

# Environmental Science and Pollution Research

Volume 22 • Number 9 • May 2015

## EDITORIAL

### Degradation and transfer of polyacrylamide based flocculent in sludge and industrial and natural waters

J. Guzzo · A.-G. Guezennec 6387

### DEGRADATION AND TRANSFER OF POLYACRYLAMIDE BASED FLOCCULENTS IN SLUDGES AND INDUSTRIAL AND NATURAL WATERS

#### Transfer and degradation of polyacrylamide-based flocculants in hydrosystems: a review

A.-G. Guezennec · C. Michel · K. Bru · S. Touze · N. Desroche · I. Mnif · M. Motelica-Heino 6390

#### A sensitive analytical procedure for monitoring acrylamide in environmental water samples by offline SPE-UPLC/MS/MS

A. Togola · C. Coureau · A.-G. Guezennec · S. Touzé 6407

#### Direct injection method for HPLC/MS/MS analysis of acrylamide in aqueous solutions: application to adsorption experiments

I. Mnif · C. Hurel · N. Marmier 6414

#### Dissemination of acrylamide monomer from polyacrylamide-based flocculant use—sand and gravel quarry case study

S. Touzé · V. Guerin · A.-G. Guezennec · S. Binet · A. Togola 6423

#### Water and acrylamide monomer transfer rates from a settling basin to groundwaters

S. Binet · K. Bru · T. Klinka · S. Touzé · M. Motelica-Heino 6431

#### Microbial aerobic and anaerobic degradation of acrylamide in sludge and water under environmental conditions—case study in a sand and gravel quarry

A.-G. Guezennec · C. Michel · S. Ozturk · A. Togola · J. Guzzo · N. Desroche 6440

#### Occurrence and fate of acrylamide in water-recycling systems and sludge in aggregate industries

G. Junqua · S. Spinelli · C. Gonzalez 6452

## RESEARCH ARTICLES

### Urbanization in China changes the composition and main sources of wet inorganic nitrogen deposition

J. Huang · W. Zhang · X. Zhu · F.S. Gilliam · H. Chen · X. Lu · J. Mo 6526

### Temporal dynamics of the cellular events in tobacco leaves exposed in São Paulo, Brazil, indicate oxidative stress by ozone

A.N.V. Pedroso · E.S. Alves 6535

### Game theory and fuzzy programming approaches for bi-objective optimization of reservoir watershed management: a case study in Namazgah reservoir

N. Üçler · G.O. Engin · H.G. Köçken · M.S. Öncel 6546

### Phosphorus adsorption and sedimentation by suspended sediments from Zhushan Bay, Taihu Lake

P. Wang · B. Hu · C. Wang · Y. Lei 6559

### Influence of *Rhizophagus irregularis* inoculation and phosphorus application on growth and arsenic accumulation in maize (*Zea mays* L.) cultivated on an arsenic-contaminated soil

I. Cattani · G.M. Beone · C. Gonnelli 6570

### Spatial and temporal variation of total mercury and methylmercury in lacustrine wetland in Korea

M.-K. Kim · Y.-M. Lee · K.-D. Zoh 6578

### Assessing and monitoring the ecotoxicity of pulp and paper wastewater for irrigating reed fields using the polyurethane foam unit method based on monitoring protozoal communities

C. Ding · T. Chen · Z. Li · J. Yan 6590

---

## REVIEW ARTICLES

### A comprehensive review on utilization of wastewater from coffee processing

S. Rattan · A.K. Parande · V.D. Nagaraju · G.K. Ghiwari 6461

### Refractory organic pollutants and toxicity in pulp and paper mill wastewaters

P.C. Lindholm-Lehto · J.S. Knuutinen · H.S.J. Ahkola · S.H. Herve 6473

### Occurrence and behaviors of fluorescence EEM-PARAFAC components in drinking water and wastewater treatment systems and their applications: a review

L. Yang · J. Hur · W. Zhuang 6500

### Phytoremediation of salt-affected soils: a review of processes, applicability, and the impact of climate change

J.M. Jesus · A.S. Danko · A. Fiúza · M.-T. Borges 6511

**Levels and distribution of Dechloranes in sediments of Lake Taihu, China**

D. Yu · J. Yang · T. Li · J. Feng · Q. Xian · J. Zhu 6601

**Effect of chlorine and temperature on free-living protozoa in operational man-made water systems (cooling towers and hot sanitary water systems) in Catalonia**

