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Surface functionalization and manipulation of mesoporous silica adsorbents for improved removal of pollutants: a review

Veronica B. Cashin, Daniel S. Eldridge, Aimin Yu* and Dongyuan Zhao

This review presents a broad overview of recent advances in the surface modification of mesoporous silica substrates for improved adsorption capacity and selectivity for both organic and inorganic wastewater pollutants.

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An odyssey of process and engineering trends in forward osmosis

I. Sreedhar,* Sneha Khaitan, Rajat Gupta, Benjaram M. Reddy and A. Venugopal

Forward osmosis as a water treatment option has been extensively studied in recent decades owing to its energy efficiency and enhanced performance.

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Influence of biochar thermal regeneration on sulfamethoxazole and dissolved organic matter adsorption

Benjamin G. Greiner,* Kyle K. Shimabuku
and R. Scott Summers

A simple semi-oxic heat treatment is shown to effectively (i) regenerate and (ii) enhance organic contaminant adsorption capacity when applied to (i) fouled and (ii) fresh biochar.

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Electrochemical lithium recovery and organic pollutant removal from industrial wastewater of a battery recycling plant

Seoni Kim, Jiye Kim, Seonghwan Kim, Jaehan Lee
and Jeyong Yoon*

A novel electrochemical system comprising λ -MnO₂ and BDD is proposed for simultaneous recovery of lithium and decomposition of organic pollutants.

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Mediation of effects of biofiltration on bacterial regrowth, *Legionella pneumophila*, and the microbial community structure under hot water plumbing conditions

Dongjuan Dai, Caitlin R. Proctor,* Krista Williams,
Marc A. Edwards and Amy Pruden

Biofiltration limits total bacterial growth but not *Legionella pneumophila* in hot water systems modified with various plumbing conditions.

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Independent validation and regulatory agency approval for high rate algal ponds to treat wastewater from rural communities

Howard J. Fallowfield,* Paul Young, Michael J. Taylor,
Neil Buchanan, Nancy Cromar, Alex Keegan
and Paul Monis

This is the first validation of a HRAP accepted by a regulatory agency and resulted in the system being incorporated into the South Australian Community Wastewater Management Scheme – as depicted.

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Application of cell-based bioassays to evaluate treatment efficacy of conventional and intensified treatment wetlands

Jaime Nivala, Peta A. Neale, Tobias Haasis, Stefanie Kahl, Maria König, Roland A. Müller, Thorsten Reemtsma, Rita Schlichting and Beate I. Escher*

Removal efficacy of treatment wetlands was assessed using a comprehensive bioassay test battery, with intensified wetlands found to remove 74–100% of biological activity.

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Occurrence and factors affecting the formation of trihalomethanes, haloacetonitriles and halonitromethanes in outdoor swimming pools treated with trichloroisocyanuric acid

Fang Yang, Zhaoguang Yang, Haipu Li,* Fangfang Jia and Ying Yang*

Occurrence and health risks of the title DBPs in outdoor swimming pools were identified and the influence of water parameters and pool management on their formation were discussed.

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Fate of endocrine disruptor compounds in an anaerobic membrane bioreactor (AnMBR) coupled to an activated sludge reactor

M. R. Abargues,* J. Ferrer, A. Bouzas and A. Seco

The occurrence and fate of three groups of micropollutants – alkylphenols, pentachlorophenol and hormones – were studied in a pilot plant consisting of an anaerobic membrane bioreactor (AnMBR) coupled to an activated sludge reactor (University of Cape Town configuration – UCT).

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Arsenic leaching from ceramic water filters

Michael V. Schaefer, Andrew Shantz, Scott Fendorf and Samantha C. Ying*

Rapid arsenic leaching from ceramic water purifiers poses a health risk, but can also mitigate arsenic exposure through controlled leaching.

