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Editorial

Emerging Contaminants in Water: Detection, Treatment, and Regulation

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Contaminants of emerging concern in water are an ongoing challenge globally. This Special Issue is devoted solely to emerging contaminants in water, bringing together recent research findings from leading scientists and engineers. Emerging contaminants are naturally occurring, or synthetic chemicals or substances, recently detected or suspected to be present in water and whose toxicity or persistence pose some risk to human health or the environment. Contaminants of emerging concern are detected throughout the water cycle including surface waters, ground water, and effluents from wastewater treatment plants. The risks posed by their presence individually and as a mixture are not yet known. Significant attention is being given to developing analytical methods for their detection, evaluating treatment processes to remove them, and their regulation to limit human exposure.

Research papers in this special issue address a variety of emerging contaminants. Two studies address sampling and detection. Verlicchi and Ghirardini [1] investigate and compare the reliability of four different wastewater sampling techniques for pharmaceuticals and personal care products (PPCPs). Romero-Natale et al. [2] develop a spectrophotometric method for the determination of glyphosate based on complex formation between bis 5-phenyldipyrrinate of nickel (II) and the herbicide. The structure of this complex was elucidated.

Two studies address treatment topics. Murray and Örmeci's [3] report results of a bench treatment study on removal of microplastics and nanoplastics, Zbynek Hrkal et al. [4] conduct a two-year monitoring study of PPCPs at monthly intervals observing temporal changes in 81 substances in the source river and groundwater, evaluating bank infiltration and artificial recharge.

Two studies related to environmental waters are reported. Kubec et al. [5] evaluate possible effects of environmentally relevant concentrations (~1 μg L^{-1}) of two psychoactive compounds, venlafaxine and benzodiazepine oxazepam, on the behavior of freshwater crayfish. Putri et al. [6] applied multivariate statistical techniques and principal component analysis–multiple linear regression (PCA-MLR) to classify river pollution levels in Taiwan and identify possible pollution sources.

A review paper [7] completes this Special Issue examining the complex issues faced in developing regulations for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). PFOA and PFOS are receiving global attention due to their persistence in the environment through wastewater effluent discharges and past improper industrial waste disposal.

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and emerging contaminants in general. Thank you is also due to the MDPI Special Issue editors for their patience and persistence to make this special issue a success.

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