



Water environment protection and contamination treatment

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Received: 6 August 2019 / Accepted: 16 August 2019 / Published online: 31 August 2019
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The present Special Issue (SI) of *Environmental Science and Pollution Research* (ESPR) highlights a selection of 14 peer reviewed papers on the topic related to environmental pollution, toxicity and risk assessment, environmental contaminant treatment, and sludge treatment technology that were formally presented at the **3rd International Conference on Water Resources and Environment** (WRE 2017, Qingdao, 26–29, June 2017). WRE is an annually held conference, which covers the topics of water resources management, water policies and planning, sustainability and water, water pollution, water and wastewater treatment, aquatic ecosystems, sustainable drainage, groundwater, and wetland systems. Since the first WRE conference debuted in 2015, Beijing, WRE conferences have been successfully held in Shanghai (2016), Qingdao (2017), Kaohsiung (2018), and Macau (2019) in the past five years (<http://www.wreconf.org/index.html>).

Although the articles included in this Special Issue of ESPR were based on which the authors originally presented at the WRE conference, their manuscripts may have been extensively revised after they have gone through the regular peer-review process. Overall, the publication quality and readability of the manuscripts have been improved by taking a rebuttal from responding the reviewers' comments. A brief introduction of these papers is as follows and the GE believes that the readers of ESPR will be interested in the research they highlighted:

- Using calcification responses of two branching hermatypic corals (*Pocillopora damicornis* and *Seriatopora*

caliendrum) to CO₂-driven ocean acidification, Zheng et al. (2018) suggested that reef corals with high calcification rates might be more susceptible to the enhanced dissolution of CO₂.

- Song and Song (2018) presents a study showing the migration and transformation of various forms of inorganic phosphorus in rainfall-runoff bioretention system consisting of soil infiltration medium (*Ophiopogon japonicus*).
- Wu and Wu (2018) derived theoretical formulae, accounting the influence of the lateral inhomogeneity of the river flow, for practitioners to characterize the geometry of the pollutant mixing zone in rivers and for water quality modeling.
- Pan et al. (2019) examined the effects of O₃ fumigation on the root and soil properties based on experiments of *Cinnamomum camphora* seedlings grown under O₃ treatments. They concluded that O₃ could decrease the root biomass and root tips, and ultimately changed the soil physical and chemical properties.
- Sunger et al. (2018) attempt to find out the level of consistency between the FIB (fecal indicator bacteria)-derived correlations and the total risks from six reference pathogens for recreational (swimming) exposure. Based on the results of quantitative microbial risk assessment approach, the total risk was found within the range of risk estimated by the FIB (Enterococci and *E. coli.*), with viral pathogens as dominant risk agents, followed by protozoan and bacterial pathogens.
- Using a series of toxicity interaction tests on common heavy metals to *Chlorella pyrenoidosa* in binary mixture systems, Mo et al. (2017) found systems with Ni-Fe, Ni-Pb, and Ni-Cr mixtures exhibiting an additive effect and systems with Ni-Zn and Ni-Cd mixtures at high concentration showing a synergistic effect.
- Shahab et al. (2018) investigated the geological and anthropogenic causes of arsenic (AS) contamination in groundwater and surface water and assessed their potential health risks in Sindh province, Pakistan. They suggested

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that majority of the sampling sites having high AS concentration pose a serious threat to public health, thereby demanding exigent remedial and management measures.

- Liu et al. (2017) demonstrate an integrated risk assessment and site investigation for groundwater contamination in a karst site under the construction of a fossil power plant. A modular three-dimensional multispecies transport model was used to predict groundwater contamination due to accidents.
- Lee et al. (2018) revealed that climate change mitigation/adaptation behavior in Yunlin County, Taiwan, was affected much by attitudes to climate change and perceptions of disaster risk based on the results obtained using a structural equation model.
- Based on the results of large enclosure experiments in a tropical mesotrophic reservoir, Peng et al. (2018) found that the flocculant consisting of red soil, chitosan, and FeCl₃ could significantly remove cyanobacterial biomass and reduce concentrations of nutrients.
- Ji et al. (2018) synthesized a novel composite, zero-valent iron-biochar-carrageenan microspheres, that could significantly enhance the reductive dechlorination of 1,1,1-TCA in aqueous solution.
- Yang et al. (2017) evaluated the impacts of biofouling on the removal of pharmaceutically active compounds (PhAC) by a commercially available nanofiltration membrane (NF 270). By inoculating live and dead *Pseudomonas aeruginosa* into artificial wastewater to achieve biofouling, they revealed that the build-up of higher cell counts and biofilm thickness, especially for the dead cells, led to an adverse impact on the retention of PhAC; however, the higher concentration of extracellular polymeric substances on the membrane surface in the later stage of biofouling resulted in an increase in PhAC retention.
- An innovative sludge pretreatment technology proposed by Mei et al. (2018) enable effective impurities removal from primary sludge using non-woven micromesh.
- Zhang and Li 2017 highlight the feature of low-organic-content sludge digestion, and explain its intrinsic mechanism of deterioration effect on energy recovery. The authors suggested the sludge with an organic content lower than 50% might not be feasibly to recover energy via mono digestion.

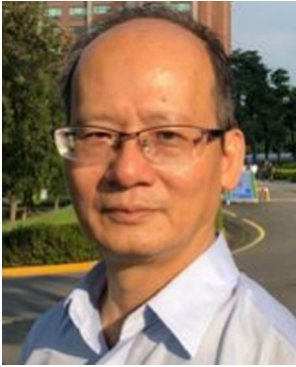
The GE of this SI is grateful to the Editor-in-Chief (Prof. Philippe Garrigues) and editors of ESPR (Prof. Bingcai Pan, Prof. Diane Purchase, Prof. Marcus Schulz, and Prof. Angeles Blanco) for handling the reviewing process, and the Editorial Assistant of ESPR, Ms. Fanny Creusot and Ms. Florence Delavaud, for providing the opportunity and assistances for publishing this Special Issue. A special appreciation goes to WRE2017

Conference Secretary, Ms. Mengqin Chen, for initiating the publication of Special Issue and communicating with ESPR editorial office. Last but not least, the GE thank all the reviewers for their advices and critical comments on the manuscripts, and all the authors contributing their works to this Special Issue.

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