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The mechanical scouring of bio-carriers improves phosphorus removal and mediates functional microbiomes in membrane bioreactors

Ronghua Xu, Zhongbo Zhou and Fangang Meng*

The mechanical scouring of bio-carriers greatly improved bacterial viability and the abundance of phosphate-accumulating organisms in bulk sludge, and thus largely enhanced P removal.

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The feasibility of char and bio-oil production from pyrolysis of pit latrine sludge

Tom Bond,* Queenie Tse, Clementine L. Chambon, Paul Fennell, Geoff D. Fowler, Benedict C. Krueger and Michael R. Templeton

Energy recovery from bio-oil was feasible when pit latrine sludge with a water content of $\leq \sim 55\%$ was the feedstock.

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Removal of carbon nanomaterials by co-precipitation with chitosan: a facile method for water pre-treatment

Tirto Soenaryo, Anatoly Zinchenko* and Shizuaki Murata

Co-precipitation of engineered nanomaterials (ENM) with chitosan provides efficient entrapment and removal technology for cleaning water of nanoscale matter.

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Anaerobic biodegradation and decolorization of a refractory acid dye by a forward osmosis membrane bioreactor

Fang Li, Qin Xia, Yingying Gao, Qianxun Cheng, Lián Ding, Bo Yang, Qing Tian, Chunyan Ma, Wolfgang Sand and Yanbiao Liu*

In this study, the feasibility of utilizing an anaerobic osmotic membrane bioreactor (OMBR) for the treatment of a refractory acid dye, *Lanaset red G.G.R.*, is demonstrated.

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Fluorescence quotient of excitation–emission matrices as a potential indicator of organic matter behavior in membrane bioreactors

Kang Xiao, Shuai Liang,* Aihua Xiao, Ting Lei, Jihua Tan, Xiaomao Wang and Xia Huang*

FQ highlights the difference between two EEMs of DOM from different units or under different conditions in a wastewater treatment process and may usefully reflect DOM behavior and fate.

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Rainwater harvesting solar pasteurization treatment systems for the provision of an alternative water source in peri-urban informal settlements

Brandon Reyneke, Thomas Eugene Cloete, Sehaam Khan and Wesaal Khan*

Solar pasteurization systems are able to reduce microbial contamination in rainwater to within drinking water guidelines and thereby provide households in informal settlements and rural areas with an alternative water source.

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Effect of elevated nitrate and sulfate concentrations on selenate removal by mesophilic anaerobic granular sludge bed reactors

Lea Chua Tan,* Yarlagadda V. Nancharaiiah, Eric D. van Hullebusch and Piet N. L. Lens

The molar ratio of NO_3^- and SO_4^{2-} to SeO_4^{2-} is a key factor in SeO_4^{2-} removal. A UASB reactor showed no inhibition of SeO_4^{2-} at high NO_3^- and SO_4^{2-} concentrations achieving 100% NO_3^- , 30% SO_4^{2-} and 80% total Se removal efficiencies.

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A pilot study of hybrid biological activated carbon (BAC) filtration-ultrafiltration process for water supply in rural areas: role of BAC pretreatment in alleviating membrane fouling

Fangshu Qu, Zhongsen Yan, Hao Wang, Xiaobo Wang, Heng Liang, Huarong Yu,* Junguo He and Guibai Li

For decentralized drinking water treatment in rural areas, a hybrid process of biological activated carbon (BAC) filtration and ultrafiltration (UF) was applied to obtain potable water.

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**Wastewater from hydraulic fracturing in the UK:
assessing the viability and cost of management**

M. C. O'Donnell,* S. M. V. Gilfillan, K. Edlmann
and C. I. McDermott

Mounds of salt recovered during treatment of wastewaters
from hydraulic fracturing in the USA.

CORRECTION

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Correction: Wastewater from hydraulic fracturing in the UK: assessing the viability and cost of management

M. C. O'Donnell,* S. M. V. Gilfillan, K. Edlmann and C. I. McDermott