

Special Issue: Effective management of sewage sludge
Guest Editor: Giuseppe Mininni

EDITORIAL

Effective management of sewage sludge
G. Mininni 7187

EFFECTIVE MANAGEMENT OF SEWAGE SLUDGE

Methodology for technical and economic assessment of advanced routes for sludge processing and disposal
G. Bertanza · M. Canato · G. Laera · M.C. Tomei 7190

Mass and energy balances of sludge processing in reference and upgraded wastewater treatment plants
G. Mininni · G. Laera · G. Bertanza · M. Canato · A. Sbrilli 7203

Quality assessment of digested sludges produced by advanced stabilization processes
C.M. Braguglia · A. Coors · A. Gallipoli · A. Gianico · E. Guillon · U. Kunkel · G. Mascolo · E. Richter · T.A. Ternes · M.C. Tomei · G. Mininni 7216

Erratum to: Quality assessment of digested sludges produced by advanced stabilization processes
C.M. Braguglia · A. Coors · A. Gallipoli · A. Gianico · E. Guillon · U. Kunkel · G. Mascolo · E. Richter · T.A. Ternes · M.C. Tomei · G. Mininni 7236

Hygienization performances of innovative sludge treatment solutions to assure safe land spreading
C. Levantesi · C. Beimfohr · A.R. Blanch · A. Carducci · A. Gianico · F. Lucena · M.C. Tomei · G. Mininni 7237

Innovative two-stage mesophilic/thermophilic anaerobic degradation of sonicated sludge: performances and energy balance
A. Gianico · C.M. Braguglia · A. Gallipoli · G. Mininni 7248

Erratum to: Innovative two-stage mesophilic/thermophilic anaerobic degradation of sonicated sludge: performances and energy balance
A. Gianico · C.M. Braguglia · A. Gallipoli · G. Mininni 7257

Hybrid alkali-hydrodynamic disintegration of waste-activated sludge before two-stage anaerobic digestion process
K. Grübel · J. Suschka 7258

Sequential anaerobic/anaerobic digestion for enhanced sludge stabilization: comparison of the process performance for mixed and waste sludge
M.C. Tomei · N.A. Carozza 7271

Erratum to: Sequential anaerobic/aerobic digestion for enhanced sludge stabilization: comparison of the process performance for mixed and waste sludge
M.C. Tomei · N.A. Carozza 7280

Sludge minimization in municipal wastewater treatment by polyhydroxyalkanoate (PHA) production
F. Valentino · F. Morgan-Sagastume · S. Fraraccio · G. Corsi · G. Zanolli · A. Werker · M. Majone 7281

(NH₄)₂SO₄ recovery from liquid side streams
M.A. Boehler · A. Heisele · A. Seyfried · M. Grömping · H. Siegrist 7295

Wet oxidation of sewage sludge: full-scale experience and process modeling
G. Bertanza · R. Galessi · L. Menoni · R. Salvetti · E. Slavik · S. Zanaboni 7306

Anaerobic treatability of liquid residue from wet oxidation of sewage sludge

G. Bertanza · R. Galessi · L. Menoni · R. Pedrazzani · R. Salvetti · S. Zanaboni 7317

Techno-economic and environmental assessment of sewage sludge wet oxidation

G. Bertanza · M. Canato · S. Heimersson · G. Laera · R. Salvetti · E. Slavik · M. Svanström 7327

Microbial diversity in innovative mesophilic/thermophilic temperature-phased anaerobic digestion of sludge

M.C. Gagliano · C.M. Braguglia · A. Gallipoli · A. Gianico · S. Rossetti 7339

Effect of the anode feeding composition on the performance of a continuous-flow methane-producing microbial electrolysis cell
M. Zeppilli · M. Villano · F. Aulenta · S. Lampis · G. Vallini · M. Majone 7349

EU policy on sewage sludge utilization and perspectives on new approaches of sludge management

G. Mininni · A.R. Blanch · F. Lucena · S. Berselli 7361

REVIEW ARTICLES

Highly selective monitoring of metals by using ion-imprinted polymers
P.E. Hande · A.B. Samui · P.S. Kulkarni 7375

