

Environmental digest

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EDITORIAL

JEM Editorial: Focus on scope

Frank Wania sets out his thoughts on the scope & development of JEM as he takes the helm as JEM's Editorial Board Chair.

Meet the JEM Editorial Board

An introduction to our current Editorial Board members.

COMMUNICATIONS

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Improving data quality on low level mercury wastewater analysis

Patricia S. Gillenwater, Meltem Urgan-Demirtas,
M. Cristina Negri* and Jorge Alvarado

While studying Hg removal from wastewater to meet the Great Lakes 1.3 ng L⁻¹ discharge criterion, significant differences were seen in split samples with two certified labs despite analytical method improvements.

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TNT removal from culture media by three commonly available wild plants growing in the Caribbean

Sandra N. Correa-Torres, Leonardo C. Pacheco-Londoño,
Eduardo A. Espinosa-Fuentes, Lolita Rodríguez,
Fernando A. Souto-Bachiller
and Samuel P. Hernández-Rivera*

Caribbean wild plants: *Rubia tinctorum*, *Lippia dulcis* and *Spermacoce remota*, were used *in vitro* to remove TNT from culture media.

PAPERS

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Linking groundwaters of high CO₂ to aluminium levels in rivers: the case for the upper Severn in mid-Wales

Colin Neal, Philip Rowland* and Margaret Neal

There may be a solubility control of aluminium within the groundwater and a more complex situation in the river.

Effects of residual antibiotics in groundwater on *Salmonella typhimurium*: changes in antibiotic resistance, *in vivo* and *in vitro* pathogenicity

Berat Z. Haznedaroglu, Marylynn V. Yates,
Morris F. Maduro and Sharon L. Walker*

The changes in *in vitro* and *in vivo* pathogenicity and antibiotics susceptibility of *Salmonella typhimurium* was tested following exposure to artificial groundwater with residual antibiotics.

Evaluating portable infrared spectrometers for measuring the silica content of coal dust

Arthur L. Miller,* Pamela L. Drake, Nathaniel C. Murphy,
James D. Noll and Jon C. Volkwein

Two field-portable IR spectrometers were evaluated for their ability to quantify the mass of silica on filter samples loaded with known amounts of either silica or silica-bearing coal dust.

Temporal trend of mercury in polar bears (*Ursus maritimus*) from Svalbard using teeth as a biomonitoring tissue

Aurore Aubail,* Rune Dietz,* Frank Rigét, Christian Sonne,
Øystein Wiig and Florence Caurant

We examined the use of mercury (Hg) and nitrogen and carbon stable isotopes in teeth of polar bear (*Ursus maritimus*) from Svalbard as biotracers of temporal changes in Hg pollution exposure between 1964 and 2003.

Ultracentrifugation as a direct method to concentrate viruses in environmental waters: virus-like particle enumeration as a new approach to determine the efficiency of recovery

Catarina Prata, Andreia Ribeiro, Ângela Cunha,
Newton. C. M. Gomes and Adelaide Almeida*

Ultracentrifugation is an adequate approach to concentrate virus directly from environmental waters and enumeration of viral-like particles, by epifluorescence microscopy, a simple and cheap method to determine the recovery efficiency of the concentration method.

Assessment of sorbent impregnated PUF disks (SIPs) for long-term sampling of legacy POPs

Jasmin K. Schuster, Rosalinda Gioia, Tom Harner, Sum Chi Lee, Knut Breivik and Kevin C. Jones

SIP disks are validated as passive air sampling medium for long-term deployment for legacy POPs (linear uptake phase >1 year for polychlorinated biphenyls, ~6 months for hexachlorobenzene).

Statistical evaluation of photon count rate data for nanoscale particle measurement in wastewaters

Josh Smeraldi, Rajagopalan Ganesh,* Jana Safarik and Diego Rosso

This study investigates how photon count rate data can be helpful in evaluating nanoscale particle content in wastewaters.

Community duplicate diet methodology: A new tool for estimating dietary exposures to pesticides

Lisa Jo Melnyk,* Michelle McCombs, G. Gordon Brown, James Raymer, Marcia Nishioka, Stephanie Buehler, Natalie Freeman and Larry C. Michael

The Community Duplicate Diet Methodology has potential for being a useful tool in measuring dietary exposure of a population.

