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Co-occurrence of Geogenic, Microbial, and Anthropogenic Emerging Contaminants: Ecotoxicity and Relative Environmental Risks

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Abstract

Heavy metals, 1,4-dioxane, cyanotoxins, bacteria with antibiotic-resistant genes, pharmaceuticals, nanoparticles, and many more are listed as emerging contaminants due to their toxicity whether their origin is geogenic, microbial, or anthropogenic. These specific types of environmental impurities, at present, are excluded from regular scrutinizing programs but are potential nominees for future supervision and management subjected to their hazardous nature, community awareness, incidence, and depending on

the amount present in distinct environments. A chemical or an organism does not need to be novel to be grouped as an emerging contaminant. Primarily, these impurities had been in nature for decades, but their impact is being assessed only now. When these three types of pollutants coexist together the adverse impact they create on Mother Nature is enormous. With increasing population growth and with rapid urbanization, release of these contaminants gets accelerated and considered as a global issue. Due to their perseverance, in aquatic environments, they get accumulated in biota thereby contaminating the food web and humans and animals mostly get exposed through the food chain or by drinking the contaminated waters. This chapter focuses on emerging contaminants of geogenic, anthropogenic and microbial origin, their coexistence in the environment, ecotoxicity, and relative environmental risks.

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