O. Canals · A. Serrano-Suárez · H. Salvadó · J. Méndez · S. Cervero-Aragó · V. Ruiz de Porras · J. Dellundé · R. Araujo 6610

**Empirical approach to predict leached nutrients from landfill site**

P.J. Barman · S.A. Kartha · B. Pradhan 6619

**Predictive QSAR modelling of algal toxicity of ionic liquids and its interspecies correlation with *Daphnia* toxicity**

K. Roy · R.N. Das · P.L.A. Popelier 6634

**Air quality modeling in the Oviedo urban area (NW Spain) by using multivariate adaptive regression splines**

P.J.G. Nieto · J.C.Á. Antón · J.A.V. Vilán · E. García-Gonzalo 6642

**Pseudosolubilized *n*-alkanes analysis and optimization of biosurfactants production by *Pseudomonas* sp. DG17**

F. Hua · H.Q. Wang · Y.C. Zhao · Y. Yang 6660

**Comparative investigation of heavy metal, trace, and macro element contents in commercially valuable fish species harvested off from the Persian Gulf**

D.R.V. Abadi · S. Dobaradaran · I. Nabipour · X. Lamani · M. Ravanipour · R. Tahmasebi · S. Nazmara 6670

**Trace metal accumulation in soil and their phytoavailability as affected by greenhouse types in north China**

L. Yang · B. Huang · M. Mao · L. Yao · M. Hickethier · W. Hu 6679

**Modelling the biodegradation kinetics of the herbicide propanil and its metabolite 3,4-dichloroaniline**

R. Marques · A. Oehmen · G. Carvalho · M.A.M. Reis 6687

**Polycyclic aromatic hydrocarbons associated with total suspended particles and surface soils in Kunming, China: distribution, possible sources, and cancer risks**

X. Yang · D. Ren · W. Sun · X. Li · B. Huang · R. Chen · C. Lin · X. Pan 6696

**Exposure of the endangered golden monkey (*Rhinopithecus roxellana*) to heavy metals: a comparison of wild and captive animals**

Q. Liu · Y.-P. Chen · L. Maltby · Q.-Y. Ma 6713

**Accumulation and risk assessment of heavy metals in water, sediments, and aquatic organisms in rural rivers in the Taihu Lake region, China**

L. Bo · D. Wang · T. Li · Y. Li · G. Zhang · C. Wang · S. Zhang 6712

**Spatial distribution and health risk assessment of toxic metals associated with receptor population density in street dust: a case study of Xiandao District, Changsha, Middle China**

F. Li · J. Huang · G. Zeng · X. Huang · W. Liu · H. Wu · Y. Yuan · X. He · M. Lai 6732

**Genetic determinants involved in the biodegradation of naphthalene and phenanthrene in *Pseudomonas aeruginosa* PAO1**

J. Qi · B. Wang · J. Li · H. Ning · Y. Wang · W. Kong · L. Shen 6743

**Concentration addition-based approach for aquatic risk assessment of realistic pesticide mixtures in Portuguese river basins**

E. Silva · M.J. Cerejeira 6756

**Catalog of total excitation–emission and total synchronous fluorescence maps with synchronous fluorescence spectra of homologated fluorescent pesticides in large use in Morocco: development of a spectrometric low cost and direct analysis as an alert method in case of massive contamination of soils and waters by fluorescent pesticides**

S. Foudeil · H. Hassoun · T. Lamhasni · S. Ait Lyazidi · F. Benyaich · M. Haddad · M. Choukrad · A. Boughdad · M. Bounakhla · H. Bounouira · R.M.B.O. Duarte · A. Cachada · A.C. Duarte 6766

**Evaluation of ferrihydrite as amendment to restore an arsenic-polluted mine soil**

P. Abad-Valle · E. Álvarez-Ayuso · A. Murciego 6778

**Levels of major and trace elements, including rare earth elements, and <sup>238</sup>U in Croatian tap waters**

Ž. Fiket · M. Rožmarić · M. Krmpotić · L. Benedik 6789

**Ionome and expression level of Si transporter genes (*Lsi1*, *Lsi2*, and *Lsi6*) affected by Zn and Si interaction in maize**