Measurement of the proximity effect for indoor air pollutant sources in two homes

Viviana Acevedo-Bolton,* Kai-Chung Cheng, Ruo-Ting Jiang, Wayne R. Ott, Neil E. Klepeis and Lynn M. Hildemann

We measured concentrations at distances of 0.25 m to 5 m from an active CO source to quantify the proximity effect for more accurate prediction of human exposure.

Composition and source apportionment of PAHs in sediments at river mouths and channel in Kaohsiung Harbor, Taiwan

Chiu-Wen Chen,* Chih-Feng Chen, Cheng-Di Dong and Yao-Ting Tu

This study examines the composition and sources of PAHs in the sediment of Kaohsiung Harbor, and carries out quantitative source apportionment of PAHs using the source apportionment method, and principal component analyses with multivariate linear regression.

Characteristics of surface ozone at an urban site of Xi'an in Northwest China

Xin Wang, Zhenxing Shen,* Junji Cao, Leiming Zhang, Li Liu, Jianjun Li, Suixin Liu and Yufan Sun

The purpose of the present study is to assess the current O₃ levels in Xi'an and to investigate factors controlling the O₃ levels.

Edaphic factors affecting the vertical distribution of radionuclides in the different soil types of Belgrade, Serbia

Snežana Dragović,* Boško Gajić, Ranko Dragović, Ljiljana Janković-Mandić, Latinka Slavković-Beškoski, Nevena Mihailović, Milan Momčilović and Mirjana Čujić

The study provides insight into the main factors that affect the vertical distribution of radionuclides (⁴⁰K, ²²⁶Ra, ²³²Th and ¹³⁷Cs) in soil profiles representing typical soil types of Belgrade (Serbia).

Colloidal mercury (Hg) distribution in soil samples by sedimentation field-flow fractionation coupled to mercury cold vapour generation atomic absorption spectroscopy

A. Santoro, R. Terzano,* L. Medici, M. Beciani, A. Pagnoni and G. Blo

Hg concentration in the colloidal fraction of soils from a chlor-alkali plant polluted site has been correlated with particle size.

Perfluoroalkyl compounds (PFCs) in wildlife from an urban estuary

Margaret D. Sedlak* and Denise J. Greig

PFOS is identified in San Francisco Bay harbor seal serum and bird eggs at concentrations that in some instances exceed biological effects thresholds.

Manganese in the upper Severn mid-Wales

A. P. Rowland,* C. Neal, B. Reynolds, M. Neal, A. J. Lawlor and D. Sleep

Felling in 1989 led to an increase in stream Mn from around 100 $\mu\text{g L}^{-1}$ to around 150 $\mu\text{g L}^{-1}$ followed by decline over the next few years.

Comparison of averaging techniques for the calculation of the 'European average exposure indicator' for particulate matter

Richard J. C. Brown* and Peter T. Woods

The effect of using different methods to calculate the 'European average exposure indicator' for the mass concentration of $\text{PM}_{2.5}$ in ambient air has been examined.

Study of air-soil exchange of polycyclic aromatic hydrocarbons (PAHs) in the north-central part of India – a semi arid region

Amit Masih,* Jamson Masih and Ajay Taneja

The present study has been ascertained in order to know the exchange of polycyclic aromatic hydrocarbons (PAHs) from soil to air and *vice-versa* by determining their fugacity quotients in the north-central part of India.

Toxicity of propargylic alcohols on green alga—*Pseudokirchneriella subcapitata*

Chung Yuan Chen,* Kwan-Liang Kuo and Je-Wei Fan

The present study evaluates the toxicity of 34 propargylic alcohols, including primary, primary homo-, secondary, and tertiary alcohols, based on their effects on phytoplankton.

Evaluation of a temporal trend heavy metals contamination in *Posidonia oceanica* (L.) Delile, (1813) along the western coastline of Sicily (Italy)

Chiara Copat,* Riccardo Maggiore, Giovanni Arena, Stanislao Lanzafame, Roberto Fallico, Salvatore Sciacca and Margherita Ferrante

This study shows a ten year picture of heavy metals contamination in an area next to a petrochemical complex.

