

Drug contaminants in water and sustainable approach towards their degradation: a short review

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ABSTRACT

The presence of drugs has alarmed about the impending hostile effects of drugs on community health and the water ecosystem. The common sources for drug contamination in water are either from human consumption, their partial metabolization, and improper disposal of unused expired drugs. Besides, veterinaries, pharmaceutical plants, hospital wastes also contribute to water pollution. The other sources of drug pollution are dairies, animal husbandry, animal excreta, poultry, and community waste. The pharmaceutical waste can reach the freshwater, thus effecting the drinking water, which in turn can be lethal to the aquatic ecosystem. The drugs contaminating the water are necessary to be detected initially and controlled or eliminated accordingly. Ozonation and advanced oxidation processes have been effectively used to degrade different drugs. The metal nanoparticles as nanocatalyst can be effective in converting drug contaminants to less or non-harmful products via catalytic degradation. The eradication of drugs from contaminated water bodies by conventional management technologies has been extensively flourished but the sustainable degradation approach is highly encouraged. Based on the recent advances presented in the literature obtained from different search engines, we here in report the current scenario about the presence of drug contaminants in water, and various alternatives opted for degradation of drugs. Furthermore, the use of metal nanoparticles can add up new dimensions to control this challenging pollution.

Keywords: Drug degradation; Conventional management technologies; Ozonation; Oxidation; Metal nanoparticles; Catalyst

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