FESE's Best Papers of 2020

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Frontiers of Environmental Science & Engineering is pleased to announce the best paper awards for 2020. In 2020, we published 106 research and review papers in Volume 14 of *FESE*. In order to acknowledge the past contributions and encourage more submissions, the *FESE* editorial board selected two distinguished research papers for their profound insights into current serious environmental issues or contributions to practical treatment technology. We hope these papers will inspire and promote innovation in the environmental science and engineering research field.

We summarized the main achievements of the two best papers of 2020 as follows:

Feng Zhu, Zhijian Yao, Wenliang Ji, Deye Liu, Hao Zhang, Aimin Li, Zongli Huo, Qing Zhou. An efficient resin for solid-phase extraction and determination by UPLCMS/MS of 44 pharmaceutical personal care products in environmental waters. *Front. Environ. Sci. Eng.* 2020, 14(3): 51. <https://doi.org/10.1007/s11783-020-1228-y>

Pharmaceuticals and personal care products (PPCPs), with diverse chemical and physical properties, low concentration, and hazardous potential, require highly efficient preconcentration methods for their detection. This study fabricated a novel hydrophilic resin (GCHM) for solid-phase extraction, and achieved an average absolute recovery of 75.6% for 44 PPCPs that belongs to 10 organic compound classes. Their technique was better than a popular commercially available technique. When they used GCHM to concentrate the samples before using ultra-performance liquid chromatography and tandem mass spectrometry, they found detection limits from 0.03 to 0.6 ng/L. Their method has already been successfully applied to determine low PPCP concentrations in diverse water samples that came from rivers, lakes, ground waters, and seas, implying their method has potential for measuring diverse and low concentrations of PPCPs.

Wei Fan, Qi Li, Mingxin Huo, Xiaoyu Wang, Shanshan Lin. Transport of bacterial cell (*E. coli*) from different recharge water resources in porous media during simulated artificial groundwater recharge. *Front. Environ. Sci. Eng.* 2020, 14(4): 63. <https://doi.org/10.1007/s11783-020-1242-0>

Artificial groundwater recharge (AGR) has significant benefits, such as preventing sea water intrusion in coastal regions, replenishing groundwater aquifers, and treating reclaimed water for reuse. However, the risk of contamination with pathogenic microorganisms is of particular concern. Taking *E. coli* as the representative indicator, their study was the first to establish that *E. coli* during the time spent in a recharge pond impacted transport behavior of *E. coli* through porous media. They used three recharge water matrices, namely, rainfall, river water, and secondary effluent. The authors found that *E. coli* transport in subsurface environments had the highest mobility when present in rainfall and lowest in secondary effluent. This study contributes to an improved understanding of *E. coli* transport in actual AGR scenarios and provides insights into the spreading risk for several recharge water sources.

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