

NEWS

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2021

**Environmental digest**

Read the latest environmental news including:

Recent legislation

Environmental quality

Chemical hazards

Public and occupational health

Research activity

PAPERS

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2028

**Screening organic chemicals in commerce for emissions in the context of environmental and human exposure**

Knut Breivik,\* Jon A. Arnot, Trevor N. Brown,  
Michael S. McLachlan and Frank Wania

A screening-level method is developed and applied for estimating environmental releases for a large number of organic chemicals in commerce.

2038

**Utilizing pyrosequencing and quantitative PCR to characterize fungal populations among house dust samples**

Matthew W. Nonnenmann,\* Gloria Coronado, Beti Thompson, William C. Griffith, John Delton Hanson, Stephen Vesper and Elaine M. Faustman

Molecular techniques are an alternative to culturing and counting methods in quantifying indoor fungal contamination.

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2044

**Microbial secondary metabolites in school buildings inspected for moisture damage in Finland, The Netherlands and Spain**

Mirko Peitzsch,\* Michael Sulyok, Martin Täubel, Vinay Vishwanath, Esmeralda Krop, Alicia Borràs-Santos, Anne Hyvärinen, Aino Nevalainen, Rudolf Krska and Lennart Larsson

This study provides systematic information on the occurrence and levels of a large variety of microbial secondary metabolites in European schools with and without moisture damage.

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2054

**Different collector types for sampling deposition of polycyclic aromatic hydrocarbons – comparison of measurement results and their uncertainty**

D. Gladtko,\* F. Bakker, H. Biaudet, A. Brennfleck, P. Coleman, H. Creutzmacher, B. F. Van Egmond, T. Hafkenschied, F. Hahne, M. M. Houtzager, E. Leoz-Garziandia, E. Menichini, A. Olschewski and T. Remesch

Different methods to measure the deposition of polycyclic aromatic hydrocarbons (PAH) were tested and compared.

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2063

**Ecotoxicity of fluvial sediments downstream of the Ajka red mud spill, Hungary**

Orsolya Klebercz,\* William M. Mayes, Áron Dániel Anton, Viktória Feigl, Adam P. Jarvis and Katalin Gruiz

Ecotoxicology assessment of fluvial sediment further to the largest recorded spill of bauxite processing residue.

2072

**Correlations in polycyclic aromatic hydrocarbon (PAH) concentrations in UK ambient air and implications for source apportionment**

Andrew S. Brown\* and Richard J. C. Brown

Assessment of correlations in UK polycyclic aromatic hydrocarbon concentration data by use of a novel 'combined diagnostic ratio – principal component analysis' approach elucidates information about the main sources of PAHs at sites on the UK PAH Monitoring and Analysis Air Quality Network.

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2083

**Inter-annual and spatial variability in hillslope runoff and mercury flux during spring snowmelt**

Kristine M. Haynes\* and Carl P. J. Mitchell

Mercury in forest runoff is flow-driven, with less snowmelt proportionally leading to less mercury in runoff, but soil frost development can affect the timing of this release.

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2092

**Characterisation of occupational exposure to air contaminants in a nitrate fertiliser production plant**

Kristin H. Hovland,\* Yngvar Thomassen, Nils Petter Skaugset, Knut Skyberg, Marit Skogstad and Berit Bakke

The aim of this study was to characterise personal exposures to dust, acid vapours, and gases among workers in a Norwegian nitrate fertiliser production plant, as part of an ongoing epidemiological study.

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2100

**Persistent organic pollutants in sediment from the southern Baltic: risk assessment**

Joanna Szlinder-Richert,\* Zygmunt Usydus and Aleksander Drgas

Concentrations of POPs in sediment from the southern Baltic were evaluated in terms of ecotoxicological criteria.

2108

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**Fragmentation of extracellular DNA by long-term exposure to radiation from uranium in aquatic environments**

J. D. T. Arruda-Neto,\* L. Nieto, H. Righi, M. A. Cotta, H. Carrer, T. E. Rodrigues and G. C. Genofre

Persistent harmful scenarios associated with disposal of radioactive waste, high-background radiation areas and severe nuclear accidents are of great concern regarding consequences to both human health and the environment.