Outdoor ^{220}Rn , ^{222}Rn and terrestrial gamma radiation levels: investigation study in the thorium rich Fen Complex, Norway

Jelena Mrdakovic Popic,* Chhavi Raj Bhatt, Brit Salbu and Lindis Skipperud

The outdoor exposure to terrestrial gamma radiation, radon (^{222}Rn) and thoron (^{220}Rn), could significantly contribute to the enhancement of the total radiation dose in areas rich in naturally occurring radioactive materials (NORM).

The mini mobile environmental monitoring unit: a novel bio-assessment tool

Alan S. Kolok,* Jeffrey T. Miller and Heiko L. Schoenfuss

New bio-assessment tool allows for real-time exposure of aquatic animals to receiving waters in a safe and controlled environment.

Atmospheric deposition and storm induced runoff of heavy metals from different impermeable urban surfaces

Daniel Wicke,* Thomas A. Cochrane
and Aisling D. O'Sullivan

Application of a new method that allows spatial quantification of contaminants deposited on different impermeable urban surfaces under controlled conditions indicates atmospheric transport of heavy metals in urban areas.

How to improve reliability in groundwater analysis: over a decade of experience with external quality control in field campaigns on volatile halogenated compounds

Ute Dorgerloh,* Roland Becker, Axel Lutz,
Wolfram Bremser, Sabine Hilbert and Irene Nehls

Reference measurements and standards, intercomparisons and auditing by an independent consultant close the gap between authorities and contracted laboratories during groundwater monitoring campaigns.

Abundance and sources of hydrophilic and hydrophobic water-soluble organic carbon at an urban site in Korea in summer

Seung Shik Park,* Ja-Hyun Kim and Jae-Uk Jeong

A significant fraction of the observed water-soluble organic carbon (WSOC) at the site could be formed by an oxidation process similar to SO_4^{2-} aerosols, probably the oxidation process using OH radicals, or in-cloud processing.

Air quality assessment of benzo(a)pyrene from asphalt plant operation

Nigel Gibson, Robert Stewart and Erika Rankin

This study measures Benzo(a)pyrene/PAH from asphalt plants and compares site-based emission factors with US Environmental Protection Agency emission factors, and carries out impact assessments to determine asphalt plant contributions to ambient BaP concentrations.

Effects of temperature and soil moisture on methyl halide and chloroform fluxes from drained peatland pasture soils

M. A. H. Khan,* M. E. Whelan and R. C. Rhew

CH₃Cl and CH₃Br net fluxes in peatland soils from a drained pasture in the Sacramento-San Joaquin Delta of California represent the imbalance of opposing gross (production and consumption) fluxes of similar magnitude.

POCIS sampling in combination with ELISA: Screening of sulfonamide residues in surface and waste waters

Ivo Černoch, Milan Fránek, Iva Diblíková,
Klára Hilscherová, Tomáš Randák, Tomáš Ocelka
and Luděk Bláha*

Passive sampling using POCIS in combination with an immunochemical ELISA technique is used to study the distribution of sulfonamides in streams in the Czech Republic.

Impact of irreversible sorption of phthalate acid esters on their sediment quality criteria

Xinghui Xia,* Ju Zhang, Yujuan Sha and Jianbing Li

This study has indicated that the current SQC based on the EqP method may be unnecessarily strict for specific organic compounds and the irreversible sorption should be considered.

Assessing PM₁₀ source reduction in urban agglomerations for air quality compliance

Victoria Aleksandropoulou,* Konstantinos Eleftheriadis,
Evangelia Diapouli, Kjetil Torseth and Mihalis Lazaridis

The statistical characteristics of PM concentrations in urban areas and the emission reductions required for compliance with Air Quality Standards.

**Artificial soils from alluvial tin mining wastes in Malaysia –
A study of soil chemistry following experimental treatments
and the impact of mycorrhizal treatment on growth and
foliar chemistry**

David S. Tompkins, Baki B. Bakar and Steve J. Hill*

This study reports on the formation of artificial soils from alluvial Sn mining waste with a focus on the effects of experimental treatments on soil chemistry.

**The development of alum rates to enhance the remediation
of phosphorus in fluvial systems following manure spills**

Shalamar D. Armstrong,* Douglas R. Smith,
Phillip R. Owens, Brad C. Joern and Chi-hau Huang

This study demonstrates the effectiveness of multiple rates of alum to mitigate phosphorus desorption from fluvial sediments following a manure spill that has reached surface waters.