacci, J. Labille, J. Rose, J. Garric
By-products of aged TiO₂ nanoparticles used in sunscreen cream taken in by food induced significant reproductive effects that could be linked to digestive physiology alteration.
- 62 Forecasting PM₁₀ in metropolitan areas: Efficacy of neural networks**
H.J.S. Fernando, M.C. Mammarella, G. Grandoni, P. Fedele, R. Di Marco, R. Dimitrova, P. Hyde
Neural-networks are as effective as photochemical modeling for air quality predictions, but are much easier, quicker and economical to implement in air-pollution (or health) warning systems.
- 68 Mercury and other element exposure in tree swallows nesting at low pH and neutral pH lakes in northern Wisconsin USA**
T.W. Custer, C.M. Custer, W.E. Thogmartin, P.M. Dummer, R. Rossmann, K.P. Kenow, M.W. Meyer
Mercury concentrations in tree swallows were higher at low pH lakes.

CONTENTS—Continued from outside back cover

- 77 Inorganic arsenic contents in rice-based infant foods from Spain, UK, China and USA**
A.A. Carbonell-Barrachina, X. Wu, A. Ramirez-Gandolfo, G.J. Norton, F. Burló, C. Deacon, A.A. Meharg
Infants with the celiac disease are exposed to high levels of inorganic arsenic because of their high consumption of rice-based foods.
- 84 Ecotoxicological effect characterisation of widely used organic UV filters**
D. Kaiser, A. Sieratowicz, H. Zielke, M. Oetken, H. Hollert, J. Oehlmann
Ethylhexyl-methoxycinnamate caused a toxic effect on reproduction in both snails. Butyl-methoxydibenzoylmethane and octocrylene showed no effects on any of the tested organism.
- 91 Simulating population recovery of an aquatic isopod: Effects of timing of stress and landscape structure**
N. Galic, H. Baveco, G.M. Hengeveld, P. Thorbek, E. Bruns, P.J. van den Brink
Population recovery after stress is governed by reproduction and movement in the landscape, where recovery speed and potential are affected by spatial distribution of stress.
- 100 China's water pollution by persistent organic pollutants**
L.-J. Bao, K.A. Maruya, S.A. Snyder, E.Y. Zeng
Occurrence, potential sources and ecological and human health risk of persistent organic pollutants in China's waters are reviewed.
- 109 Contaminant exposure in relation to spatio-temporal variation in diet composition: A case study of the little owl (*Athene noctua*)**
A.M. Schipper, S. Wijnhoven, H. Baveco, N.W. van den Brink
Dietary contaminant exposure of opportunistic predators may vary considerably due to spatio-temporal variation in diet.
- 117 Root anatomy and element distribution vary between two *Salix caprea* isolates with different Cd accumulation capacities**
M. Vaculik, C. Konlechner, I. Langer, W. Adlassnig, M. Puschenreiter, A. Lux, M.-T. Hauser
**S. caprea* altered element distribution and translocation, apoplastic barrier development and root anatomy upon Cd and/or Zn exposure.*
- 127 Species-specific patterns of swimming escape performance and cholinesterase activity in a guild of aquatic insects exposed to endosulfan**
H. Trekels, F. Van de Meutter, R. Stoks
Endosulfan only detectably reduced escape swimming speed in one of the four studied water boatmen species and this was associated with an inhibition of body ChE.
- 134 Computational toxicology: Physiologically based pharmacokinetic models (PBPK) for lifetime exposure and bioaccumulation of polybrominated diphenyl ethers (PBDEs) in marine mammals**
L. Weijs, A. Covaci, R.S.H. Yang, K. Das, R. Blust
PBPK models as a non-invasive tool for describing the kinetics of relevant chemicals in organisms can be used for harbour porpoises from different regions and time periods.
- 142 Identification and determination of chlorinated paraffins using multivariate evaluation of gas chromatographic data**
M.-L. Nilsson, S. Bengtsson, H. Kylin
Multivariate methods were used to identify and quantify chlorinated paraffins in complex chromatograms.
- 149 Responses of native broadleaved woody species to elevated ozone in subtropical China**
W. Zhang, Z. Feng, X. Wang, J. Niu
Specific leaf mass contributed to the differences in O₃ sensitivity among sub-tropical broadleaved woody species
- 158 Fate of a broad spectrum of perfluorinated compounds in soils and biota from Tierra del Fuego and Antarctica**
M. Llorca, M. Farré, M.S. Tavano, B. Alonso, G. Korembli, D. Barceló
18 perfluorinated compounds assessed in biota and environmental samples from Tierra del Fuego and the Antarctica. Concentrations related to Compounds properties.
- 167 Assessment of herbicide sorption by biochars and organic matter associated with soil and sediment**
K. Sun, B. Gao, K.S. Ro, J.M. Novak, Z. Wang, S. Herbert, B. Xing
Hydrothermal biochars had relatively high herbicide sorption capacity and may be used as an amendment for minimizing off-site herbicide movement.
- 174 The role of a peri-urban forest on air quality improvement in the Mexico City megalopolis**
D. Baumgardner, S. Varela, F.J. Escobedo, A. Chacalo, C. Ochoa
Coupled models estimated air quality improvement and pollution removal-formation by peri-urban forest ecosystems in the Mexico City airshed.
- 184 Effects of Cr III and Pb on the bioaccumulation and toxicity of Cd in tropical periphyton communities: Implications of pulsed metal exposures**
T. Bere, M.A. Chia, J.G. Tundisi
The study highlights the importance of pulse timing, frequency, duration, recovery period and chemical type on aquatic life.
- 192 Why mercury concentration increases with fish size? Biokinetic explanation**
F. Dang, W.-X. Wang
Biokinetic variations, especially the mercury elimination and growth rate, explained why Hg accumulation in fish increased with fish size.