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2114

**Reducing dust exposure in indoor climbing gyms**

Stephan Weinbruch,\* Thomas Dirsch, Konrad Kandler, Martin Ebert, Gerhard Heimburger and Franz Hohenwarter

The potential of low-budget strategies to reduce dust exposure in indoor climbing gyms is investigated.

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2121

**Changes in thyroid peroxidase activity in response to various chemicals**

Mee Song, Youn-Jung Kim, Yong-Keun Park and Jae-Chun Ryu\*

Thyroperoxidase (TPO) is a large heme-containing glycoprotein that catalyzes the transfer of iodine to thyroglobulin during thyroid hormone (TH) synthesis.

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2127

**Hydrogeological definition and applicability of abandoned coal mines as water reservoirs**

A. Ordóñez,\* S. Jardón, R. Álvarez, C. Andrés and F. Pendás

*Flooded mines:* underground reservoirs capable of storing and regulating mine water as a resource for water supply and energy use.

2137

**Prospective ecological risk assessment of sediment resuspension in an estuary**

Diego Rial\* and Ricardo Beiras

This study assesses potential ecological risk of resuspended sediment in the water column during the construction of a viaduct in the estuary of the Ulla river (Galicia, NW Iberian Peninsula), a shellfish production area.

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2145

**Evaluation of a portable nephelometer against the Tapered Element Oscillating Microbalance method for monitoring PM<sub>2.5</sub>**

Federico Karagulian, Claudio A. Belis, Friedrich Lagler, Maurizio Barbieri and Michel Gerboles\*

Portable nephelometers can be used to monitor real-time particulate matter (PM) concentration. Good estimation of real exposure of the population to PM<sub>2.5</sub> can be provided in several micro-environments.

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2154

**Bioaccumulation and related effects of PCBs and organochlorinated pesticides in freshwater fish *Hypostomus commersoni***

D. Bussolaro,\* F. Filipak Neto, A. Glinski, H. Roche, I. C. Guiloski, M. Mela, H. C. Silva de Assis and C. A. Oliveira Ribeiro

We evaluated bioavailability, risk and effects of POPs in the fish *H. commersoni*. We found expressive concentrations of POPs in the liver and muscle. Bioaccumulation of banned pesticides was linked with histopathological findings. Results will increase knowledge of potential risks to aquatic organisms and humans.

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2164

**Assessment of cyclodextrin-enhanced extraction of crude oil from contaminated porous media**

Heng Gao,\* Martin S. Miles, Buffy M. Meyer, Roberto L. Wong and Edward B. Overton

The purpose of this study was to evaluate the effects of cyclodextrin (CD) on the extraction of Macondo well oil from contaminated porous media over a range of hydroxypropyl- $\beta$ -CD (HP $\beta$ CD) concentrations.

2170

**Study on transfers of uranium, thorium and decay products from grain, water and soil to chicken meat and egg contents**

M. Jeambrun, \* L. Pourcelot, C. Mercat, B. Boulet, J. Loyer, X. Cagnat and F. Gauthier-Lafaye

A better understanding of the main sources of each radionuclide and the calculation of concentration ratios and transfer coefficients for chicken meat and egg contents.

2181

**Mercury uptake and allocation in *Juncus maritimus*: implications for phytoremediation and restoration of a mercury contaminated salt marsh**

Etelvina Figueira, \* Rosa Freitas, Eduarda Pereira and Armando Duarte

Wetland management concerned with the retention of metals in marsh sediments should consider the benefits of *J. maritimus* in the sequestration, stabilization and avoidance of mercury spread to surrounding areas.

2189

**Evaluation of river pollution of neonicotinoids in Osaka City (Japan) by LC/MS with dopant-assisted photoionisation**

Atsushi Yamamoto, \* Tomoko Terao, Hiroataka Hisatomi, Hideya Kawasaki and Ryuichi Arakawa

We clarified the ionisation of neonicotinoid pesticides in mass spectrometry and temporal trends in the aquatic environment.