Consideration of the bioavailability of metal/metalloid species in freshwaters: experiences regarding the implementation of biotic ligand model-based approaches in risk assessment frameworks
H. Rüdél · C. Díaz Muñoz · H. Garelick · N.G. Kandile · B.W. Miller · L. Pantoja Munoz · W.J.G.M. Peijnenburg · D. Purchase · Y. Shevah · P. van Sprang · M. Vijver · J.P.M. Vink 7405

For continuation of table of contents, see inside of back cover

Abstracted/Indexed in:

Science Citation Index, Science Citation Index Expanded (SciSearch), Journal Citation Reports/Science Edition, PubMed/Medline, SCOPUS, EMBASE, Chemical Abstracts Service (CAS), Google Scholar, EBSCO, CSA, ProQuest, CAB International, Academic OneFile, AGRICOLA, ASFA, Biological Abstracts, BIOSIS, CAB Abstracts, CEABA-VtB, CSA Environmental Sciences, Current Contents/ Agriculture, Biology & Environmental Sciences, Elsevier Biobase, EMBiology, Environment Index, Gale, Geobase, Global Health, INIS Atomindex, International Bibliography of Book Reviews (IBR), International Bibliography of Periodical Literature (IBZ), OCLC, Referativnyi Zhurnal (VINITI), SCImago, Summon by ProQuest, Vitis - Viticulture and Enology Abstracts

Instructions for Authors for *Environ Sci Pollut Res* are available at www.springer.com/11356

Continuation of table of contents

Application of hydrodynamic cavitation in ballast water treatment
M. Cvetković · B. Kompare · A.K. Klemenčič 7422

A review of iron species for visible-light photocatalytic water purification
R.S. Jack · G.A. Ayoko · M.O. Adebajo · R.L. Frost 7439

RESEARCH ARTICLES

Intercomparison of real-time tailpipe ammonia measurements from vehicles tested over the new world-harmonized light-duty vehicle test cycle (WLTC)
R. Suarez-Bertoa · A.A. Zardini · V. Lilova · D. Meyer · S. Nakatani · F. Hibel · J. Ewers · M. Clairotte · L. Hill · C. Astorga 7450

Cd accumulation and subcellular distribution in two ecotypes of *Kyllinga brevifolia* Rottb as affected by Cd treatments
X. Hao · T. Li · H. Yu · X. Zhang · Z. Zheng · G. Chen · S. Zhang · L. Zhao · Y. Pu 7461

Utilization of heavy metal-rich tannery sludge for sweet basil (*Ocimum basilicum* L.) cultivation
S. Chand · S. Singh · V.K. Singh · D.D. Patra 7470

Effect of plant harvesting on the performance of constructed wetlands during winter: radial oxygen loss and microbial characteristics
Q. Wang · H. Xie · J. Zhang · S. Liang · H.H. Ngo · W. Guo · C. Liu · C. Zhao · H. Li 7476

Nanoparticles in wastewater treatment plants: a novel acute toxicity test for ciliates and its implementation in risk assessment
C. Burkart · W. von Tümpling · T. Berendonk · D. Jungmann 7485

Responses of tall fescue (*Festuca arundinacea*) to growth in naphthalene-contaminated sand: xenobiotic stress versus water stress
A. Balasubramaniam · M.M. Chapman · P.J. Harvey 7495

Effect of solution properties, competing ligands, and complexing metal on sorption of tetracyclines on Al-based drinking water treatment residuals
P. Punamiya · D. Sarkar · S. Rakshit · R. Datta 7508

Lipid increases in European eel (*Anguilla anguilla*) in Scotland 1986–2008: an assessment of physical parameters and the influence of organic pollutants
I.W. Oliver · K. Macgregor · J.D. Godfrey · L. Harris · A. Duguid 7519

Identification and quantification of biomarkers and polycyclic aromatic hydrocarbons (PAHs) in an aged mixed contaminated site: from source to soil
N.-H. Kao · M.-C. Su · J.-R. Fan · Y.-Y. Chung 7529

Remedial effects of *Potamogeton crispus* L. on PAH-contaminated sediments
F. Meng · J. Huang · H. Liu · J. Chi 7547

Distribution and sources of lipid compound series in sediment cores of the southern South China Sea
N.M. Tahir · S.Y. Pang · B.R.T. Simoneit 7557

Estimation of contribution ratios of pollutant sources to a specific section based on an enhanced water quality model
B. Cao · C. Li · Y. Liu · Y. Zhao · J. Sha · Y. Wang 7569