CONTENTS—Continued from inside back cover

- 199 The response of rice grain quality to ozone exposure during growth depends on ozone level and genotype**
M. Frei, Y. Kohno, S. Tietze, M. Jekle, M.A. Hussein, T. Becker, K. Becker
Ozone exposure during growth tends to increase the protein and lipid concentration in rice grains but decreases total grain and nutrient yields. These effects are dependent on ozone level and genotype.
- 207 The challenge of choosing environmental indicators of anthropogenic impacts in estuaries**
K.A. Dafforn, S.L. Simpson, B.P. Kelaher, G.F. Clark, V. Komyakova, C.K.C. Wong, E.L. Johnston
Anthropogenic impacts can be consistently distinguished from natural environmental variation over large spatial scales using the appropriate monitoring tool for the ecological community.
- 218 Role of non-enzymatic antioxidants on the bivalves' adaptation to environmental mercury: Organ-specificities and age effect in *Scrobicularia plana* inhabiting a contaminated lagoon**
I. Ahmad, I. Mohmood, J.P. Coelho, M. Pacheco, M.A. Santos, A.C. Duarte, E. Pereira
*Results demonstrated the importance of non-enzymatic antioxidants on protecting *S. plana* from mercury pro-oxidant action, under environmentally realistic conditions.*
- 226 Concentration-dependent effects of carbon nanoparticles in gram-negative bacteria determined by infrared spectroscopy with multivariate analysis**
M.J. Riding, F.L. Martin, J. Trevisan, V. Llabjani, I.I. Patel, K.C. Jones, K.T. Semple
Carbon nanoparticle-induced distinctive biochemical alterations in Gram-negative bacteria can be mechanistically fingerprinted using IR spectroscopy with multivariate analysis.
- 235 Desorption behaviors of BDE-28 and BDE-47 from natural soils with different organic carbon contents**
W. Liu, F. Cheng, W. Li, B. Xing, S. Tao
Two-compartment first-order model, and linear distribution model or nonlinear Freundlich model could well elucidate desorption kinetics and isotherms of PBDEs in natural soils, respectively.
- 243 Deposition of fission and activation products after the Fukushima Dai-ichi nuclear power plant accident**
K. Shozugawa, N. Nogawa, M. Matsuo
We observed some activation product including ^{239}Pu after the Fukushima Dai-ichi nuclear power plant accident.
- 248 Multivariate statistical and GIS-based approach to identify source of anthropogenic impacts on metallic elements in sediments from the mid Guangdong coasts, China**
Y.-G. Gu, Z.-H. Wang, S.-H. Lu, S.-J. Jiang, D.-H. Mu, Y.-H. Shu
Hot spots of metallic elements were close to the nuclear power plants. Industrial and municipal discharges were the main anthropogenic metallic source.
- 256 Sedimentary record of polycyclic aromatic hydrocarbons in a reservoir in Northeast China**
T. Lin, Y. Qin, B. Zheng, Y. Li, L. Zhang, Z. Guo
The record of PAHs in a reservoir in Northeast China is different from that in the other areas of China, reflecting a recent regional adjustment of energy structure from coal to oil.
- 261 Ammonium release from a blanket peatland into headwater stream systems**
S.M. Daniels, M.G. Evans, C.T. Agnew, T.E.H. Allott
Inorganic nitrogen leaching from South Pennine peatlands is dominated by ammonium that is rapidly transformed within streams to nitrate.
- 273 Effects of roads on adjacent plant community composition and ecosystem function: An example from three calcareous ecosystems**
M.A. Lee, L. Davies, S.A. Power
Roads are responsible for a suite of environmental perturbations which are associated with changes in plant composition, species richness and ecosystem functioning.
- 281 Digestive utilization of ozone-exposed forage by rabbits (*Oryctolagus cuniculus*)**
N.J. Gilliland, A.H. Chappelka, R.B. Muntifering, F.L. Booker, S.S. Ditchkoff
 O_3 affects forage digestibility in a model non-ruminant mammalian herbivore (rabbit).
- 287 Emerging organic contaminants in groundwater: A review of sources, fate and occurrence**
D.J. Lapworth, N. Baran, M.E. Stuart, R.S. Ward
A large range of emerging organic contaminants are now being detected in groundwater as a result of recent and historical anthropogenic activities.