B. Bokor · S. Bokorová · S. Ondoš · R. Švubová · Z. Lukačová · M. Hýblová · T. Szemes · A. Lux 6800

**One-year intensive characterization on PM<sub>2.5</sub> nearby port area of Thessaloniki, Greece**

E.I. Tolis · D.E. Saraga · K.F. Filiou · N.I. Tziavos · C.P. Tsiaousis · A. Dinas · J.G. Bartzis 6812

**Effluent characteristics of advanced treatment for biotreated coking wastewater by electrochemical technology using BDD anodes**

C. Wang · M. Zhang · W. Liu · M. Ye · F. Su 6827

**Effect of grain size and heavy metals on As immobilization by marble particles**

M. Simón · I. García · V. González · A. Romero · F. Martín 6835

**Evaluating the potential of immobilized bacterial consortium for black liquor biodegradation**

R. Paliwal · S. Uniyal · J.P.N. Rai 6842

**Leaching techniques for saline wastes composts used as growing media in organic agriculture: assessment and modelling**

M. Illera-Vives · M.E. López-Mosquera · M.d.C. Salas-Sanjuan · A. López-Fabal 6854

**PM<sub>10</sub> concentration in urban atmosphere around the eastern Tien Shan, Central Asia during 2007–2013**

S. Wang · M. Zhang · M.C. Minguillón · X. Zhang · F. Feng · X. Qiu 6864

**Solidification/stabilization and leaching behavior of PbCl<sub>2</sub> in fly-ash hydrated silicate matrix and fly-ash geopolymer matrix**

Y. Li · X. Gao · Q. Wang · J. He · D. Yan 6877

**Relationship between viral detection and turbidity in a watershed contaminated with group A rotavirus**

A.S.F. Assis · L.T. Cruz · A.S. Ferreira · M.E. Bessa · M.A. de Oliveira Pinto · C.B. Vieira · M.H. Otenio · M.P. Miagostovich · M.L. da Rosa e Silva 6886

**Non-avoidance behaviour in enchytraeids to boric acid is related to the GABAergic mechanism**

R.C. Bicho · S.I.L. Gomes · A.M.V.M. Soares · M.J.B. Amorim 6898

**Effects of CO<sub>2</sub> on *Acer negundo* pollen fertility, protein content, allergenic properties, and carbohydrates**

M. Silva · H. Ribeiro · I. Abreu · A. Cruz · J.C.G. Esteves da Silva 6904

**Impact of acute Cd<sup>2+</sup> exposure on the antioxidant defence systems in the skin and red blood cells of common carp (*Cyprinus carpio*)**

Á. Ferencz · E. Hermes · 6912

**Environmental risk of combined emerging pollutants in terrestrial environments: chlorophyll *a* fluorescence analysis**

V. González-Naranjo · K. Boltes · I. de Bustamante · P. Palacios-Díaz · 6920

**Occurrence of sulfonamide-, tetracycline-, plasmid-mediated quinolone- and macrolide-resistance genes in livestock feedlots in Northern China**

Q. Mu · J. Li · Y. Sun · D. Mao · Q. Wang · Y. Luo · 6932

**The influence of different hydroponic conditions on thorium uptake by *Brassica juncea* var. *foliosa***

D. Wang · S. Zhou · L. Liu · L. Du · J. Wang · Z. Huang · L. Ma · S. Ding · D. Zhang · R. Wang · Y. Jin · C. Xia · 6941

**Distribution of polycyclic aromatic hydrocarbons in surface water from the upper reach of the Yellow River, Northwestern China**

X. Zhao · H. Qiu · Y. Zhao · J. Shen · Z. Chen · J. Chen · 6950

**Temporal trend, geographic distribution, and publication quality in asbestos research**

D. Ugolini · S. Bonassi · A. Cristaudo · G. Leoncini · G.B. Ratto · M. Neri · 6957

**Chemical leasing in the context of sustainable chemistry**

F. Moser · V. Karavezryis · C. Blum · 6968

**Estimation of nutrient sources and transport using Spatially Referenced Regressions on Watershed Attributes: a case study in Songhuajiang River Basin, China**