Metal-based particles in human amniotic fluids of fetuses with normal karyotype and congenital malformation—a pilot study
H. Barošová · J. Dvořáčková · O. Motyka · K.M. Kutlákova · P. Peikertová · J. Rak · H. Bielniková · J. Kukutschová 7582

Aberration of mitosis by hexavalent chromium in some Fabaceae members is mediated by species-specific microtubule disruption
E.P. Eleftheriou · V.A. Michalopoulou · I.-D.S. Adamakis 7590

Palladium uptake by *Pisum sativum*: partitioning and effects on growth and reproduction
M. Ronchini · L. Cherchi · S. Cantamessa · M. Lanfranchi · A. Vianelli · P. Gerola · G. Berta · A. Fumagalli 7600

A study on the risk perception of light pollution and the process of social amplification of risk in Korea
K.H. Kim · J.W. Choi · E. Lee · Y.M. Cho · H.R. Ahn 7612

On the use of *Arion ater* to biomonitor environmental pollution by Cd, Cu, Fe, Mn and Zn, with a special insight into the population variability
D. Crespo · M. Bolón · J.R. Aboal · J.A. Fernández · A. Carballeira 7622

Environmental surveillance and molecular epidemiology of waterborne pathogen *Legionella pneumophila* in health-care facilities of Northeastern Greece: a 4-year survey
I.G. Alexandropoulou · S. Ntougias · T.G. Konstantinidis · T.A. Parasidis · M. Panopoulou · T.C. Constantinidis 7628

Using synthetic models to simulate aging of Cu contamination in soils
S. Proffit · B. Marin · B. Cances · M. Ponthieu · S. Sayen · E. Guillot 7641

Behavior of ambient concentrations of natural radionuclides ^{7}Be , ^{210}Pb , ^{40}K in the Mediterranean coastal city of Málaga (Spain)
E. Gordo · C. Dueñas · M.C. Fernández · E. Liger · S. Cañete 7653

Occurrence and potential risk of currently used pesticides in sediments of the Alqueva reservoir (Guadiana Basín)
P. Palma · M. Köck-Schulmeyer · P. Alvarenga · L. Ledo · M. López de Alda · D. Barceló 7665

Watershed-scale assessment of oil palm cultivation impact on water quality and nutrient fluxes: a case study in Sumatra (Indonesia)
I. Comte · F. Colin · O. Grünberger · J.K. Whalen · R. Harto Widodo · J.-P. Caliman 7676

Effects of pH and natural organic matter (NOM) on the adsorptive removal of CuO nanoparticles by periphyton
L. Miao · C. Wang · J. Hou · P. Wang · Y. Ao · S. Dai · B. Lv 7696

Comparison of essential and toxic elements in esophagus, lung, mouth and urinary bladder male cancer patients with related to controls
T.G. Kazi · S.K. Wadhwa · H.I. Afridi · F.N. Talpur · M. Tuzen · J.A. Baig 7705

Amine-functionalized mesoporous polymer as potential sorbent for nickel preconcentration from electroplating wastewater
A. Islam · N. Zaidi · H. Ahmad · S. Kumar 7716

Distribution and chemical forms of copper in the root cells of castor seedlings and their tolerance to copper phytotoxicity in hydroponic culture
W. Kang · J. Bao · J. Zheng · H. Hu · J. Du 7726

Continuation of table of contents

A predictive method for crude oil volatile organic compounds emission from soil: evaporation and diffusion behavior investigation of binary gas mixtures

H. Wang · T. Fischer · W. Wieprecht · D. Möller 7735

Developmental toxic effects of monocrotophos, an organophosphorous pesticide, on zebrafish (*Danio rerio*) embryos

R. Pamanji · M.S. Bethu · B. Yashwanth · S. Leelavathi · J. Venkateswara Rao 7744

Optimizing landfill site selection by using land classification maps

M. Eskandari · M. Homaei · S. Mahmoodi · E. Pazira · M.T. Van Genuchten 7754

Azoxystrobin-induced excessive reactive oxygen species (ROS) production and inhibition of photosynthesis in the unicellular green algae *Chlorella vulgaris*

L. Liu · B. Zhu · G.-X. Wang 7766

Oxidative stress and brain mitochondria swelling induced by endosulfan and protective role of quercetin in rat

