Low-Cost Materials for the Removal of Contaminants of Emerging Pollutants

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Opinion

Freshwater is a basic requirement for people and other living species, and having access to quality drinking water is critical for maintaining good health. Despite the fact that annual changes in global water demand and climate unpredictability are increasing, numerous types of contamination have harmed prospective water sources. In developing countries, pollution from contaminants of emerging concern (CEC), such as heavy metals and organic micro-pollutants, is a growing concern, as insufficient water and wastewater treatment, combined with increased industry, has resulted in severe deterioration of rivers, lakes, and ground water. Humans are exposed to infections or toxic chemicals from contaminated water resources when plants are irrigated with filthy water, poisons are consumed by aquatic species, or contaminated surface water is used for recreational purposes (e.g., swimming).

The impact of increasing pollution and industrial development is particularly problematic in developing countries, because these populations lack the necessary resources and systems for effective surface and groundwater remediation, as well as access to reliable water distribution systems that deliver treated water to their homes. Furthermore, due to the high costs of building and operation of treatment facilities, traditional methods for removing such pollutants from diverse water resources, such as membrane filtration, activated carbon adsorption, and electrocoagulation, would be impractical for developing nations. As a result, extensive research into the creation of low-cost materials is required in order to achieve high CEC removal efficiency at a low cost.

This Research Topic invites studies that look at recent developments in both experimental and modelling work on the development of low-cost materials for removing CEC from water and wastewater. The following key types of low-cost materials may be included: Agricultural waste, naturally occurring soil and mineral deposits, marine and terrestrial biomass, any locally accessible waste materials, and any additional items not listed elsewhere Articles on a variety of topics such as CEC destiny and transport, CEC toxicity in aquatic life, and opinions or reviews on the usefulness of low-cost materials for CEC removal are also encouraged.