X. Li · C. Wellen · G. Liu · Y. Wang · Z.-L. Wang · 6989

**Bivalve and barnacle larvae distribution driven by water temperature in a Mediterranean lagoon**

B. Ziadi · A. Dhib · S. Turki · L. Aleya · 7002

**Influence of advections of particulate matter from biomass combustion on specific-cause mortality in Madrid in the period 2004–2009**

C. Linares · R. Carmona · A. Tobías · I.J. Mirón · J. Díaz · 7012

**Study on the kinetic characteristics of trace harmful gases for a two-person-30-day integrated CELSS test**

S. Guo · W. Ai · J. Fei · G. Xu · G. Zeng · Y. Shen · 7020

**In situ reactive oxygen species production for tertiary wastewater treatment**

L. Guitaya · P. Drogui · J.F. Blais · 7025

**Inactivation of antibiotic resistance genes in municipal wastewater by chlorination, ultraviolet, and ozonation disinfection**

Y. Zhuang · H. Ren · J. Geng · Y. Zhang · Y. Zhang · L. Ding · K. Xu · 7037

**Applying land use regression model to estimate spatial variation of PM<sub>2.5</sub> in Beijing, China**

J. Wu · J. Li · J. Peng · W. Li · G. Xu · C. Dong · 7045

**Assessment of dermal absorption of DEET-containing insect repellent and oxybenzone-containing sunscreen using human urinary metabolites**

L.-M. Yiin · J.-N. Tian · C.-C. Hung · 7062

**A comprehensive study of the impact of polycyclic aromatic hydrocarbons (PAHs) contamination on salt marsh plants *Spartina alterniflora*: implication for plant-microbe interactions in phytoremediation**

Y. Hong · D. Liao · J. Chen · S. Khan · J. Su · H. Li · 7071

**Organic additives enhance Fenton treatment of nitrobenzene at near-neutral pH**

G. Xie · L. Zhou · W. Gao · Y. Li · 7082

**Bioaccumulation of dioxin-like PCBs and PBDEs by detritus-feeding fish in the Rio de la Plata estuary, Argentina**

N. Cappelletti · E. Speranza · L. Tatone · M. Astoviza · M.C. Migoya · J.C. Colombo · 7093

**Human exposure to mercury in artisanal small-scale gold mining areas of Kedougou region, Senegal, as a function of occupational activity and fish consumption**

B. Niane · S. Guédron · R. Moritz · C. Cosio · P.M. Ngom · N. Deverajan · H.R. Pfeifer · J. Poté · 7101

**Levels and risk factors of antimony contamination in human hair from an electronic waste recycling area, Guiyu, China**

Y. Huang · W. Ni · Y. Chen · X. Wang · J. Zhang · K. Wu · 7112

**Evaluation of arsenic trioxide genotoxicity in wheat seedlings using oxidative system and RAPD assays**

O. Aksakal · N. Esim · 7120

**Source analysis of global anthropogenic lead emissions: their quantities and species**

J. Liang · J. Mao · 7129

**Fuel nitrogen conversion and release of nitrogen oxides during coal gangue calcination**

Y. Zhang · X. Ge · L. Liu · X. Wang · Z. Zhang · 7139

**Utilizing heavy metal-laden water hyacinth biomass in vermicomposting**

N.N. Tereshchenko · E.E. Akimova · A.D. Pisarchuk · T.V. Yunusova · O.M. Minaeva · 7147

**Assessment of the quality of polluted areas based on the content of heavy metals in different organs of the grapevine (*Vitis vinifera*) cv Tamjanika**

S.Č. Alagić · S.B. Tošić · M.D. Dimitrijević · M.M. Antonijević · M.M. Nujkić · 7155

**A pilot study of indoor air quality in screen golf courses**

S.-J.N. Goung · J. Yang · Y.S. Kim · C.M. Lee · 7176

RESEARCH AND EDUCATION HIGHLIGHTS

**COST Action ES1403: New and Emerging challenges and opportunities in wastewater REUSE (NEREUS)**

D. Fatta-Kassinos · C. Manaia · T.U. Berendonk · E. Cytryn · J. Bayona · B. Chefetz · J. Slobodnik · N. Kreuzinger · L. Rizzo · S. Malato · L. Lundy · A. Ledin · 7183