Z. Lakroun · M. Kebieche · A. Lahouel · D. Zama · F. Desor · R. Soulimanin 7776

Immobilization of high concentrations of soluble Mn(II) from electrolytic manganese solid waste using inorganic chemicals

B. Du · D. Hou · N. Duan · C. Zhou · J. Wang · Z. Dan 7782

Risk assessment of heavy metals in air, water, vegetables, grains, and related soils irrigated with biogas slurry in Taihu Basin, China

B. Bian · L.J. Zhou · L. Li · L. Lv · Y.M. Fan 7794

Element concentrations in urban grass cuttings from roadside verges in the face of energy recovery

M. Piepenschneider · S. De Moor · F. Hensgen · E. Meers · M. Wachendorf 7808

Characterization of ²⁴¹Pu occurrence, distribution, and bioaccumulation in seabirds from northern Eurasia

D.I. Strumińska-Parulska · B. Skwarzec 7821

An ecotoxicological evaluation of soil fertilized with biogas residues or mining waste

K. Różyło · P. Oleszczuk · I. Joško · P. Kraska · E. Kwiecińska-Poppe · S. Andruszczak 7833

Antibiotic resistance pattern and gene expression of non-typhoid *Salmonella* in riversheds

C.-Y. Hsu · B.-M. Hsu · W.-T. Ji · J.-S. Chen · T.-K. Hsu · D.-D. Ji · S.-F. Tseng · Y.-C. Chiu · P.-M. Kao · Y.-L. Huang 7843

Carbon decomposition by inoculating *Phanerochaete chrysosporium* during drum composting of agricultural waste

V.S. Varma · K. Ramu · A.S. Kalamdhad 7851

Identifying sources of Pb pollution in urban soils by means of MC-ICP-MS and TOF-SIMS

A. Rodríguez-Seijo · D. Arenas-Lago · M.L. Andrade · F.A. Vega 7859

Air pollution and unintentional injury deaths in South Korea

K.H. Ha · J. Cho · S.-K. Cho · C. Kim · D.C. Shin 7873

Use of EDTA in modified kinetic testing for contaminated drainage prediction from waste rocks: case of the Lac Tio mine

B. Plante · M. Benzaazoua · B. Bussière · E.-H.-B. Kandji · A. Chopard · H. Bouzahzah 7882

Accumulation of nickel ions in seedlings of *Vicia sativa* L. and manifestations of oxidative stress

V.V. Ivanishchev · E.A. Abramova 7897

Naturally evolved enhanced Cd tolerance of *Dianthus carthusianorum* L. is not related to accumulation of thiol peptides and organic acids

M. Wójcik · S. Dresler · A. Plak · A. Tukiendorf 7906

Changes in mesophyll element distribution and phytometabolite contents involved in fluoride tolerance of the arid gypsum-tolerant plant species *Atractylis serratuloides* Sieber ex Cass. (Asteraceae)

A. Boukhris · I. Laffont-Schwob · J. Rabier · M.-D. Salducci · L. El Kadri · A. Tonetto · T. Taroni · M. Chaieb 7918

Analysis of serum levels of 15 trace elements in breast cancer patients in Shandong, China

X. Ding · M. Jiang · H. Jing · W. Sheng · X. Wang · J. Han · L. Wang 7930

A 3-year study on occurrence of emerging contaminants in an urban stream of São Paulo State of Southeast Brazil

M.B. Campanha · A.T. Awan · D.N.R. De Sousa · G.M. Grosseli · A.A. Mozeto · P.S. Fadini 7936

Dynamics of heavy metals and phosphorus in the pore water of estuarine sediments following agricultural intensification in Chao Lake Valley

W. Tang · H. Zhang · W. Zhang · B. Shan · X. Zhu · Z. Song 7948

Simulation of runoff and nutrient export from a typical small watershed in China using the Hydrological Simulation Program-Fortran

Z. Li · H. Liu · C. Luo · Y. Li · H. Li · J. Pan · X. Jiang · Q. Zhou · Z. Xiong 7954

An approach to determination of optimal species pool of periphytic microfauna in colonization surveys for marine bioassessment

G. Xu · X. Zhong · Y. Wang · H. Xu 7967

SHORT RESEARCH AND DISCUSSION ARTICLES

Energy efficiency through integrated environmental management

S.A. Benromdhane 7973

Modeling of the Elk river spill 2014

D. Stolze · F. Volpin 7980