2195

**Oxidative stress in *Cyprinus carpio* to analyze microcystin impact in eutrophic shallow lakes: a preliminary study**

Katerina A. Moutou, Stamatis Tsikogias, Theodoti Papadimitriou and Ifigenia Kagalou \*

In the present study the microcystins concentrations along with the evaluation of the biochemical markers of oxidative stress in the tissues of the species *Cyprinus carpio* inhabiting a cyanobacteria rich lake are discussed.

2204

**Occurrence and removal of endocrine-disrupting chemicals in wastewater treatment plants in the Three Gorges Reservoir area, Chongqing, China**

Xin Ye, Xuesong Guo, Xing Cui, Xian Zhang, Han Zhang, M. K. Wang, Ling Qiu and Shaohua Chen\*

The study investigated the occurrence of six EDCs in the combined landfill leachate-sewage wastewater treatment plants in the Three Gorges Reservoir area, Chongqing, China.

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2212

**Effects of dietary cadmium exposure on osmoregulation and urine concentration mechanisms of the semi-desert rodent *Meriones shawi***

Sihe Mbarek,\* Tounes Saidi, Javier M. González-Costas, Elisa González-Romero and Rafika Ben Chaouacha Chekir

This study was conducted to investigate the effects of a cadmium contaminated diet on the osmoregulation and urine concentration mechanisms of a semi-desert rodent.

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2219

**Atmospheric polycyclic aromatic hydrocarbons in an industrialized city, Kocaeli, Turkey: study of seasonal variations, influence of meteorological parameters and health risk estimation**

Eftade O. Gaga,\* Akif Ari, Tuncay Döğeroğlu, E. Emel Çakırca and Nesrin E. Machin

Levels, temporal characteristics, influence of meteorological parameters and health risks of PAHs were investigated in an industrial city in Turkey.

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2230

**Labile pools of Pb in vegetable-growing soils investigated by an isotope dilution method and its influence on soil pH**

Hong Xie, Zhi-Yong Huang,\* Ying-Lan Cao, Chao Cai, Xiang-Cheng Zeng and Jian Li

A strong negative correlation between  $E_{24\text{ h}}$  values and soil pH has been found.

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2238

**A simple linear model for estimating ozone AOT40 at forest sites from raw passive sampling data**

Marco Ferretti,\* Fabiana Cristofolini, Antonella Cristofori, Giacomo Gerosa and Elena Gottardini

A new method with reduced data requirements, assumptions and computational effort was developed to estimate AOT40 values from raw passive sampling data.

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2245

**Simulation of pyrite oxidation in fresh mine tailings under near-neutral conditions**

Lena Alakangas,\* Angela Lundberg and Peter Nason

A high oxidation rate was observed in sulphide rich tailings in a near neutral environment, in good agreement with simulation.

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2254

**Structural and molecular analysis of pollution-linked deformities in a natural *Aphanius fasciatus* (Valenciennes, 1821) population from the Tunisian coast**

Kaouthar Kessabi, Ali Annabi, Anna Navarro, Marta Casado, Zohra Hwas, Khaled Saïd, Imed Messaoudi and Benjamin Piña\*

Deformed *A. fasciatus* specimens showed collagen fiber infiltration and a high expression of the COL1A2 gene in the bone tissue.

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2261

**Variations in wood burning organic marker concentrations in the atmospheres of four European cities**

Alexandre Caseiro\* and César Oliveira

The particulate emissions from biomass burning are a growing concern due to the recent evidence of their ubiquitous and important contribution to the ambient aerosol load.



2270

**A new analytical method for the classification of  
time–location data obtained from the global positioning  
system (GPS)**

Taehyun Kim, Kiyoung Lee,\* Wonho Yang  
and Seung Do Yu

Although the global positioning system (GPS) has been suggested as an alternative way to determine time–location patterns, its use has been limited.